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Planning for Development Using

Social Impact Assessment (SIA)

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
Doctor of Philosophy

at
Lincoln University
by
Chiew-Ing Liew

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Abstract of a thesis submitted in partial fulfilment of the requirements for the Degree of Doctor of Philosophy

Abstract

Planning for Development Using Social Impact Assessment (SIA)

by

Chiew-Ing Liew

Rural economic development activities change the physical and social environments that individuals live in. For planners, it is important to anticipate the types of changes that might occur, and to put measures in place that mitigate negative impacts, and promote positive impacts on people and communities. Social Impact Assessment (SIA) was introduced as a tool for understanding the social impacts of development. There are two factors however, that limit the use of SIA. First, there is no specific theoretical underpinning of the SIA tool, and thus no link between the SIA tool and particular theories of social behaviour. Second, there is no particular link between what SIA measures and what should be done to mitigate the effects of development activities. The purpose of this thesis is to address these two issues and in doing so, provide a SIA tool that can usefully be applied in places with different background settings and in a wider context. The theoretical basis of the SIA’s framework used in the thesis is ANT-K theory, which is modified from the Actor Network Theory (ANT). The framework consists of five steps of analysis: identification of relevant actors (human and non-human) due to development; exploration of the ownership of resources (capital) that enables principle actors to change; identification of change agents attached to the capital of principal actors; tracing which interests of actors are aligned to deal with the development; and, an analysis of the social change platform (mobilisation of actors) based on connections of all principal actors with other actors and how social change occurs. Each of these steps provides the basis for determining what should be assessed in SIA, how to structure the assessment, and how to interpret the results of an SIA. The case study shows that the framework enhances the understanding of the way social impacts can be predicted by tracing and exploring the root causes of social change, and connections with change agents. The factors that positively affect the possible changes identified for an area can then be used to support development activities. In addition, factors that can negatively affect the outcomes of change, such as weak resources and services, can be identified and modified into potential useable capital for development.

Keywords: Social Impact Assessment (SIA), ANT-K, Actor-Network Theory (ANT), development impact, social impact
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Chapter 1
Introduction

1.1 Problem Statement of this Study

This study focuses on one of the least studied areas in Social Impact Assessment (SIA) – the methodological design for practising SIA and the relevance of theories of social change that underline the practise of SIA in studying development. Literature reviews indicate that past SIA studies provided useful information that help decision-makers design better development strategies that attain desirable outcomes, that avoid repeating cost and time consuming mistakes, and that minimise negative impacts (D. R. Becker, Harris, Nielsen, & McLaughlin, 2004; Esteves & Vanclay, 2009; Gårboan, 2005; Potter, Binns, Elliott, & Smith, 2008; Taylor & Burdge, 2004; Walker, 2010). These past studies discussed the principle, concept and methodology aspects of social impact (Vanclay, 2003a). The central goal of these studies was mainly to deal with the concern of decision-makers about the well-being of the affected people (Branch, Thompson, Creighton, & Hooper, 1982; Gerald, 2003; Rowan, 2009; Vanclay, 1999, 2002). However, most of these valuable studies are applied mainly to solve specific issues of development that happen in certain contexts, and less effort is based on a wider context (Vanclay, 2003a, 2003b). The scope covered in these studies was too general to explain exactly what might happen to people at different background settings and with a wider context (Vanclay, 2003b). This has reduced the reliability of these findings to be applied comprehensively by decision-makers for assessing all kinds of development.

It is only recently that more effort has been made to address the practice of SIA specifically to different background settings and with a wider context (Vanclay, 2003b). This effort contributes to the present SIA knowledge about the appropriate ways to conduct SIA in a wider context, but the theory behind the SIA practice is not well addressed in these fields. The scantiness of knowledge on specific theories that underpin the practise of SIA as a planning tool, did not provide sufficient suggestions for conducting SIA studies in places with different background settings and with a wider context. There is a dearth of effort in exploring the connections of the practise of SIA in studying development and social change.

In light of the motivation to transform the current SIA practice to a wider context, this study examines theories of social change, and comes out with an SIA theory that underpins the practise of SIA. Based on this SIA theory, a theoretical framework that underlines the methodological design for conducting SIA is developed in this study. In this chapter, I begin
with a discussion of the relevant issues of SIA and to introduce the background of the current SIA practise and its connections with developments. On top of that, a brief introduction to the SIA practise in Malaysia is given. Malaysia is used as an example of SIA practice as it is the location of a case study carried out for this study. Then, I proceed to look at the research questions and research objectives for the study. The objectives of the study then lead to an exploration of theories of social change and the connections with the practise of SIA, which is the focus of this study.

1.2 Relevant Issues of Social Impact Assessment (SIA)

1.2.1 Social Impact from Development

The word “development” means power to change and make a difference to lifestyles through intervention, transformation and enforcement (Sidaway, 2008). Development may be in the form of new programmes, plans, projects or policies, which affect people’s lives. It modifies people’s lives and creates new environments that people need to adapt to, and this further shapes their living and working conditions (Jamrozik, Boland, & Urquhart, 1995). Morse (2004) commented that development is a complex process that is directed by positive and negative driving forces. Economists linking development with economics refer to the term of “economic development” as a process of growth that makes positive changes from an economic perspective, and one which improves the condition of people’s lives (Chambers, 2005; Stern, Dethier, & Rogers, 2005). Each development activity creates a series of changes that affect the well-being of individuals and communities by changing the physical and social environments in which individuals and communities live. They face new social structures and new challenges, which require new social networks and functions in the society (Smithers, 2005; So, 1990). Changes lead to what we recognise as “social impacts” that individuals and communities face in responding to unfamiliar environments created by development.

In much of the debate about the effects of economic development, social impacts on the communities livelihoods becomes the topic of concern (Ravallion & Walle, 2008; Turner, 2004). Interested members of the public, such as decision-makers and developers, want to know what happens to people due to development (Potter et al., 2008). Are the development efforts creating changes they want and expect? Are the problems being targeted, that is, are problems such as poverty, unemployment and inequality, being solved? From an economics point of view, the initiative of development is to improve the well-being of people. However, development does not promise improvement or changes (Barrow, 2010). Cowen and Shenton (1996) commented that though the intention of development is to look forward to a positive
outcome, it does not happen in that way all the time. Setbacks or catastrophic failures might happen, and it might worsen the quality of life of individuals and communities affected by development (Chambers, 2005; Stern et al., 2005).

It is essential, therefore, that decision-makers know what kind of social impact might happen as a consequence of development, and which kinds of developments are positive or negative for different individuals or social institutions (Walker, 2010). The study of social impact is one way to find out what actually happens to people due to development, and to become aware of needs and changes that require attention (Esteves & Vanclay, 2009). This information helps decision-makers to design better development strategies that attain desirable outcomes, to avoid repeating mistakes, and to minimise negative impacts (Burdge, 1995; Gårboan, 2005; Potter et al., 2008). A development effort can become more meaningful if decision-makers think more about the social impact of development before any decisions are made. This especially applies to the affected individuals and communities, in places where limited resources are available for development. SIA could be the way to maximise the benefit gained from these valuable development efforts.

1.2.2 Overview of Social Impact Assessment (SIA) Practice

Social Impact Assessment (SIA) does not have any clear definition (Brouwer & Ek, 2004). The practice of SIA first emerged in the early 1970s in the USA as an applied environmental social science field due to increasing public concern about the issue of pollution and degradation of the natural environment (Gårboan, 2006; Ingersoll, 1990). Its purpose was to understand the social impact faced by people in the wake of nature resource development and environmental policy alternatives (Burdge, 2004b). The history of SIA began with the enforcement of the Environmental Impact Statement (EIS) by the United States when the National Environmental Policy Act (NEPA) was signed by then US President, Richard Nixon in 1969 (Burdge, 2004b). SIA was a follow-up response to the NEPA (Horst & Vermeylen, 2011; Murdock, Leistritz, Hamm, & Hwang, 1982).

Under NEPA requirements, the Bureau of Land Management in the US Department of the Interior submitted an EIS for the application for the Trans-Alaska pipeline permit in 1970 (Burdge, 1998a, 2004b). The first application submitted was turned down due to protests made by the Wilderness Society, the Friends of the Earth and the Environmental Defence Fund, who contended that many significant environment impacts were not addressed properly in the EIS submitted (Burdge, 2004b). The permit was issued three years later (Burdge, 2001) during the energy crisis period, when the US government had to intervene and fast-track the
process (Asselin & Parkins, 2009). However, the EIS report re-submitted for the second application for the Trans-Alaska pipeline permit did not satisfy the expectation of more coverage of social issues and was not accepted by local leaders as none of the social impact issues were addressed in this EIS report submitted for the second application. This case then led to more arguments about social impacts. The EIS was replaced by the implementation of the Environmental Impact Assessment (EIA). SIA was used as a specific social concept when the importance of the social dimension in development studies became apparent (Taylor, Bryan, & Goodrich, 2008). The term “SIA” was first used to address the relevant social matters in 1973 (Burde, 1998a).

In 1980, the application and implementation of the Environment Impact Assessment (EIA) and the Social Impact Assessment (SIA) became more accepted with the founding of the International Association for Impact Assessment (IAIA). IAIA provides an open discussion for researchers, practitioners and users of various types of impact assessment, including EIA and SIA, from all parts of the world (IAIA, 2010). Burdge (1998b) pointed out that the enhancement of SIA was seen in 1983 with the listing of socio-economic elements as a main compulsory study component under the EIA.

The next step was in 1986 with the decision to carry out globally, an EIA for every project appraisal process by the World Bank (Burde, 1998b). The World Bank also emphasised the enforcement of SIA more widely for development, by establishing a social development team in the early 1990s to deal with social issues and to highlight the importance of having SIA for planning development (Francis & Jacobs, 2001). Relatively, the need to have SIA conducted for developments was further promoted by this international shift; decision-makers put more value on the issue of well-being when assessing the worthiness of development. All these efforts made SIA resemble a performance appraisal and certificate for development (H. A. Becker, 2001).

Previously, many development projects were decided solely on the cost-benefit analysis showing balance between profit and loss from a financial perspective (Branch et al., 1982). Most of the time, economic justification was the main concern that affected decisions made for development. But starting from the early 1980’s, sustainable limit issues due to the impact of development raised public interest to incorporate social issues into the decision-making process for development. The well-being of people was seen as central for producing favourable development (Burde, 1995; Sairinen & Kumpulainen, 2006; Taylor et al., 2008).
SIA is becoming increasingly popular as an assessment tool in development, due to the
depletion of natural resources and degradation of the quality of ecosystems. This is due to
previous unhindered developments which significantly changed the quality of people’s lives
and created a series of negative social consequences (Taylor et al., 2008; Vanclay, 2003b).
SIA is a way to bring out the importance of having social elements incorporated into decision-
making processes to deal with the different social effects generated at each stage of
development (Buridge, 1987; Sairinen & Kumpulainen, 2006). These consequences interrupt
and change the normal way of human beings interacting with their surrounding environment
(Buridge, 1987; Wolf, 1983).

As a result, changes were seen in the way that decision-makers considered social factors such
as social capital ownership, capacity building, good governance, community engagement and
social inclusion for making decisions (Horst & Vermeylen, 2011). Such decisions can avoid
social conflicts that bring negative impacts to project developers as well as the affected
sometimes conflicts may be left unsolved by decision-makers due to political and strategic
reasons. But, at least a better development plan with mutual interests can be established for
the benefit of the affected people (Ip, 1990).

Rattle and Kwiatkowski (2003) pointed out that the accelerated growth of negative impacts
created by developments may deplete the available resources to deal with these impacts. The
decreasing of these limited resources may affect the life of future generations if the impacts
are not handled properly with appropriate actions. Such occurrences affect the quality of the
everyday lives of individuals and communities in an area affected by development (Bowles,
1981; Glasson & Cozens, 2011). With respect to this matter, SIA studies are used to ensure
development efforts are more ecologically, socio-culturally and economically sustained
(Buridge, 1995; Hindmarsh, 1990; Momtaz, 2005; Vanclay, 2003a). They are also used to
bring balanced developments that create equitable biophysical and human environments for
individuals and communities (Buridge, 1990).

More recently, the SIA practice is seen as a new way to create more opportunities that allow
the affected individuals to take part in the decision-making process and contribute to the
decisions made. As a result of SIA, individuals have a chance to voice what kinds of social
change they want from development, and are in a position to adapt to desirable outcomes
from development, rather than have to figure out the way to accept uncertain outcomes
(Lockie, Franetovich, Sharma, & Rolfe, 2008). SIA also fulfils an increasing public demand
for transparency and accountability in development efforts (Esterhuizen & Liebenberg, 2001).
Craig (1990) stated that local involvement in the SIA approach is more like a political approach to studying the social changes of people and their environment. The change from a ‘top-down’ to a ‘community-driven’ approach is proving to be more effective in gaining support for developments (Dasgupta & Beard, 2007). Public consultation and resolution of potential social conflicts among decision-makers and communities, using SIA at the early stages of development, provides a channel to facilitate public ability to deal with social impacts, together with those who have the power to decide (Esteves & Vanclay, 2009).

Though the greater involvement of the public in planning development may cause a delay in achieving decisions and rapid development, it is a rational way to conduct planning development, especially with reference to those who must accept changes (Rickson, Burdge, Hundloe, & McDonald, 1990; Rickson, Western, & Burdge, 1990). For instance, seminars or meetings are used to allow local people, representatives of developers, authorities, non-governmental organisations (NGOs) and assessors to meet and discuss problems of development and share their knowledge with others (Burdge, 1990).

The change of social practice shows that SIA is not only used to collect social impact information for decision-makers, but also helps them to look for suitable solutions to overcome social problems created by these impacts (Burdge, 1990; Henry, 1990). Communities, especially those which are marginalised from the mainstream of development, can then cope better with potential changes (Esteves & Vanclay, 2009).

1.2.3 Guidelines for Social Impact Assessment (SIA)

The purpose of having guidelines for Social Impact Assessment (SIA) was to guide the interested public to have a professional SIA conducted for development projects (Vanclay, 2006). The hope was that these guidelines would help decision-makers create a better development plan. The plan would take into consideration the predicted impact of developments and assess knowledge of how to help those affected people adapt to new environments created by those developments (Burdge et al., 1995).

1.2.3.1 The Original US Guidelines and Principles for SIA

The first US Guidelines and Principles promoted by IAIA was developed in 1993 by the Interorganizational Committee on Guidelines and Principles for SIA. The Committee was formed by a group of social scientists in 1992 (Burdge et al., 2003). As stated in the document, the study of SIA is seen as “efforts to assess or estimate, in advance, the social consequences that are likely to follow from specific policy actions (including programs, and the adoption of new policies), and specific government actions (including buildings, large
projects, and leasing large tracts of land for resource extraction), particularly in the context of the US National Environmental Policy Act of 1969 or “NEPA” (PL 91-190, 42 USC 4371 et seq.)” (Burdge et al., 1995, p. 12).

The principles suggested in the document discuss the rational way to plan a study framework and process, development stages, nature of development, variables and principles that need consideration for conducting a quality SIA study within the context of legal requirements of NEPA 1969 (Burdge et al., 1995). Under this document, nine principles were suggested to deal with proposed actions for development projects (Burdge et al., 2003).

The nine principles listed below are found in the document of the US’s Guidelines and Principles:

1. Involve the diverse public – identify and involve all potentially affected groups and individuals
2. Analyze impact equity – clearly identify who will win and who will lose and emphasize vulnerability of under-represented groups
3. Focus the assessment – deal with issues and public concerns that “really count”, not those that are “easy to count”
4. Identify methods and assumptions and define significance in advance – define how the SIA was conducted, what assumptions were used and how significance of impacts were selected
5. Provide feedback on social impacts to project planners – identify problems that could be solved with changes to the proposed action or alternatives
6. Use of SIA practitioners to do SIA: trained social scientists employing social science methods will provide the best results
7. Establish mitigation measures and monitoring – manage uncertainty by monitoring and mitigating adverse impacts
8. Identify appropriate data sources for SIA – use published scientific literature, secondary data and primary data from the affected area
9. Plan for gaps in data

Source: (Burdge et al., 1995, p. 35)
The principles are suggested to help the interested public find out the sources and implications of social impacts created by situation-specific case-by-case scenarios that deal with the specific needs of development efforts (Dreyer, Renn, Cope, & Frewer, 2010; Slootweg, Vanclay, & Schooten, 2001). The communitarian values that reflect local culture and norms found at the different places where the developments take place, affect the processes and outcomes of development (Arunachalam & Lawrence, 2010). Places in the same country may not necessarily be seeing the same changes (Riethmuller, 2003). But the trend of past, present and future social changes can be used to find out what might happen in the future due to development (Baines, McClintock, Taylor, & Buckenham, 2003; Barrow, 2000; H. A. Becker, 1997; Burdge & Johnson, 1998).

1.2.3.2 The New US and International Principles and Guidelines for SIA

In 2003, after 10 years of the Guidelines and Principles, two separate documents were developed to meet the needs of the US and International contexts (Burdge et al., 2003). Vanclay (2003b) commented that one of the reasons for revising the original document by the Interorganizational Committee on Guidelines and Principles for Social Impact Assessment was because the Committee was concerned about the imbalanced discussion coverage between negative impacts over positive impacts; therefore, SIA is perceived as a tool which only points to the bad side of developments and which neglects positive outcomes which some interested members of the public may be unaware of.

Consequently, the new US version of Principles and Guidelines for SIA and the international version of Principles and Guidelines for SIA were produced by the Committee. The new US Principles and Guidelines for SIA is more general than the original document produced in 1993. The ideas suggested are quite similar to the original US 1993 document, except that the discussion part related to legal mandates and administrative procedures and has been removed from the new document. The removal of the legal part made the document less attached to US legislation (Vanclay, 2006). However, the whole document is still focused on how to establish a high quality SIA study that meets the requirements of the NEPA 1969 (ICPG, 2004).

The original nine principles were reduced to six, and the focus of the targeted content to be dealt with was expanded to provide higher management scope of programs, plans and policies on top of projects (Burdge et al., 2003). The six principles listed in the document are:

1. Achieve extensive understanding of local and regional populations and settings to be affected by the proposed action, program or policy
2. Focus on the key elements of the human environment related to the proposed action, program or policy

3. The SIA is based upon sound and replicable scientific research concepts and methods

4. Provide quality information for use in decision-making

5. Ensure that any environmental justice issues are fully described and analysed

6. Undertake project, program or policy monitoring and evaluation and propose mitigation measures if needed

Source: (Burdge et al., 2003, p. 233)

As for the International’s Principles and Guidelines for SIA, a total of twelve SIA principles were drawn up as application benchmarks for any planned interventions to guide assessors in carrying out their work (Vanclay, 2003b). They are:

1. Equity considerations should be a fundamental element of impact assessment and of development planning

2. Many of the social impacts of planned interventions can be predicted

3. Planned interventions can be modified to reduce their negative social impacts and enhance their positive impacts

4. SIA should be an integral part of the development process, involved in all stages from inception to follow-up audit

5. There should be a focus on socially sustainable development, with SIA contributing to the determination of best development alternative(s) – SIA (and EIA) have more to offer than just being arbiters between economic benefits and social costs

6. In all planned interventions and their assessments, avenues should be developed to build the social and human capital of local communities and to strengthen democratic processes
7. In all planned interventions, but especially where there are unavoidable impacts, ways to turn impacted people into beneficiaries should be investigated.

8. The SIA must give due consideration to the alternatives of any planned intervention, but especially in cases when there are likely to be unavoidable impacts.

9. Full consideration should be given to the potential mitigation measures of social and environmental impacts, even where impacted communities may approve the planned intervention and where they may be regarded as beneficiaries.

10. Local knowledge and experience and acknowledgment of different local cultural values should be incorporated in any assessment.

11. There should be no use of violence, harassment, intimidation or undue force in connection with the assessment or implementation of a planned intervention.

12. Developmental processes that infringe the human rights of any section of society should not be accepted.

Source: (Vanclay, 2006, p. 12)

In the international version, the SIA study is defined as the “processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment” (Vanclay, 2003b, p. 6; 2006, p. 10). The definition shows that the International Principles and Guidelines for SIA embody a different concept of SIA compared to the US version. The US version ties the application of SIA to a regulatory context for social justice while this is not the case for the international version. The international version suggests that the application of SIA means a voluntary action showing the social and moral responsibilities of developers or investors to individuals and communities, and it is focused on large scale development (Tilt, Braun, & He, 2009; Vanclay, 2006).
Vanclay (2006) further commented that the scope of study addressed in the international SIA document is not only limited to any planned interventions but also addresses other social transformation processes created by its effects. The direction of SIA has shifted from preparing to reacting to shaping social changes created by any plans as the development process becomes more transparent (Franks, Fidler, Brereton, Vanclay, & Clark, 2009). In other words, the conduct of SIA gives the developer and the affected people a better position to create an outcome that they want from development. SIA is also playing a role to help the developer and the affected people deal with a particular outcome from development in a better way.

However, the US and International Principles and Guidelines for SIA carry the same conclusion about the importance of SIA for development by giving guidance and direction on carrying out a rational SIA study (Burdge et al., 2003; Burdge et al., 1995; Vanclay, 2003b). The SIA provides meaningful information and messages that can make changes to unforeseen development impacts, that decision-makers may regret (Burdge, 1987; Rickson, Western, et al., 1990), and ensures that developments will bring maximum benefits and minimal harm to those affected (Vanclay, 2003a).

1.2.4 The Social Impact Assessment (SIA) Model

The SIA model could be basically grouped under two main approaches: the technical and political approaches (Craig, 1990). As shown in Table 1.1, the technical approach of SIA is to answer the technical questions of development by presenting only descriptive socio-economic data of the past through the review of experts, while making little effort to involve the community in the study (Burdge, 2002). This kind of traditional SIA approach is normally conducted by assessors from various technical backgrounds such as engineers, environmentalists, geologists, economists and architects, who have less social knowledge (Burdge, 2004b). Craig (1990) stated that the technical approach SIA report leans more towards a descriptive style rather than an explanatory one.

Unlike the technical approach, the political approach places emphasis on local involvement when looking for the questions and answers for conducting a particular SIA study. The professional opinion of experts is used to look for the best ways that match the needs of the affected people with the outcomes of developments. This approach of SIA shows more effort for empowering communities by building close interactions and sharing information with the public. The political approach puts more weight on picking up the local values that capture connections of local-factors with social impacts happening in an area (Asselin & Parkins,
The political approach shows more concern for individual and community rights and social entitlements by sourcing and considering the feedback gained through active engagements with all interested members of the public (Ahmadvand, Karami, Zamani, & Vanclay, 2009; Momtaz, 2005), which Esteves and Vanclay (2009) argued is the appropriate way to conduct a SIA study.

Table 1.1 Comparison of Technical and Political Approaches of SIA.

<table>
<thead>
<tr>
<th>Technical Approach</th>
<th>Political Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Emphasis is placed on the product rather than the process of SIA.</td>
<td>• Emphasis is placed on community development and the decision-making process rather than product.</td>
</tr>
<tr>
<td>• It is influenced by the positive approach to social theory and theory of democracy.</td>
<td>• It is influenced by critical social theories and the developmental theories of democracy.</td>
</tr>
<tr>
<td>• The decision-making process is portrayed as being objective.</td>
<td>• The decision-making process is portrayed as being value laden and political in character.</td>
</tr>
<tr>
<td>• Scientific evidence is seen as being objective and determinative.</td>
<td>• Experts and scientific evidence are perceived to have some importance, but are not considered to be the ultimate considerations.</td>
</tr>
<tr>
<td>• Experts have a predominant role in decision making, and citizens are seen as “consumers” who are incapable of expressing ethical and practical concerns about the environment.</td>
<td></td>
</tr>
<tr>
<td>• It adopts the rationale of the industrial market society, with an emphasis on maximizing the quantity of commodities and efficiency in the production process.</td>
<td>• It adopts a critical view of industrial market society with its growth imperatives and focuses on alternative economic and social strategies that may evolve less exploitative values towards the environment.</td>
</tr>
<tr>
<td>• There is a faith in technology as a means of curing environmental problems.</td>
<td>• There is an emphasis on socially useful and socially directed technology.</td>
</tr>
<tr>
<td>• Issues in the decision-making process are primarily identified as project specific (low level) and often relate to design and mitigation of environmental effects.</td>
<td>• Issues in the decision-making process tend to be identified as higher-level planning issues such as project needs and alternatives as well as broad social strategies.</td>
</tr>
<tr>
<td>• The primary focus is on SIA methods rather than the “ends” or broader social policy issues.</td>
<td>• Conflict over social values is perceived as the reality in environmental controversies, and demands are made for them to be debated and determined in a democratic manner.</td>
</tr>
<tr>
<td></td>
<td>• Attention is given to the historical and cultural context of the SIA.</td>
</tr>
</tbody>
</table>

Source: (Craig, 1990, p. 44)

A comparison of these two approaches towards SIA shows that both approaches are able to provide the public with rich social knowledge about impacts of developments and give alternative solutions for developments (See Table 1.1). Rajaram and Das (2006) commented that the political approach is more favoured by the affected individuals and communities. The
reason is that the political approach allows them to actively take part in the process of deciding changes that are related to their living space and social life. As such, a more desirable outcome, that is closer to the interests of an individual or a collective group, can be achieved (Li, Liu, & Li, 2012). In addition, the efforts of assessors and decision-makers to use local and indigenous knowledge and expertise in an SIA study designed to identify social impacts and its value to individuals and communities, empower the local people to decide what is important to them in the future (D. R. Becker, Harris, McLaughlin, & Nielsen, 2003).

Between the technical and political approaches, it seems that the political approach is going to produce a more community-oriented decision for a development plan (Asselin & Parkins, 2009). In the political approach, the process and result of involving the public in SIA, produces a more accurate prediction of what kind of social situations and public reactions may occur when the actual development happens. The findings help assessors to determine whether a suitable project is being planned for individuals and communities, and whether the project is protecting the quality of the environment and the people’s lives from degradation (Nor, 1991). Understanding what might happen is essential because a better match between kinds of developments and coverage of individuals and communities involved, promises a better outcome and higher success rates for development (Burdge, 1990).

The consideration of more aggressive local inputs for SIA helps assessors to have a better understanding of the negotiation’s boundary between developers and the affected individuals or communities, which marks the area of tolerance for solving development issues (H. A. Becker, 1997). Such an outcome is more likely to produce a more favourable development that the affected people and developers could benefit the most from.

1.2.5 Overview of SIA Practice in Malaysia

Social Impact Assessment (SIA) is not a new topic to decision-makers who are involved in development studies in Malaysia. They know about the practice of SIA for planning development, but the lack of legal support had become the barrier for further involvement in SIA (Baines & Taylor, 2002). Most of the time, decision-makers, especially developers and planners, chose to carry out Environmental Impact Assessment (EIA) instead of SIA due to legal requirements (Baines & Taylor, 2002; Rashid, 2009).

EIA was legally enforced much earlier than SIA, since 1974, into all states of Malaysia through three separate institutions: Department of Environment (DOE), Environment Protection Department (EPD) and Natural Resources and Environment Board (NREB). Under the Environment Quality Act 1974 (EQA), a federal legal requirement, EIA was made
a mandatory exercise to manage environmental quality in Malaysia (DOE, 2012; EPD, 2010; Hassan, Osman, & Pudin, 2009; Memon, 2000; Mokhtar & Murad, 2010; Nor, 1991; NREB, 2011; Pudin, Tagi, & Periasamy, 2005).

However, not many scholars, especially those from other countries, are aware that EIA in Malaysia is under the auspices of the EPD and the NREB; as well as the DOE. EPD and NREB are two separate institutions under the states government of Malaysia, which the EPD and NREB was established under the state legal system of Sabah and Sarawak respectively (Pudin et al., 2005; Sidu, 2009). Journal articles by Baines and Taylor (2002), and Yahya M. Nor (1991), referred only to the DOE in their discussions of EIA in Malaysia.

As for the SIA, no specific institution was assigned to handle SIA practice until 2001 when SIA became officially recognised following the passing of an amendment to Section 21A of the Town and Country Planning Act 1976 (Act 172). This Act was introduced to Peninsular Malaysia through the Federal Department of Town and Country Planning (Rashid, 2009). The Federal Department of Town and Country Planning is a separate institution from DOE, EPD or NREB and it specifically deals with issues of land-use development. The Act states that “(1A) The State Authority may specify that the development proposal report submitted under subsection (1) in respect of certain categories of development shall include an analysis of the social implications of the development for the area which is the subject of the application for planning permission” (Amendment 2001, Act 172).

Act 172 applies to Peninsular Malaysia and come into operation in a State on a date appointed by the State Authority (Content of Act 172, 2006). The State Authority may appoint different dates for the coming into operation of this Act in different areas and parts of the State. The states of Sabah, Sarawak and the Federal Territory of Kuala Lumpur enforce their own sets of planning legislation. The Act requires SIA to be included in the submission for the application of planning permission from the National Physical Planning Council, under the Federal Department of Town and Country Planning. This requirement promotes SIA as a tool for studying social impact due to land-use development planning activities in Malaysia (Baines & Taylor, 2002).

Further progress of SIA in Peninsular Malaysia was seen with the establishment of the Malaysian Association of Social Impact Assessment (MSIA) in 2005. A group of SIA practitioners, consultants, government planners and academicians form the Association. The aims are to promote, strengthen and facilitate the practice of SIA in dealing with the issue of sustainable development (MSIA, 2011). However, the application of SIA in Malaysia was
still relatively low compared to the number of developments that took place in the last two decades (Baines & Taylor, 2002).

But now, decision-makers face greater social and environmental challenges. Previous work shows that development appears to change the lives of communities significantly (Chan, 2007; Langub, 2003); some development may just fail and be abandoned because of socio-economic conditions (Drummond & Taylor, 1997; Ichikawa, 2007). This kind of failure awakens decision-makers to the necessity of having a clear picture of the social consequences of development in Malaysia (Sidu, 2009). It is time for decision-makers to think more seriously about applying SIA as a planning tool for developments in Malaysia.

1.3 The Main Issues of SIA Practice

SIA has a short history, given that it was introduced about four decades ago. However, the idea of incorporating SIA as part of a development procedure is quite well accepted by decision-makers (Gårboan, 2006). Many international organisations believe that SIA has the potential to discover things relevant to affected individuals or communities. They see SIA as a useful tool for providing meaningful information that can assist funders to develop more successful development plans (Burdge, 2008; Gårboan, 2005; Vanclay, 2006). In addition, it is a way for international organisations to control the movement of their investments and development activities that are happening globally at different geographical locations (Gårboan, 2005; Hindmarsh, 1990). Mainly because of these reasons, various international donors such as: the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD), US Agency for International Development (USAID), the European Bank for Reconstruction and Development (EBRD), the World Bank, the United Nations Development Program (UNDP) and the Asian Development Bank (Ahmadvand et al., 2009; Gårboan, 2005; Momtaz, 2005), introduced the use of SIA to study their development activities. However, issues have arisen in the application of SIA under different background settings and in wider contexts.

The public, especially assessors and decision-makers, display little agreement on how best to use SIA as a planning tool for investigating social impacts. Some of them are sceptical about the concept of SIA, that was originally designed to solve specific issues that were dealing with a specific project. They questioned the idea of applying SIA as a tool, as it was originally designed for a specific situation and purpose, and responded to the needs and interests of people to protect individuals’ rights, especially rights related to property ownership (Barrow, 2010; Vanclay, 2006). This kind of SIA design was suitable in that
particular society context, but it may not be suitable or specific enough to identify, analyse and explain exactly what has happened to individuals and communities in other contexts (Hindmarsh, 1990).

Henry (1990) commented that scholars do see the potential of using SIA for planning developments, but they do not see the application of SIA as a useful and practical tool in the way that is accepted by the interested public in certain contexts. SIA presents some similarities in helping decision-makers to achieve development in different contexts. However, the method of conducting SIA does not fully consider local conditions found at different background settings (Burdge, 2004a). Due to different backgrounds in terms of social, cultural and political settings, the way to conduct SIA for each development case is unique (Gårboan, 2010). Barrow (2000) and Becker (2001) further commented that the application of SIA, needs additional adjustment to suit the specific local conditions which are different, in different background environments. As stated by Burdge (1990), the better the match between the kinds of developments and coverage of the needs of individuals and communities involved, the better the outcomes and the higher the success rates for development.

In developed or developing country contexts, SIA deals with the moral argument of equality of human rights that decision-makers face in dealing with the social impacts of development (H. A. Becker, 2001; Naya, 2002). In development, decision-makers have to deal with the issue of personal obligations among the rich and they also have to deal with the issue of personal rights among the poor. Ip (1990) added that SIA needs to place more emphasis on the fulfillment of the basic needs of a society, especially the rural community, which has a much lower standard of living.

Finsterbusch (1980) pointed out that SIA should examine impacts on individuals, communities and organisations from both cost and benefit perspectives. However, the SIA studies often focus more on investigation of the cost rather than the benefit of development (Schwartz & Eckhardt, 1985). For example, assessors carrying out SIA often want to find out what kinds of disadvantages developers face, and what kinds of bad things may happen and which things could bring harm to individuals if developments progress as planned. Consequently, the recommendations made by assessors is more to figure out how to deal with negative impacts (Esteves & Vanclay, 2009). In addition, the focus on the negative side of developments can be a source that creates new social conflict for decision-makers to deal with. For example, compensating for any social disturbances which result, may reinforce a
negative behaviour among individuals and communities seeking to extract more benefits from decision-makers (Esteves & Vanclay, 2009).

Francis and Jacobs (2001) agreed with the argument that positive impacts need more consideration in studying the social impact of development. They pointed out that SIA neglects the way to enhance, or at least promote the positive impacts of developments. In a wider context, the ability of SIA to address the positive impact of developments is essential to show the needs, and is the way to maintain and enhance benefits for individuals and communities (Schwartz & Eckhardt, 1985). Such SIA helps the public, especially the affected individuals and communities, to have a better understanding of developments from the positive side.

In assessing developments, it can be more important to think of the way to maximise positive outcomes rather than to minimise negative outcomes from a people-centred type of development that is subject to limited sources (Esteves & Vanclay, 2009). It can be a driving force that encourages people to become involved in developments, as the lack of local involvement is always a key factor that causes the failure of developments. People reject developments because they lack knowledge about the benefits of the development and its impact to them. However, if they have a better understanding of these issues, their willingness to accept developments will be higher and their readiness to face changes created by the development will be more prepared.

Some scholars also perceive that the current SIA practice does not suggest specific study frameworks and variables for investigating social impacts for various purposes (Vanclay, 2006). This makes decision-makers less confident and less interested in practicing SIA. Many SIA efforts were carried out to look for suitable social variables and indicators for assessing social impacts (Gårboan, 2005; Vanclay, 2003a). However, little concern was given to the matter of how to assess social impact; and what was needed was transferring the current SIA knowledge into a practical method for studying social impact, especially in a wider context (Gårboan, 2005; Vanclay, 2003a).

Scholars like Becker, Harris, McLaughlin and Nielsen (2003) and Schirmer (2011) commented that most of the past SIA studies had limited discussions of SIA’s methodological aspect, by listing possible actions with explanations for doing so, but giving insufficient specific guidance to help assessors identify social impact. Some common methods used for social assessments include qualitative statements, scoring models, multi-variate analyses, market-based comparisons and willingness-to-pay estimations (Esterhuizen & Liebenberg,
The relevant information for these methods was described in the past SIA studies, but no clear reason for using them was given in these studies. Burdge (2001) mentioned that the SIA studies which place less emphasis on ways to collect, analyse and interpret SIA data are not detailed enough to explain the link between the measures, and the specific meanings of these measurements for a study area. The weak connections between SIA methodology to relevant theories leads to unclear guidance for assessors to decide what and how to measure (Vanclay, 2003a). This raises the question of whether the social impacts identified are actually what happens to individuals and communities (Rose & Lopez, 2003).

Lane, Dale and Taylor (2001) claim that there is a lack of specific theoretical underpinning of the SIA tool, and thus there is no clear link between the SIA tool and particular theories of social behaviour. Studies may explain social impacts in general, but explaining the actual social change situations happening under specific local conditions or circumstances is unclear and/or absent (Vanclay, 2003b). The findings of these SIA studies do not reveal how specific social impacts are derived, and as such, are unable to assist assessors to carrying out adequate SIA, and show little explanation about its suitability for studying the social impact of development that happens in different settings within a wider community.

The absence of a specific theory makes it difficult to convince decision-makers about how important it is to consider social impacts and to consider SIA knowledge for planning developments. If we can provide a detailed discussion of SIA methodological design for studying social impacts, we could help assessors to have a better understanding of the logic behind the use of SIA for developments, and make SIA more acceptable as a tool for planning developments (Burdge, 2001). It may make a difference for the future application of SIA.

Rossouw and Malan (2007) commented that a clear theoretical framework as a foundation for carrying out studies related to social impacts, helps to bring out more holistic and meaningful results to explain the creation of social impacts and its relation to developments. Besides, a theory based SIA practice also helps to establish a uniform way to collect and to express data for SIA, and the presence of a tailor-made SIA practice simplifies the process of predicting social impacts (Olsen, Melber, & Merwin, 1981). This makes the SIA studies more easily conducted under different environments, and more able to be compared with other development studies.
1.4 Research Questions

This thesis is about the application of Social Impact Assessment (SIA) to investigate social impacts of developments. The research questions set for this study are:

1. Can Social Impact Assessment (SIA) tell what actually happens to people due to developments?

2. Can social impacts identified in SIA confidently tell decision-makers this is what will happen and what the social returns will be from their efforts?

1.5 Objectives of this Study

In responding to the research questions above, the purpose of this thesis is to identify a standard SIA practice that can be applied usefully and practically in a wider context. Three objectives were set for this thesis. There are:

1. To develop a theory for SIA that can underpin the practice of social impact assessment.

2. To develop an SIA theoretical framework that draws on the theoretical basis underpinning Objective 1; that is, linking the SIA theory developed in this thesis with an investigation process to identify social impacts.

3. To test the SIA theoretical framework developed for this thesis and to determine how easy the theoretical framework is to use (Objective 2), and its effectiveness in capturing measurable social impacts.

1.6 The Structure of this Thesis

This thesis has seven chapters in total. Chapter 1 reviews the problem statement, relevant issues of SIA, research questions and the objectives of the study. The relevant issues discussed in this chapter introduce what has been discussed so far by other scholars on Social Impact Assessment (SIA) topics that are related to this study.

Then, Chapter 2 discusses theories of social change that explain social actions, and the leading effects to people and their environments. This chapter discusses the issues of “What is social change?”, “Why is social change important?” and “How does it occur?”. The discussion in this chapter concludes with an SIA theory that was established to explain the connection between theories of social change and ideas of methodological design for SIA practice.
Chapter 3 presents a proposed new theoretical framework developed for this study. This framework has been developed from the SIA theory discussed in Chapter 2. The focus of this chapter is to discuss the way to use the framework for collecting, analysing and interpreting the data for an SIA study.

Chapter 4 and Chapter 5 discuss the case study in Malaysia that was conducted to test the feasibility of the framework suggested in this study. The case study was conducted in Beliong, a rural place in Sarawak, Malaysia. Chapter 4 presents information relating to the background settings of the case study site and also, the sources of data used for the study. The findings of the case study following Steps 1 to 5 of the framework are presented in Chapter 5.

Finally, Chapter 6 and Chapter 7 conclude with a summary of the case study and the work done for this thesis. Chapter 6 gives some ideas about what can be done to improve the current SIA practice and shows the significance of the study to others who are interested in the same topic in the future. The remainder of this thesis, Chapter 7 provides coverage of how the tool was developed and then applied by means of a case study conducted in Malaysia.

By the end of this thesis, it is intended that a new SIA framework as a planning tool for development will have been produced. The framework will summarise the process as to how social impacts are occurring from developments, and show what can be anticipated in responding to changes created due to these development efforts.

1.7 Chapter Summary

Chapter 1 tells the story of the whole thesis in brief. The first section of the chapter introduces the topic by introducing past studies about the practise of SIA, and stating its problems with current and relevant issues. This leads to the identification of the purpose and the specific objectives set for this thesis. The main content of the chapter discusses the role of SIA in development and the relevant issues of SIA; the relevant issues explain the importance of this study. Lastly, this Chapter 1 ends with an overview of the structure of this thesis, which gives the reader a sense of how the content of the study is organised in this thesis. This should serve to give the reader a clear picture of the thesis. In the next chapter, Chapter 2, I will discuss theories of social change, and relate these theories to the practise of SIA as a planning tool for developments. I will also explore how theories of social change can underpin the conduct of SIA and thus how the outcome of SIA can be related to the consequences of developments for social behaviour.
2.1 Introduction

The focus of this chapter is on the theory of social change and its connection to the practice of Social Impact Assessment (SIA). There are two main sections in this chapter. The first part of this chapter focuses on the concept of social change that describes and explains ‘actors’ of social change, their actions and associations. Various theories of social change are discussed in this section: “What is meant by social change”; “Why is social change important”; and “How does social change occur?” The second part of the chapter considers Actor-Network Theory (ANT), its ability to describe the issues related to social change, and how it could be modified to study the social impact of developments.

2.2 Social Change

Change is about the issue of transforming from an original form. The concept of social change covers the process of how a society, as an individual or a group of people, transforms over time and space. It is concerned with people and causes leading to social change. It is also concerned with other criteria that contribute to the occurrence of social change. Craib (1992) and Perrons (2004) saw the whole idea of social change as social evolution that transforms people from their original form into a new status and horizon (Noble, 2000). The process of social change makes people and communities become different.

2.2.1 The Idea of Social Change

Reviews of the literature show that the discussion of the process of social change can be grouped into four main evolutionary ideas which describe and explain what social change is. These ideas relate to the decline and degeneration of tradition, fall from an original state of grace, cyclic change phases of growth, and the continuous progress of the human population. A summary of these ideas with relevant authors is tabulated in Table 2.1.
Table 2.1 A Summary of Ideas of Social Change.

<table>
<thead>
<tr>
<th>Central Idea of Social Change</th>
<th>Reason for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Decline and degeneration of tradition</td>
<td>Social change occurs in line with the need to suit the changing perception towards tradition. There is a close tie between the direction of social change and the traditions of those involved.</td>
</tr>
<tr>
<td>▪ Seligman (1990)</td>
<td></td>
</tr>
<tr>
<td>▪ Sprain, Endres and Peterson (2009)</td>
<td></td>
</tr>
<tr>
<td>b) Fall from an original state of grace</td>
<td>Social change is creating a new elite society with different perceptions about the rules in a social system. The traditional thought of identifying people through social status, social class or social political system is no longer practical. Social change lets people have a fairer share in a society or nation.</td>
</tr>
<tr>
<td>▪ Boswell (1992)</td>
<td></td>
</tr>
<tr>
<td>▪ Jamrozik, Boland and Urquhart (1995)</td>
<td></td>
</tr>
<tr>
<td>▪ Roberts and Hite (2000)</td>
<td></td>
</tr>
<tr>
<td>▪ Heaphy (2007)</td>
<td></td>
</tr>
<tr>
<td>c) Cyclic change phases of growth</td>
<td>Social change is about the change of social life in responding to the process of development. People are changing in accordance with the condition of each phase of a development cycle.</td>
</tr>
<tr>
<td>▪ So (1990)</td>
<td></td>
</tr>
<tr>
<td>▪ Roberts and Hite (2000)</td>
<td></td>
</tr>
<tr>
<td>d) Continuous progress of the human population</td>
<td>Social change is the normal progressive change of the human population as time passes. People are changing in order to adapt to the changing environment.</td>
</tr>
<tr>
<td>▪ Arensberg and Niehoff (1979)</td>
<td></td>
</tr>
<tr>
<td>▪ Goody (2004)</td>
<td></td>
</tr>
<tr>
<td>▪ Heaphy (2007)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Own summary of suggestions about social change by different authors.

The first idea listed in Table 2.1 shows that authors like Seligman (1990) discuss the concept of social change from the perspective of the decline and degeneration of tradition. The idea links social change to the differences which exist among people who have different views about ideal tradition. Social change reflects the paradigm shift from a traditional society to a modern society (Seligman, 1990). Sprain, Endres and Peterson (2009) stated that the movement of the practice by each ethnic, social and national group, shapes the social change. Each ethnicity, society and nationality has a unique traditional core of interests, values, conflicts, attitudes, institutions, religion and identity (Jamrozik et al., 1995). People and communities are changing in response to social turbulence and moral turpitude issues that either affirm or are against their religious and traditional beliefs (So, 1990).
Secondly, some authors relate social change to the fall from an original state of grace. People and communities from all over the world are becoming more like one another as they proceed along the path of social change. Social change is contributing to the loss of differences among people and communities that come about because of social status (Boswell, 1992), social class (Roberts & Hite, 2000) and social groups or political organisations (Jamrozik et al., 1995). Social status, social class and social groups form the basic characteristics of social structure, and give people and communities the roles and positions in the social systems (Roberts & Hite, 2000). These social characteristics represent the political and social power to speak and act in accordance with communicative logic in a particular social system. These social characteristics are the fundamental principles of the formation and development of social behaviour, social relations and social institutions (Japp & Kusche, 2008).

Traditionally, there were clear differences in social status, social class and social groups among people and communities, which determine a person’s life chances to obtain resources and determine a person’s social position in their society. However, global modern society and institutions are concerned about equality (Heaphy, 2007). They raise public awareness of fairness and this causes people to worry about equal roles and positions for everyone despite issues such as gender, and marginal issues such as minority groups and poverty (Perrons, 2004). As a result, people are showing different behaviour and forming new social relations with others (Jamrozik et al., 1995). The social change happening is bringing the public away from the original mindset that different sectors of society can be treated inequally due to differences in social power which exist between and among different social classes, social status standings and social groups (Thomas & Veno, 1992).

The third idea of social change can be seen from the nature of development phases. Authors discuss the issue of social change as a process of development which has a starting point, and goes through a series of stages before it stops at the ending point: planning, implementation, operation, maintainance and abandoned stages. Hulme and Turner (1990) noted that development is mainly focusing on economic growth, but it also promotes political stability, which deals with human needs and wants for living. Development has a global pattern which is universally recognised as a standard way of conducting development efforts at regional and international levels (Wiarda, 1999). In a regional or international context, development is a continuous process that is moving people and communities from a primitive to an advanced stage of civilisation (So, 1990).

Development is cyclic with changing phases which are followed to achieve growth. The underdeveloped countries are looking forward to reaching development and “developed
country” status, and the developed countries are moving from modernisation towards
globalisation, which shows similar trends of change phases in general, but not specifically as
it is subject to local and indigenous factors (Roberts & Hite, 2000). Development happens at
different places and in different times and will therefore, not follow the same path of
urbanisation, industrialisation or modernisation of economic growth happening elsewhere
(Noble, 2000). Veno and Thomas (1992) mentioned that social change created under
different development environments will not show similar trends. However, whenever a new
development is taking place, people and things are going through the same change phases of
development, from traditional to more advanced states (Roberts & Hite, 2000). This cycle
shapes the complex pattern of social change.

Lastly, some authors discuss the issue of social change as a process of natural human
evolution occurrences. Heaphy (2007) stated that social change is the continuous progress of
human populations. People and communities are changing because of biological or physical
requirements (Arensberg & Niehoff, 1979). These requirements could be survival, or
materialistic or idealistic reasons for men or women, or poor or rich, or Western or Eastern, to
adapt themselves to life in a different era of human history. For example, men or women
might empower themselves with skills and knowledge because they want to gain social
recognition for rewards (Arensberg & Niehoff, 1979). The poor or the rich might compete for
money and power because they want to gain the ability to decide their life and progress in this
world (Craib, 1992). People from the west and east might control the supply and demand of
commodities because they want to gain benefits from the unequal world system (Noble,
2000). All these reasons motivate human populations to change and move forward to create a
new kind of social order which shows patterns of interactions and customs for individuals and
societies (Goody, 2004).

The four ideas of social change discussed above show that social change can happen
everywhere where a social system is found. People are changing due to the need to adapt to
the changing environment that exists in the social system that they are attached to. The
progress of social change is bringing the lives of people towards embodying a greater
influence of socialisation, emergence of collective norms, functionally democratic social
structures, non-violence, modernisation and towards the current state of globalisation (Roberts
2.2.2 The Study of Social Change

Many attempts in the past have been made to understand the course of social change (Leat, 2005). Over time, these efforts have been extended to the understanding of ways to predict or plan for changes, and to mitigate or enhance the effects of developments (Reeler, 2007). This raises the need to have suitable indicators for assessing social changes. Notwithstanding the many previous studies linked with social changes, most have not been able to find a comprehensive set of suitable indicators of social change due to labour, time and budget constraints. Reeler (2007) claimed that the pressures to gain financial benefits have led to the failure to the disclosing of real measurement values required by people. Thus, the studies of selecting the right indicators of change have been ignored most of the time. The measurements discussed above are about “hidden knowledge” or available local knowledge that is not correctly measured. Here, hidden knowledge refers to facts that outsiders don’t know if they are not told by local people, such as a local norm that is unique and different. To bridge this gap, it is necessary to explore the existing theories of social change that can clearly present the relationships between the factors and social changes seen in previous, present and future social transformation processes. From there, it will lead to a better understanding of the social indicators of social change. It also gives answers for the issue addressed in this study; social impacts on people due to rural economic developments.

A literature review shows that scholars have different opinions regarding the exact make-up of social change and how to accurately measure its leading effects. Basically, the question of social change is always linked to the relationships of the actors of social change, and their actions and associations. Early scholars linked the issue of social change solely to human actions – between people and their environments. Most of the theories of social change only discuss humans as players in the social world. Social change is seen to be due to human-centred activities like urbanisation or migration. However, social change is not a change that only occurs in societies just because of human actions. Social change happens for reasons that are not always related to human actions such as natural disasters or climate changes. People are changing because of non-human events such as earthquakes, tsunamis, volcanic eruptions, floods, landslides or hurricanes.

So, who is the one that performs an action and brings change to the area? Who or what else could be causing change if it is not a human cause? Thinking about a remote place like Antarctica, who could be the player causing the melting of ice sheets, the forming of dark meteorites or the forming of giant icebergs? Why are people willing to stay alone or in a very small social group at this place? If it is not because of humans, could it be the natural setting
that attracts them to stay there? Could it be the technology that enables them to do that? Or could it be some other things? These questions lead to new ideas of social change theories that link the issue of social changes to both human and non-human actions and their environments.

2.2.3 The Measurement of Social Change

A review of the literature shows that there are many theories explaining the concept of social change. This includes the causes and effects of social change and connections to human actions and lives in the past, present and future. The knowledge of social change theories is being put together by scholars from different backgrounds and from different social eras in the social map. Therefore, the understanding of social change today is accumulated from various theories addressed by scholars for various aspects of the phenomenon of social change (Noble, 2000).

Among all these theories of social change, no single theory can cover the whole spectrum of social change. Each theory has its own projection and this leads to explanations of the occurrences of social change (Noble, 2000). But, it seems that the arguments of these theories regarding ways of measuring social change are related to three main components: social actors, social structures and social actions. The theories discuss how social change is created in relation to social actors, social structures, social actions and its leading effect on the lives of individuals and communities in a social system.

According to Lin (2007), social actors, as individuals or collective groups, are the ones that contribute to social actions. The collective group promotes its collective-interests. In the meantime, these collective groups also influence other individuals with self-interests in the building up of social orders that affect day-to-day practical social routines. The routines refer to daily activities carried out by individuals or collective groups in their lives. The process of building up the social orders decides the kinds of social actions to be taken by an individual or a group of people (Cohen, 1989).

Social structure is a set of social positions owning different types and amounts of valued resources (class, status and authority), and the social and political power’s distribution rules to decide the usage of these resources by social actors (Lin, 2007). The resources and rules draw the continuous flow and manner of human actions under different social, economic and political contexts (Elliott, 2009). Lin (2007) added that social structure has a characteristic of hierarchy, which forms the macro-structure, meso-structure and micro-structure of society. The higher the position of an individual or collective group in the hierarchical structure, the
greater the power to access and control resources in the social system. Some scholars refer to these resources as capital stocks that give people security and satisfaction (Arensberg & Niehoff, 1979), reputation and status (Miller, 1992) and the opportunity to accumulate and dominate political power (Goody, 2004).

Based on the distribution of these resources, it affects the pattern of social actions seen in different nations and regions. These social actions show that people respond to changes of development, happening in their surrounding environment. Gabriel (1991) said that social change is like a reflection of real impacts created by development upon people as individuals and groups; it is not a social issue that only faces individuals but it applies to communities as well. Social change is not solely a personal matter; it is a transaction process and a result of modifications and adjustments of the social behaviour of a group of people in dealing with daily issues (Leat, 2005; Reeler, 2007).

The discussion above shows that the way to identify the occurrence of social change is by studying the accessibility, distribution and owning of resources (capital stocks) in a social structure. This capital determines the ability of social actors to act or respond to things that happen in the social system that they are attached to. To measure the ability of social actors, a possible solution is to find a way to trace the network that exists among social actors, capital stocks and social actions, and their relationships to social change. In the meantime, the findings also illustrate the logic behind the creation of social change. In this study, this is the specific aspect of social change, the way to measure social change due to development, that I am looking at.

### 2.2.4 Theories of Social Change

Russell (1995) believes that there are two things in this world that shape the earth and human nature: matter and mind. Matter is a more direct factor which creates limited changes while mind is a powerful factor that stimulates a series of complex changes. The results of interactions of matter can be seen obviously, while the effects of minds cannot be seen physically, but the impacts created are noticeable (Richards, 2000). These arguments give an idea that humans may change because of tangible (matter) or intangible (mind) factors. Hence, the issue of social change is explained by the combinations and interactions of these factors to the management of capital stocks that individuals and collective groups own.

From the review of several theories of social change, it seems that scholars debate that the social change topic evolved from the intrinsic reasons to the extrinsic reasons that motivate humans to change. First, theories of social change were related to personal reasons such as
basic needs, moral values, individual capital and learning issues. Here, all the explanations for social change are related to humans. As discussed in Section 2.2.2, the trend of studying social change has moved from using only human reasons, to non-human reasons that link people and their biophysical environment. This study trend of social change was shown by discussing social change from the aspect of collective reasons that result from social networks such as mutual interests, social supports and trusts. Three of the famous network theories that apply extensively to explain the relationships of social change with the dimension and structure of networks are: Social Network Theory, Social Capital Theory and Actor-Network Theory (ANT).

A further discussion of the general theoretical heritage of social change knowledge is presented in the following sub-section: early social change thinking and modern thinking about social change.

2.2.4.1 Early Social Change Theories: General Reasons for Human Change – Maslow’s Need Theory, Darwin Theory and Moral Theory

The early theories of social change discussed the basic reason that makes humans change, which is the need for humans to survive. Most of the time, “need” is used to motivate some intrinsic elements that act as a starter for humans to take action for survival (Doyal & Gough, 1991). The classical Dominant Theories (e.g. Maslow’s Need Theory and Darwinian Theory) argue that humankind as a social actor is changing for survival reasons. The five main factors that form basic needs are physiological needs, safety needs, needs of love and belongingness, needs for esteem and needs for self-actualisation (Doyal & Gough, 1991). The natural selection habit, which is a dominant factor, will lead humans to improve themselves in an unequal environment.

According to Frager (1987), Abraham Maslow suggested Maslow’s Need Theory in 1943. This inspired others to think about the basic needs of humankind: biological, emotional, cultural, economic and political-oriented. Maslow’s Need Theory suggests that human actors will put basic survival needs such as water, food and shelter as a starting point for changes in responding to others and their environment (Frager, 1987). Differing from Maslow’s Need Theory, the Darwin Theory that was originally biologically-oriented, was then developed into an era, in the early twentieth century, that addressed human change in a socially-oriented way to explain the selection choices made by humans for their actions (Castree, 2001). The Darwinian idea considered the way that humans’ making decisions, were affected by natural discourses accepted by others in a society. The beliefs, these natural discourses such as biological selection or social selection that affect human change, were leading the people
towards achieving a higher status or better conditions in one positive direction (Alexander, 1987).

The leading theories of social change discussed human change from the moral aspect. Strongman (2006) stated that after basic needs have been satisfied, the motivation for humans to change becomes even more complicated. It is no longer only grounded in bodily change; it is now additionally psychological. Here, the moral or ethical aspect of a human’s life is the key for seeking changes. Often, the majority of people from similar social backgrounds tend to view social issues in a similar way as their perceptions are affected by the social rules of their society. Social rules are moral benchmarks that have been formed and accepted by the people in a society. Therefore, they are motivated to follow the rules as a form of commitment. Such motivation for humans is discussed under Moral Theory.

The history of Moral Theory began with the idea of a good life due to happiness, as suggested by Aristotle (384-322 B.C.). From there, the discussion shifted to the topic of moral virtue affecting a person’s life, and the Moral Theory was then suggested. The Moral Theory explained that human actions in nature are based on social manners found in a society that influences human behaviour (McCord, 1996) and directs their lives intelligently and successfully (Wallace, 1996). Cahn and Markie (2006) described how moral virtue affects a person’s life. They are the habits of humans to learn from their environment and to use the experience gained from the learning process to stimulate their own actions.

In reviewing these three theories, it shows that Maslow’s Need Theory, the Darwin Theory and the Moral Theory only discussed needs, as humankind’s basic motivation to change, and no discussion of other aspects of the processes of human changes were provided. Natural selection thinking suggested by Darwinian Theory, addressed the way humans change in fulfilling their needs, while Maslow’s Need Theory or its related theories discussed the kinds of needs that motivate humans to change. Similar to Maslow’s Need Theory, the Moral Theory discussed the moral rule as a kind of need that motivates humans to change. The three theories above talked about the factors (basic needs, natural selection and moral rules) that guide the readiness of humans to change. However, none of these theories linked the discussion of the reasons for humans to change, to the discussion of ways for humans to change. These theories have a knowledge gap about other factors that determine the ability of humans to change.
2.2.4.2 Modern Social Change Theories: Ways for Human Change – Human Capital Theory, Knowledge Theory and Social Learning Theory

The knowledge-gap when discussing the ability of humans to change as seen in the early days of social change theories, was covered by other modern social change theories. The three main interconnected theories of social change that discuss the issue of human ability to change are: Human Capital Theory, Knowledge Theory and Social Learning Theory. These three theories link the intention of humans to change, with their ability to produce actions.

The Human Capital Theory explains the meaning of human capital and its relevance to the possibility of humans to change. The idea of human capital came from Adam Smith (1776), who studied how education and training impacts on individual performance. The theory was then officially announced by an economist called Theodore Schultz in 1960 (Blaug, 1976). Schultz used the Human Capital Theory to explain the connection of human capital and the investment phenomenon (Baron & Armstrong, 2007). Human capital is seen as an added value to humans and it significantly affects the ability of humans to perform. The OECD (2001) stated that the ability of humankind as a labour force can be measured in various forms that consist of knowledge, skills, attitudes, and other attributes which can reflect the innate capacities of humans.

All these attributes of human capital are forms of knowledge that build up the ability of humans to change. A further discussion on this issue was extended by the Knowledge Theory, which concerns three essential elements of knowledge: belief, truth and justification (Moser, Mulder, & Trout, 1998). The theory is all about justified true beliefs of humans. Humans need to ‘believe’ a thing in order to ‘know’ its existence. But before they want to qualify this thought as knowledge, humans need to understand the truth behind it. Humans say something is true by justifying the logic behind the reason given, and accept it as knowledge (Ayer, 1990; Bloor, 1991; Gettier, 1995; Morton, 1997). This knowledge is the power that humankind has, to generate actions, decisions and performances, which lead to change in humans’ lives from various perspectives (Hart, 2007; Lewis, 1990).

To gain this knowledge, learning is the process, as addressed by the Social Learning Theory. Bateson (1983) said that humans accumulate knowledge in a formal or informal learning process from birth. However, not all the process turns out to be useful for everyone. The process only will become meaningful if humans discover the nature of knowledge and the process to utilise this knowledge. The issue here is not only the matter of know-how, but it is also the matter of know-what and know-why that gives knowledge meaning to humans (Bateson, 1983; Boulding, 1983). Bandura (1977) stated that humans are not born with all forms of behaviour. They learn to behave automatically and unconsciously from personal
direct experiences and also others’ indirect experiences. The Social Learning Theory suggests that daily direct experiences through observation are one of the ways that individuals learn something new. Also, individuals digest the knowledge of others to discover the new knowledge that they need to improve their lives (Bandura, 1977). The learning process is not necessary to humans, but humans can only change or cope with change through the process (Glasser, 2007).

The three theories (Human Capital Theory, Knowledge Theory and Social Learning Theory) above discuss the possible reasons for humans to change. Human Capital Theory explains that the intention of humans to change relies on the capabilities of individuals while the other two theories (Knowledge Theory and Social Learning Theory) address the processes that affect the capabilities of individuals to change. No further discussion of other external factors that might affect a human’s capacity to change was provided.

**2.2.4.3 Recent Social Change Theories: Network Factors for Human Change – Social Network Theory, Social Capital Theory and Actor-Network Theory (ANT)**

Recent thinking about social change considers the effects of networks, which explain external factors for human change. Three of the major theories that applied extensively to explain the connection of networks of social actors, and social change, are: Social Network Theory, Social Capital Theory and Actor-Network Theory (ANT). Social Network Theory explains the way networks form and work in human lives. The idea of social networks, derived from the network thinking of social thought, discusses the role and connection of the human actor to the impact of social relationships (N. Scott, Baggio, & Cooper, 2008). Macarov (1988) and Brashears (2009) stated that social relationships are a network tool to gain social support, which is able to reinforce worldviews. The degree to which humans are connected to others in society tends to affect the views and satisfaction levels of humans on certain issues. Humans with the same beliefs have a stronger power to influence the way of thinking and behaviour of others within the networks. This tends to create a social movement that leads to social change (Hahn, Schultz, Folke, & Olsson, 2008; Yuan & Fei, 2010). Social Network Theory is good to discuss the social relationships as a medium to gain social support to or for humans to change, but it does not talk in detail about the result of social networks that enable a person to change individually.

The results of social networks in relation to human change were discussed in Social Capital Theory. Social Capital Theory looks at the structure of networks as resources accumulated and adopted by humans through daily interactions and connections with others based on trust.
This indicates that social capital does not exist if there is no sign of connections among humans through social networks (OECD, 2001; Onyx, 2005). Fukuyama (1995) stated that social capital is different to human capital as the social capital cannot be invested with money. Social capital is a matter of who a person knows while human capital is a matter of what a person knows. The social networks found between humans has the power to produce social capital in the form of services or products such as cooperation, norms and values (Cannone, 2009). The idea of social capital suggests that social capital is a power of voices that affect humans in making their decisions. The decisions tend to bring changes to the social structure of humans to be accepted and supported by others. Benn and Onyx (2005) mentioned that the bonding of social capital is seen as a source of symbolic power for a society. Similar to the Social Network Theory, Social Capital Theory also only addresses human factors that contribute to human change. Neither of these two theories examines other factors besides human ones that may affect the ability of humans to change.

With regard to the discussion on the non-human aspect, Actor-Network Theory (ANT) is one of the relevant theories of social change that discusses the way to trace the contribution of non-human factors to human change. Latour (2005) commented that the human is not the only social actor in this world. The non-human elements in fact also play a significant role in human change. He believed that both human and non-human elements have the ability to produce actions together or separately, and with continuity and discontinuity. They also produce actions that stimulate movements in a zigzag direction from human to non-human actors and further, transporting the actions via other actions (Latour, 2005). These actors are tied together with actions via a series of complex networks. Actions are seen as outcomes of their associations and as a result, these connections produce meanings for humans. The meanings created will then be used to link the actor with other actors that consist of human and non-human elements (Mützel, 2009).

The review of the three theories above shows that all these theories actually address the issue of social change from the same aspect of the reason for human change – the networks. Social Network Theory and Social Capital Theory mainly discuss the influence of society that affects human change. The content of both theories is quite similar – human types of networks and their input to social change. But, at some point, it seems that Social Network Theory is more like a theory that discusses the building processes of social network structure that enables humans to change, while Social Capital Theory is a theory that explains the results of social network structure on human change. Different from Social Network Theory or Social Capital
Theory, the ANT theory describes the network of social change from the perspective of human and non-human roles – human and non-human types of networks and their input to social change. It seems to me that the Social Network Theory and the Social Capital Theory only give explanations for partial things happening in human lives. The theories separate human life from the interruption of non-human elements. It is just like talking about whether or not humans can live without air or water. Anything that has happened in this world, according to these two theories, has nothing to do with non-human incidents such as tide cycles, disease infections, climate change, depletion of natural resources and technology failure. This kind of view – human life that is free from non-human elements – is impossible. Consequently, I believe that the discussion about human change and its leading social change issues has to picture human and non-human elements together in the same space. This also means that the measurement of social change has to be based on the investigation of human and non-human elements as actors of social change, which is why there is a need for this study which investigates relevant actors and local-factors in social change.

There are many other theories related to the issue of social change, beyond the theories discussed above. But these theories are not able to totally capture all the human and non-human actors and the processes of change that contribute to social change. In addition, most of the theories, as mentioned above, only explain the connections of human-type actors that lead to social change, and little is discussed about the non-human type of actors. There is no clear direction given on the way to identify actors of social change. Therefore, these theories cannot help much in establishing a strong analytical pathway, to trace and explore actors of social change and link their contributions to social change.

The ANT theory is the only theory discussed above which shows possible appropriate ways to study social change. There are other theories that could be investigated as they are not addressed in this study. The ANT theory gives guidance to identify actors of social change and describe associations of actors that lead to social change. Most importantly, ANT theory concerns both human and non-human elements as actors of social change. The theory suggests a way to put the relationships among and between human and other non-human factors, to describe human change, and its contribution to shape social change. The recognition of non-human elements as actors of social change is very useful for this study as I want to discover other local factors besides human factors that contribute to social change and thereby reflect the actual social impact of development.
2.2.4.4 Actor-Network Theory (ANT)

The ANT theory was introduced by Bruno Latour and Michel Callon in 1982. Latour (2005) said that “ANT has tried to render the social world as flat as possible in order to ensure that the establishment of any new link is clearly visible.” It attempted to see the world as flat, boundless in terms of places, times, and actors. Every actor was able to transform knowledge, and made a difference, with scales as the multiple for the differences (Latham & McCormack, 2010). Based on my interpretation of the theory, I have drawn a basic model of ANT theory (Figure 2.1) that links actors and their relevant associations in terms of actions, changes and impacts.

![Diagram of Actor-Network Theory (ANT)](source: My own interpretation of ANT Theory.)

Figure 2.1 A Basic Model of Actor-Network Theory (ANT).

As shown in Figure 2.1, human or non-human actors create actions that bring changes leading to impacts. There are two possible trends of generating changes by these actors. The first possible trend is that an actor starts an action and influences others to act similarly. As such, their actions and changes created tend to be interconnected. This kind of actor has the ability to lead the direction of change. The accumulation of these actions and changes will then lead to the same impacts. The second possible trend is that although an actor starts an action, others might or might not act similarly. Hence, the change and impact created may be different.
ANT Theory describes how human and non-human actors stimulate change in this world. Through the connections and interactions of these actors, it gives a picture of how things work together as a whole, combining the significant contributions of each actor (Guggenheim, 2010). Latour (2005) stated that the ANT Theory discovers the freedom of associations such as movements, displacements, transformations, translations and enrolments of not only human type actors, but also non-human type actors. Smith (2007), and M. Bryson, Crosby and K. Bryson (2009) added that the ANT Theory explores the connection of human and non-human components that form the social world. The theory links the actors and materials for a particular issue happening in the world to describe the influence of non-human actors on human actors and the reaction of human actors towards the existing non-human elements. ANT attempts to put the social world together by discovering contributions, actions and interactions of human and non-human actors.

2.3 Theories of Social Change in Social Impact Studies – with Focus on the ANT Theory

From the social impact study perspective, the issue posed to assessors or decision-makers by theories of social change is how to identify social impact. As mentioned in Section 2.2.3 regarding the measurement of social change, the knowledge of the creation of social change brings the knowledge of how to measure the social impacts of development. The understanding of social change is able to lead assessors to identify the reaction of individuals and communities to development activities (Gabriel, 1991). This indicates that the measurement of social change is a way to identify the social impacts of development.

With respect to this measurement issue, the review of the theories of social change shows that social change could be measured by understanding how social actors and social structures are contributing to the process of creating social actions and its leading effects on humans and the surrounding biophysical environment. But only ANT Theory can provide the step-by-step guidance needed to provide a clear picture of the factors that contribute to the process of social change. The theory suggests a systematic approach to identifying the role of actors in social change that contribute to social change. For the purposes of this study, this theory provides a solution for exploring the research questions raised in this study about development studies: the actual social impact of development and feedback for decision-makers on their efforts for the development.

ANT Theory uses the structure and function of networks that exist among people and their environments to describe the process of social change. The theory explains that there are two
types of networks in human lives that can be used to study social change. One is the homogenious network, which is relationships among human type actors; e.g. people establish friendships or kinships with others whom they know. This kind of network can also exist among non-human types of actors, e.g. landslides pollute river systems, forests retain rainwater runoff, water generates electricity, etc. The other is the heterogeneous network, which can be seen among human and non-human types of actors, and the reverse connections, e.g. people build roads with construction materials and roads provide access to and from for the people. The networks will then extend to the outside world via larger and more complex networks to form macro-networks.

However, it seems that ANT Theory only gives an idea on the way to trace social change. The theory does not suggest specific ways to focus on things when studying the social impact of development. Noble (2000) stated that social change is an experience that comes from social actors interacting among themselves, and with social structures that exist in a social system. The interactions of social actors and social structures then produce a series of social actions. As a result of these social actions, social change occurs. Due to the occurrence of social change, we see a different way of individuals and communities carrying out their daily activities. The ANT Theory can show the possible analytical pathways to trace the interactions and connections existing among social actors, social structures and social actions in the process of creating social change – how multiple relationships exist among actors, social structures and social actions, leading to the creation of a new environment; one which is different from the original state and condition (See Section 2.2.4.4 – The Actor-Network Theory (ANT)).

There is therefore a need to modify the existing ANT theory so that it can be used to study development in a more suitable way. We need to look for the connection that links the ANT Theory and the study of the SIA for planning development.


In the studying of social change that relates to the social impact of development studies, many scholars (Elliott, 2009; Lin, 2007; Noble, 2000; Perrons, 2004; Roberts & Hite, 2000; So, 1990) use various materials and ideal reasons to explain social change in a complex, risky and boundless environment of development. Past studies argued that the issue of social change is due to development from social, economic, political and cultural aspects (So, 1990). Scholars like So (1990), and Roberts and Hite (2000) suggest that the existing social change issue due
to development is related to the process of modernisation that changes human life in all aspects of living. The life of people is changing from traditional to modern lifestyles. Because a difference exists between their original standard of living and the modern life that they want from development, it has become a major factor that affects people’s reactions towards development (Perrons, 2004). Other factors that affect the way people react to developments are the inequalities and class conflicts that determine a person’s status in a society (Elliott, 2009). Noble (2000) explained that social status is a kind of social power that determines the ability of a person to contribute to development, and as such, it affects the creation of social change. It can be said that social status is a bridge that links the people to the whole process of social change due to development. Therefore, understanding the dimension of social status and its connection to people could provide information that helps assessors to identify patterns of social impacts of development.

According to Lin (2007), the social status of an individual or a group of people is represented by the ownership, or accessibility to, different types of capital stocks. The accumulation of these capital stocks is built on the size of social networks and the volume of economic, cultural and symbolic types of capital. The fundamental idea of capital referred to the economic or financial form of capital such as mass money or property (Lin, 2007). Besides the economic form of capital, there is a symbolic or intellectual form of capital, which exists in the realm of culture and education. Symbolic capital enables people to communicate and interact with others in a social structure, and create social orders in a social system (Bocock, 1992).

Together, economic capital and symbolic capital form the multiple linkages within social actors, hierarchical social structures and social networks through the capitalisation process (Lin, 2007). The linkages of capital give the reason why individuals or collective groups make certain decisions which contribute to the creation of social actions, or are the leading effect on social change. Becker (2003) mentioned that the study of social impact is an effort to predict the future behaviour of individual actors or corporate actors. This study is to find out what are the capital factors that cause people or communities to have such kinds of thinking and behaviour that motivate them to change. These capital factors (including the hidden ones such as traditional beliefs and social values) affect the behaviour of people and communities (H. A. Becker, 2003). At the same time, it also gives them decision-making choices that determine their future behaviour. These decision-making choices are the products of linkages, and social actors and social structures are the ones who have the power to control the process of forming the linkages (Rosberg, 2005).
The decisions made by social actors then determine their actions, which affect the possible social change patterns that lead to social impacts. In other words, the character of social actors and social structures, and types of networks that are likely to tie these actors and structures together in a series of linkages, form social actions and social relations, which contribute to social change. The pattern of social change created, reflects the actual social impacts which people and communities face.

The arguments above show that the study of the social impact of development could be carried out by investigating the mapping pattern of the capital of the actors, at the original state and at the potential state, in conjunction with development. This also means that “capital” is a connector that can be used to link the ANT Theory and the social impact of development studies. Based on this logic, I propose modifying the existing ANT Theory in accordance with the relationships of capital to social change, to produce a modified theory that is suited to the needs of studying social impact emphasised in this study.

In this study, this modified theory is called the “ANT-K” Theory as a possible way to study social impact.

2.5 ANT-K Theory as Applied to the Practice of Social Impact Assessment (SIA)

The ANT-K Theory uses the original idea of ANT Theory to trace the distribution of capital. This distribution pattern of capital indicates the contributions of the actors to social change and it explains the social impact of development more specifically based on the capital concept. In this way, the ANT-K Theory not only suggests a systematic analytical pathway to the study of social change, but the theory also illustrates what is important for measuring social change.

2.5.1 The Rule for Analysis

The ANT-K Theory suggests that both human and non-human elements are two different types of social actors that need to be considered when studying the issue of the social impact of development. This is because human and non-human types of actors are capable of stimulating change in this world (Latour, 2005). Because of the capability of change, actors can interact and connect with other, human or non-human, types of actors. Through interaction and connection, actors can work together as a whole to produce social change (Guggenheim, 2010).
Latour (2005) stated that the ANT Theory discovers the freedom of associations, such as movements, displacements, transformations, translations and enrolments, which determine the contribution of actors to change. The detailed discussion of these associations is as discussed under Section 2.2.4.4 (above) regarding ANT Theory. In addition, Smith (2007), and M. Bryson et al. (2009) commented that ANT Theory links humans and materials in relation to a particular issue happening in this world. It describes the reaction of humans towards non-human elements and the influence of non-human elements on humans. The theory attempts to put the social world together by discovering actions, contributions and interactions of human and non-human actors. Similarly, ANT-K Theory also uses the same principles of ANT Theory to describe the roles of actors and their associations that contribute to social change.

The only difference is that ANT-K Theory focuses on certain types of actors that are relevant to development studies. ANT Theory applies to all actors in general, but ANT-K Theory applies only to a smaller group of actors that have connections to social impact issues. By doing so, ANT-K Theory gives a clearer picture of objects to be studied for a Social Impact Assessment (SIA) study.

Scott and Cowley (1988) pointed out that though an individual is the one that initially stimulates all changes that happen to a person and a collective group, the individual is actually changing for personal and collective reasons related to the reward and punishment systems of human life (Homans, 1987). The impact of changes are seen on social, economic and environmental aspects of human life (Hart, 2007). It can be recognised from the observable changes of human beings (Fielding, 1988a), and their surrounding environment (Homans, 1987).

The observable changes of human beings are related to changes of individuals and collective groups on deciding what actions should be taken in responding to a changing environment, which is explained by the rational-choices of human behaviour (Homans, 1987). Individuals and collective groups of people tend to repeat similar actions in accordance with the results of the reward and punishment system from previous actions (Arensberg & Niehoff, 1979; Homans, 1987). As for the observable changes which can be noticed surrounding human beings, the changes pertain to changes of physical characteristics of non-human elements that exist in human environments (Homans, 1987), which have causal relationships to the natural stimuli or human actions (Braybrooke, 1996).
This indicates that the interchanging relationships of individuals, collective groups and environmental features from the socio-economic and physical dimensions of human life can inform the process of social change.

2.5.2 The Starter for Analysis

In this study, a starter for analysis refers to the first place that assessors can start to look for the data needed for a study. This is the place where the root of social change is found. In ANT Theory, an actor is the starter for all the changes happening in human life. Human and non-human types of actors play an equal role in transforming people. Both are the ones that begin the process of change and then create actions that may affect other humans or their environment (Latour, 2005).

ANT-K Theory shares the same principle for the SIA study – both human and non-human actors generate all the social changes that happen to individuals or communities, as suggested in the ANT Theory. Everything that happens in the social world starts from social actors; no individuals or social institutions means no social action (Rosberg, 2005). The capital knowledge explains the contribution of human actors to social change (Lin, 2007), while the network knowledge of actors describes the role of other non-human actors in social change (Dolwick, 2009; Latour, 2005; Schillmeier, 2010). For example, some scholars like Graciela and Delgado (2009), and Steen (2010) use non-human elements such as molecules, machines, logistics networks, technologies and buildings to discuss the connection of non-human elements to social change issues. It shows that besides humans, the non-human actor could be a target for discovering the possible starting point for an SIA study. Therefore, the starting point for an SIA study may either be an individual or a collective group of human and biophysical features.

Fielding (1988b) commented that the starting point for a social impact study depends on the motive for the study. With respect to this matter, there is no right or wrong answer. Both the individual and the social institution could be the study unit. There is, in fact, no clear gap between them (Noble, 2000). Individuals and social institutions have close relationships, which is implied by individuals’ actions (Abell, 1988; J. Scott & Cowley, 1988). However, there is a way to see whether a more suitable choice has been made in selecting the study unit (Fielding, 1988b): The study which begins from the individual perspective tells the story of social actions, while the study which begins from the social institution perspective discusses the issue related to social structuralism (Cetina, 1988).
Many scholars use social institutions as a starting point for discussing the nature of society (Noble, 2000). These kinds of sociological interest studies focus on the connection of human actors (people and social institutions) to explain a series of social change issues happening in human life such as social transformations (the process of human change), social trends (the pattern of human change) and global transformations (the process of global human change) (Elliott, 2009; Wolf, 1983). Some scholars use the individual as a starting point to study the issue of individualism (Fielding, 1988b). The purpose is to emphasise that the findings of a study are based on face-to-face interactions with individuals. Therefore, the findings describe human reactions to experience seen at individual level (Noble, 2000).

In the case of an SIA study that is investigating issues of social actions and social relationships between actors and within social structures, it seems that a study needs to be started at both individual and social institution levels at the same time. In addition, the study also needs to consider the position of non-human actors in deciding the starting point for a study, as discussed at the early part of this sub-section. This suggests that the ANT-K Theory needs to make some modifications to the original idea of ANT Theory. Instead of just considering both human and non-human actors as possible starting points for a study, the ANT-K Theory suggests that three main types of actors (individuals, social institutions and biophysical features) are the three starting points for an SIA study. The reason is that they have the same capacity to generate a new process of social change (Steen, 2010). Therefore, they are all equally important to be considered as a starting point for investigating social impact. This is in line with Lockie’s (2001) suggestion, which emphasised that a better way to start an SIA study is to use both human and non-human elements as co-starting points.

2.5.3 The Flow of an Analysis

The design of the flow of an analysis gives the picture of the sequence of steps for conducting a study. In the SIA study, this flow is a map that shows the way to capture all the data needed to explain the process of social change. Noble (2000) commented that all social change issues happening in this world are related to the existing social actors and social systems (social structures and social networks). This indicates that the connection of social actors and social systems with social change is able to guide the design of the flow of the analysis for an SIA study.

As presented in Figure 2.1, the basic model of ANT shows that the impact is a product created by actors through a series of actions and changes. In this study, the same connection idea of actors, actions, changes and impacts is applied to study the social impact of development. But
the ANT-K Theory suggests capital as the specific way to identify the possible connections found among them that may contribute to social change. Lin (2007) pointed out that actors interact among themselves to look for possible change agents to build connections. The interaction is a process that lets actors communicate their knowledge of matter and mind related to capital issues with other actors (Russell, 1995). This knowledge determines the capability of actors to response to change agents (Lewis, 1990). The knowledge also helps actors to justify the reasons to form connections with others (Ayer, 1990), and then understand the logic behind these connections (Bloor, 1991; Gettier, 1995; Morton, 1997). Richards (2000) commented that the effect of interactions of matter can be seen obviously, while the interaction effect of minds cannot be seen physically, but the impacts created are as noticeable as changes generated from the connections of actors.

Lin (2007) commented that human actors tend to form connections for two reasons: 1) to maintain existing capital stocks, or 2) to gain additional capital stocks. As for the non-human actors, e.g. natural or man-made features, the connections formed among themselves are due to: the effects of the earth’s natural systems, which are beyond human control; and the effects of human social systems, which depend on human actions (Braybrooke, 1996). It seems that the starting points for all controllable connections between actors are the same, and rooted in the hands of humans. This indicates that the connections formed among human actors can be used to investigate the occurrence of connections among human and non-human actors, both of which make up the whole social system that leads the process of social change (Craib, 1992).

To predict the occurrence of connections between actors, there are two aspects to be explored; both linked to the reasons for human actors to form connections, as discussed previously. First, connections among actors can be formed in order to maintain existing capital stocks that help to hold social positions in social structures (Lin, 2007). Individuals or collective groups tend to have relationships with others of the same social position who have similar interests and abilities, to help maintain and defend social power. These abilities refer to kinds of social power that actors have owing to their status, class or authority in a social structure and that also determine the reputation, wealth or power of human actors to act (Lin, 2007).

The second reason for forming connections is to gain access to capital stocks that belong to actors from different social positions. Individuals or collective groups at a lower level of social position tend to have connections with others in higher social positions in order to use their social power as a stepping stone to achieve additional capital stocks for themselves. Relatively, the connections help them to achieve a better social position with the help of other actors (Lin, 2007).
So, how do connections relate to human actions? Looking back at the earlier discussion of possible drivers for connections, interests and abilities are two keys that influence human actors in deciding whether or not to form any connections (Abell, 1988). *Interests* show what are the possible desirable results that actors are looking for through connections, while *abilities* show which of the possible social powers that actors are actually using to produce these desirable results. As stated before, abilities are related to the status, class and authority of individuals or collective groups in a social structure, and it is reflected in their social positions. These in turn are determined by their social, economic and political backgrounds in a social structure (Lin, 2007). Relatively, it indicates which aspects of social power actors are interested in using, to form connections, and what are the social, economic or political actions that may be taken by these actors.

Every action made by actors brings certain meanings and values that form part of the social arrangements. These actions fulfill the needs of humans for survival (Doyal & Gough, 1991). Actions are also a response to the psychological wants of humans for material reasons (Strongman, 2006). Both individuals and collective groups influence each other in producing social actions through communications and exercising their power (Burkitt, 1993). Lin (2007) commented that some actions are meant to overcome issues with a social aspect, while some deal with issues of an economic or political nature. The social rules set in a social structure are formal or informal standards that affect the behaviour and motives of human actors to act (Cahn & Markie, 2006; McCord, 1996). This suggests that social rules could be guidelines that affect the decisions of humans to determine the types of capital stocks to be used for creating actions or relations.

Cohen (1987) stated that social rules show the rights and obligations of individuals or collective groups in a social structure. Human actors use social rules to establish the meaning and value of appropriate ways to form connections with other actors and to take actions intelligently and successfully (Wallace, 1996). This includes decisions about actions that lead to the way in which non-human actors function and change (Braybrooke, 1996). As a result, these rules determine actions that bring values of social, economic and political opportunities or limitations for actors to achieve certain desirable social arrangements through possible change agents. These opportunities or limitations indicate what kinds of advantages or disadvantages actors hold in dealing with possible change agents. The opportunities or limitations also indicate gaps in actions that are needed for achieving a better result out of possible change agents in the future. In this context, “change agents” refers to social, economic and political chances available in a social structure to which actors are attached.
The argument above indicates that the design of the flow of analysis has to show the picture of how social actors have relied on capital to turn their connections with others into actions, changes, and the leading effects that shape the pattern of social impact.

2.5.4 The Indicator/Variable for Social Impact

For a Social Impact Assessment (SIA) study, the selection of indicators affects the effectiveness of methods used to measure social impact (Esterhuizen & Liebenberg, 2001). Ross (1990) commented that it is important to have suitable indicators that are able to effectively serve and represent people with specific backgrounds in order to measure their response to development. Ross added that another important aspect of selecting indicators for a particular study is the availability of the type of data needed for analysing the indicators used in different environments.

In this study, ANT-K Theory suggests the use of ‘capital’ as a reference that helps to select the type of suitable indicators for studying social impact. Cohen (1987) stated that capital refers to social and material resources that enable actors, social structures and social networks to make changes. Capital stocks exist in tangible and intangible forms. For example, tangible forms of capital stocks are things like money, market shares, bonds and properties while intangible forms could be values, norms, knowledge and attitudes. All are capital that facilitate the development of humankind (Maconachie & Sappey, 2011). It appears that the structure of capital, and its availability to actors, can indicate the contribution of actors to social change. The capital is like a driving force that motivates actors to take action and it gives power for actors to act. This shows that the identification of different types of capital stocks, and its representing value to actors, can show the possible indicators for studying social impact. The indicators also show what kind of data needs to be collected for an SIA study.

Cohen (1987) divided all the capital stocks for social change into two main categories: authoritative resources and allocative resources. The authoritative resources are capable of directing the reaction of human-type actors, while the allocative resources are capable of directing the reactions of non-human types of actors. An understanding of the distribution of these two categories of capital stocks, explains social orders in the lives of those who are affected by development, and it points to people and communities who are accountable for making potential social actions and social relations in responding to development. This information can be used to explain the predicted actual social impact people and communities face.
A summary of literature with regard to various types of ‘capital’ and their relevant possible indicators for studying social change, is tabulated in Table 2.2.

Table 2.2 Indicators for Capital Stocks.

<table>
<thead>
<tr>
<th>Actor</th>
<th>Type of Capital Stock</th>
<th>Indicator</th>
</tr>
</thead>
</table>
| 1. Human - Individual | Human Capital | ✓ Education and training background  
  ✓ Living experience  
  ✓ Working experience  
  ✓ Intelligence level |
|  | Cultural Capital  
  (includes physical capital) | ✓ Value or culture of schooling  
  ✓ Age  
  ✓ Gender  
  ✓ Race  
  ✓ Employment arrangement  
  ✓ Income |
| 2. Human - Collective groups | Social capital | ✓ Social trust  
  ✓ Social institution trust  
  ✓ Social norm  
  ✓ Social networks |
  (includes both single and group elements) | ✓ Natural resources  
  ✓ Natural services |
|  | Artificial capital  
  (includes both single and group elements) | ✓ Artificial products  
  ✓ Artificial services |

Source: Summary of discussion above.

As shown in Table 2.2, human and non-human actors are linked to different types of capital stocks. Human actors have human, cultural and social capital while non-human actors have biophysical capital stocks that consist of ecological capital and artificial capital such as electricity supply and air-conditioning supply. The form of connection between actors and their respective capital stocks gives individuals and collective groups the social power to affect the direction of changes through social actions and social relations.

2.5.4.1 Values for Human Capital, Cultural Capital and Social Capital

Generally, there are no clear rules for defining the types of capital. A review of literature shows that scholars used various types of capital to explain the response of humans to the
changing human environment. The common types of capital used by many economic scholars to discuss human life are human capital, cultural capital and social capital (Lin, 2007).

Baron defined human capital as “the knowledge, skills and experiences of individuals and also their willingness to share these attributes with the organization to create value” (2011, p. 30). Human capital is an added value that affects the behaviour and ability of humans to make changes to their lives via actions and relations produced by them (Baron, 2011; OECD, 2001). Scholars like Blaug (1976) and Lin (2007) suggest that this kind of added value can be measured according to the education level, training attendance and working experience of a person. Other scholars like Azarnert (2010a, 2010b) also include life experiences and abilities of thinking as alternative ways to measure the human capital of a person. Though there are other ways to measure human capital besides what has been discussed above, all measurements indicate innate capacities of a person that are mainly related to three characteristics of humans: knowledge, skills and attitudes. Taken together, the literature suggests that indicators for identifying and measuring human capital stock are education level, training, living experiences as a child and adult work experience.

The concept of cultural capital is quite similar to the concept of human capital; both concepts discuss the factors that affect an individual’s actions. However, the cultural capital only concerns the symbolic violence posed by the dominant class in a society, which normally reflects the value or culture of education that determines the status of a person in a society (Lin, 2007). Maconachie and Sappey (2011) added that some scholars also relate the concept of cultural capital to the physical capital of humans. These scholars suggest that physical capital is a cultural product formed through the social and physical creation of individuals. This physical capital refers to the nature of the human body (shape, size and functions), which determines the functional capability and physical appearance of an individual, that affects the social position of that individual in a social structure. Past studies show that age, employment arrangement (full-time, part-time or casual), income, race and gender are common indicators that can show the physical type of capital stocks owned by a person (Lin, 2007; Maconachie & Sappey, 2011).

As for social capital, authors like Baron (2011), OECD (2001) and Onyx (2005) suggested that this capital can only be derived from a network established among human actors. The network could provide links to bridge human and non-human types of actors with other types of capital. This potentially brings advantages, benefits and opportunities to them (Nisbet, 2007). However, ‘social capital’ cannot be seen as part of ‘human capital’ as it cannot be
gained via formal or informal education or training lessons (Fukuyama, 1995). It is rather the collective resources of individuals that builds via meaningful interactions with others, though it generates support to individuals (Lin, 2007). Scott, Baggio and Cooper (2008) pointed out that social relationships are a way for individual actors to gain social support; the degree to which an actor connecting to others affects the perception and satisfaction of individuals and collective groups on certain issues or decisions (Brashears, 2009; Macarov, 1988).

Literature reviews show that social capital can be defined in four different forms: social trust, social institutional trust, social norms and social networks. Many scholars like Fukuyama (1995), Herreros (2004) and Lewandowski (2006) relate the discussion of social capital in terms of social trust and social institutional trust. Other scholars like Nisbet (2007) use social norms and social networks to explain the meaning of social capital in social change. However, these four different forms of social capital only represent two different values of social capital. One holds the value of cognitive meaning (social trust, social institutional trust and social norms) while the other brings a value for the meaning of a structure (social networks) (Jones, Clark, & Tripidaki, 2012).

Canan and Hennessy (1982) argue that social capital results when a collective group of human actors reach mutual interests or beliefs about a preferred way of life. Because of these interests or beliefs, human actors share similar feelings about future life that influences the reaction of an individual or a collective group towards a changing environment (Cannone, 2009; Nisbet, 2007; Yuan & Fei, 2010). Human actors with similar interests or beliefs tend to act together in responding to an issue that concerns themselves and others. As a result of their action, it creates a social movement through various ways that exist in their relationships (Hahn et al., 2008). In addition, social capital creates a space for human actors from different levels in a hierarchical social structure, to communicate their interests. From the communication process, they accumulate social power to influence and be accepted by others (Benn & Onyx, 2005).

Lin (2007) stated that “social capital is identified when and if it works; the potential causal explanation of social capital can be captured only by its effect; or whether it is an investment depends on the return for a specific individual in a specific action” (p. 28). This statement suggests that a rational cognitive or structural reason that explains the forming of a connection between human actions and social activities can show the possible way to identify social capital stocks; to explore the pattern of social trust, social institutional trust, social norms and social networks, and the meaning of these capital stocks to the lives of collective groups studied.
The discussion above suggests that the measurement of human, cultural and social types of capital stocks can reflect the socio-economic characteristics and lifestyles of human actors that affect the response of individuals and communities to development.

2.5.4.2 Values for Biophysical Capital

Scholars from environmental and ecological disciplines believe that there is a material type of biophysical capital related to the development of humans (Bryant, 2001). This biophysical capital is derived from non-human actors, such as nature (Castree, 2001). Biophysical capital explains the reaction of humans to others and the changing environment by connecting to the use and production of nature (Anderson, 2001; Bryant, 2001). Biophysical capital was not discussed by scholars from an economic discipline because they could not accept that nature was more than a product of social construction accumulated from other human, cultural and/or social types of capital stocks (Castree, 2001). Bryant (2001) addressed this ‘biophysical’ capital as ‘ecological’ capital. Ecological capital can be identified in two forms: natural resources (e.g. biodiversity and natural heritage) and natural services (e.g. reservoir and rainforest) (Bryant, 2001). Ecological capital, known as biophysical capital in this thesis, is a media that connects nature to human life. It brings forth the value of endogenous knowledge that affects the way individuals or communities communicate with others who are from different cultural backgrounds (Swagemakers & Wiskerke, 2011). The concept of biophysical capital also completes ANT-K Theory that suggests an equal role for human and non-human elements when studying their contribution to social change.

Other scholars relate biophysical capital to the artificial world. For example, Smith, Thompson and Ellwood (2002) discuss the health issue related to artificial infant feeding products, which is believed to be one of the key factors causing increasing hospitalisation rates of infants and children. Stevens (2009) discusses the importance of artificial landscapes and geographical, climatological and hydrological features such as beaches, lagoons and rivers to human life, which then affects the physical experience of people. Another common issue mentioned by scholars in this advanced information technology era is artificial intelligence. This refers to artificial neural networks for managing knowledge assets (Metaxiotis, Ergazakis, Samouilidis, & Psarras, 2003). Artificial neural networks are a kind of simulation connection between the brain and nervous system which helps humans make decisions that require consideration from various aspects or huge databases, that are greater than a human’s limited capability (Kablan, 2009). These scholars’ discussions show that artificial capital products or services are another reason for individuals and collective groups to have certain thoughts and actions that affect social change.
2.5.5 The Target for an SIA Study

Everything that happens in this social world starts from social actors; no individual or social institution, means no social systems or social actions (Rosberg, 2005). Rickson, Western and Burdge (1990) pointed out that individuals, families (households), communities and organisations (including a number of different organisations ranging from business and industrial firms, government agencies and environmental associations, to neighbourhood groups) could be social actors targeted for studying social impact. This is a very common sample selection practice observed in past SIA studies. Most of the time, there is no suggestion of considering non-human types of social actors for an SIA study. Wolf (1983) referred to SIA as “people impacts” by explaining that SIA is all about human life. However, human life is not only mapped by human actors, but natural and artificial features too (Farías, 2010). Things like natural resources, land use patterns, infrastructure and technologies are examples of non-human features that make a difference to human life in this world.

Latour (2005) suggests that the term ‘actors’ refers to those agents who are capable of creating actions. The human and non-human actors are also able to adapt and make changes to other actors. They are parts of social orders that are detectable through decision-making networks. The social order is a series of interactions of actors in order to create actions (Rosberg, 2005; Schillmeier, 2010). In a social impact study, actors are justified as individuals or collective groups of actors who start a social action that affects social change (H. A. Becker, 1997). According to Rabel and Coulter (2004), social action determines how affected people and communities develop to interact with each other, to perceive and adapt to change. The result of the action shows the link of human life to physical elements, such as relationships among ecosystems, land, community interests and culture. The link gives an explanation for the connections that exist between the physical factors and social actions, that determine the reaction of humanity towards things happening in their surrounding environment (Burdge & Vanclay, 2004). On top of that, the link also assists an understanding of the bodies, minds and senses of human actors to become more visible by relating it to physical factors (Schillmeier, 2010).

Cohen (1989) pointed out that the social structure brings individuals and collective groups of social actors together in the same space, and they are bounded by certain linkages which affect their actions. For example, family linkages, friend linkages and community linkages may affect individual and community actions. In addition, these complex linkages are found at different levels of the structure, which exists in a pyramid hierarchical form that is location-oriented at the base, and is embedded on a set of capital stocks, social rules, authority and
positions (Lin, 2007). The unique characteristics of social structure shows the position of the actors. The occupying of social positions at differing levels in a hierarchical structure determines the reputation, wealth and power of actors that affects their decisions to act (Lin, 2007). The hierarchical structure cannot stand alone since all sources of social rules, capital stocks and authority come from social actors.

When development happens in an area, it points to the physical setting at the base of the relevant social structure, and as such, it shows the place of relevant actors affected by development. Relatively, the position of these actors in the hierarchical structure indicates possible networks to be formed between actors and development activities. These networks contribute to social relationships and social actions, which affect the potential social impact. It seems that the physical setting of the affected social structure and its hierarchical pyramid characteristic, can instruct where and how to identify all the relevant social actors suitable for studying the social impact of development in an SIA study. The data on this subject-matter gives information about possible change situations, change evidence and change impacts that are required for understanding social change, and linking it to the prediction of social impact in an SIA study (Lin, 2007).

This leads to the conclusion that there are four human and non-human types of social actors that have to be addressed in an SIA study: individuals, social institutions, natural (ecological) features and artificial features. The combinations of these actors helps to cover the entire number of social and physical factors that affect the reactions of people and communities towards a changing environment.

2.5.6 The Product of an Analysis

For an SIA study, it is important that the findings identified at the end of the study are able to be transformed into a useful product that can improve the decisions made for a development (see Objective 1, page 19). In this study, the analytical pathway is suggested in a way that is in line with the concept of the ANT-K Theory. The theory suggests using a combination of two aspects of the actors to investigate the issues of social impact. Firstly, it is the nature of actors-actions transformation processes that affect the way in which actors take actions. The second aspect is the nature of capital-value representing the social power that determines the ability of actors to create actions. Based on these two assumptions, the study provides the picture of the demand and supply conditions of actors dealing with the development. This gives an idea about the strengths and shortcomings of existing actors to handle the possible opportunities or weaknesses of the development. Therefore, it indicates the kinds of benefits
and disadvantages created for affected people, and the kinds of adjustments or improvements needed to overcome the conflict arising from matching the needs of actors with the development.

The indicators of the study show the impacts created by developments on individuals, social institutions and environmental features. The findings tell what may happen to the affected people and the developer if the original development plan is implemented. Homans (1987) commented that the normal ways in which people interact and connect with each other and their environment changes when new change elements are introduced to their lives. The changes generate impacts on social practices by transforming them from the traditional practices, to new ones adapting to new elements (Arensberg & Niehoff, 1979). The social practices depend on the types of changes and their value for personal and communal lifestyles (Wolsink, 1988). Consideration of the traditional and new values to deal with changes suggests possible ways for an individual or a collective group to get what they want from the development.

Abell (1988) said that social change is leading the effects of social actions that are individually or collectively manifested by internal and external changes of humans. These changes hold certain values that can be used to map the ability of actors with change agents (Cohen, 1987). Results of the successful mapping between actors and change agents are reflected in changes in the action systems, and the systems respective environments that form the whole world system (Münch, 1987). This indicates that if a social impact study can clearly show the possible mapping between the relationship of the social actor and the change agent of the development, the findings of such studies can provide guidelines to assist decision-makers to create a best-practice development plan that is acceptable to affected people as well as themselves. This guideline is the end product of an SIA study that can maximise benefits and minimise the disadvantages of developments (H. A. Becker, 1997; Burdge, 1995).

2.6 The Linkage of ANT-K Theory to its Practice in Reality

A theory is built based on epistemology, and the theory becomes useful when it is applied and then transfers the theory into reality (Bradshaw, Wood, & Williamson, 2001). Similarly, the ANT-K Theory suggested in this study only becomes valuable when it is used for investigating social impact, and the result is integrated into decisions made. The ANT-K Theory (that I have modified for this thesis) comes from various social change theories (See Section 2.5 for the details), which address social change from a number of perspectives.
As shown in Figure 2.2, theoretical framework and methodology are bridges that link the theory to real life. The flow that transfers ANT-K Theory into SIA knowledge enables assessors and decision-makers to understand the logic behind SIA results. To bridge the gap between theory and fact, a systematic research design is needed. This will address all the issues regarding the needs of real situations for an SIA study, for interest in a study, for formulation of types of questions, for production and analysis of data, for an explanation of the findings, for the generation and prediction of social impacts, and for production of SIA products (Bradshaw et al., 2001). In the next chapter, Chapter 3, I will discuss the transformation of the ANT-K Theory into a conceptual framework that can be used to study social impacts.

Source: Developed from the location of methodology in a scientific movement between reality and knowledge (Bradshaw et al., 2001, p. 72).

Figure 2.2 The Social Impact Assessment (SIA) Flowchart.
2.7 Chapter Summary

This chapter reviews theories of social change that describe the connections between causes and effects of changes that form the social world. The discussion of the theories then led to the identification of the Actor-Network Theory (ANT), as the basic theory that is more suitable for describing the study of social impact. The theory puts the world of human and non-human elements together by describing the nature of actors and their associations with the surrounding environment. Based on the main principle of ANT Theory, a modified ANT-K Theory is then developed for this study, to discover the way to explain how humanity and its material environment can work together as actors of social change. The modified theory suggests a process and structure for an analytical pathway that can be used to study social impacts.
Chapter 3
The Social Impact Assessment (SIA) Theoretical Framework and Methodology Design

3.1 Introduction
This chapter consists of three main sections which discuss the methodological aspect of a Social Impact Assessment (SIA) study. The first section presents a general discussion of existing SIA practice. In the second section, the coverage focuses on the new conceptual framework proposed for this study. It discusses the new research design and approach that has been developed in accordance with the ANT-K Theory (See Chapter 2). This includes the selection of respondents, the data required and analytical methods for studying social impacts. The last section of the chapter suggests the possible methods and techniques that can be used to operationalise the conceptual framework.

3.2 The Practice of Social Impact Assessment (SIA)
The challenge of developing an ideal theoretical framework for methodology design, in order to guide the conduct of SIA studies in a wider context, has become the fundamental question in this research. Literature reviews show that there has been a lack of effort in designing a best-suited SIA method that met the needs and interests of assessing social impacts internationally (Schirmer, 2011; Vanclay, 2003a, 2006), as well as nationally (Gârboan, 2005). This is the gap in current SIA knowledge that restricts SIA from being applied usefully and practically at different geographical development locations that are attached to the unique social, economic and political environments. With respect to this matter, a more coherent conceptual framework incorporating all the social, economic, political and environmental or physical aspects of human life, could provide a better measure of social impacts (Ross & McGee, 2006). Lee (2006) commented that ‘method’ is a bridge that links knowledge and practise in reality. With a better informed SIA method, which describes the logic behind the relationships among multiple aspects of human life, SIA can become a more valuable planning tool for development.

3.3 A General Idea about the SIA Framework
Rickson, Western and Burdge (1990) commented that the use of relevant social theory could assist assessors to decide appropriate actions to be taken for assessing developments. The theory gives a better idea of how to collect, analyse and interpret the data for the
developments studied. This suggests that it is necessary to explore theories of social change in order to determine what is required for an SIA investigation; and in order to address the reactions of the humans (perceptions and performances) in responding to changes that happen under different background settings.

Theory provides knowledge to find out and handle the truth (Lawrence, 1997). It is fundamental for designing an assessment framework where associations of context, process and method of assessment are considered (Lee, 2006). As shown in Figure 3.1, the original Common Assessment Framework by Lee (2006) is a simple triangular diagram that links (dual-direction) three main components of assessment together: assessment context, assessment method and assessment process. The assessment context is on top of the triangle, while assessment method and assessment process form the base of the triangle. This means that the assessment context is the core of the argument directing the assessment, which guides the assessment method and assessment process (Lee, 2006).

The social change theories can present a better understanding of the pattern of the consequential social impact that people and communities face at different background settings. In the meantime, it shows the usefulness of social impact information and the probability of using social impact information for managing developments. The social change theories guide the assessment framework by narrowing down and specifying the scope, the
steps and the method for conducting SIA studies at different geographical locations pertaining to the unique social, economic, political and environmental conditions of the location.

In this study, it is suggested that the SIA Common Assessment Model has three stages (See Figure 3.2). The model focuses on three main components of assessment: assessment scope, assessment step and assessment method, which respectively refers to the assessment context, assessment process and assessment method in Lee’s Common Assessment Framework. The Lee’s Framework is illustrated in Figure 3.1 above. Similar to Lee’s Framework, the assessment scope suggested in the SIA Common Assessment Model (refers to the ‘assessment context’ in Lee’s Framework) leads both the assessment step (refers to the ‘assessment process’ in Lee’s Framework) and the assessment method (refers to the ‘assessment method’ in Lee’s Framework). However, the assessment step poses a greater priority than the assessment method in the SIA Common Assessment Model (Figure 3.2). This is because the decision made at each step of assessment always leads to the selection of a method for the next step of assessment in an SIA study.

![The SIA Common Assessment Model](image)


Figure 3.2 The SIA Common Assessment Model.

In addition, the SIA Common Assessment Model suggested in this study is subjected to specific social, economic, political and environmental background characteristics found at
different geographical locations. This is not shown in Lee’s Framework. Many scholars suggest that background information on the specific development location is one of the key factors that needs to be considered when selecting the method of conducting SIA (Chamala, 1990; Okediji, 2011; Ross, 1990). The location defines what kind of SIA is suitable for investigating social impacts (Bradshaw et al., 2001).

Lee’s Framework leans more towards suggesting a shared common understanding of conducting general assessment (Lee, 2006). The SIA Common Assessment Model shown in Figure 3.2 gives a clear picture of the connections between the scope, step and method components of SIA, which determine the roles of each component in the SIA studies. This shows how social change theories could play their role in developing a specific theoretical framework for an SIA method.

### 3.4 Theoretical Framework for Methodological Design

In this research, the focus is to find out an appropriate way to predict and explain the actual social impact that individuals and communities face due to rural economic development. For that, a theoretical framework consisting of a five-step analytical pathway in accordance with the ANT-K Theory (Chapter 2) has been developed (See Figure 3.3).

The analytical steps suggested progress from the left to the right of the framework, and a feedback loop links the outcome of the last step to the first step, completing a cycle for an SIA study. The five steps are:

- Step 1: Identify relevant actors involved
- Step 2: Explore capital stocks that enable actors to react (perceive and perform)
- Step 3: Identify the connections of actors, social actions and change agents
- Step 4: Predict the effects of social actions on three types of changes
- Step 5: Predict the impacts of these changes on wider social changes
Figure 3.3  The Theoretical Framework for a Social Impact Assessment (SIA) Study.
The idea of the framework is to use Actor-Network Theories to track all the relevant social actors and their relevant actions, and identify the connections of the social actors, the actions and the effects that contribute to social change. This reflects the actual social impact happening over time and space, in accordance with the SIA theory suggested in Chapter 2. Actor-Network Theories are chosen to establish the core of the analytical pathway, as it guides the identification of actors in social change, and describes the associations between actors, which helps to give understanding to the roles of human and non-human elements in contributing to social change (Anderson, 2001). In addition, the theories provide a flat, analytical surface, that makes all the possible connections existing among actors of social change become visible (Latour, 2005).

The framework starts with the identification of the actors of social change. From there, the related connections between all possible contributions from human and non-human elements to social change, individually and collectively, are explored in order to identify the strengths and weaknesses of the actors in contributing to social change. Based on these outcomes, the reactions of individuals and communities in responding to a range of specific changes due to development activities are predicted, and eventually, a recommendation plan that is useful for decision-makers is established.

In order to identify the main contributor for each step of the framework, the feedback of 30 respondents from the case study area related to the relevant questions raised for each step, is used. Based on their responses, a summary analysis of the number of respondents who have given a similar answer for each issue raised in the interview, is then computed to find out the frequency. The frequency figure is then used to identify which ones are the main contributor for each step of the framework.

### 3.4.1 Identify relevant actors involved – Step 1

The purpose of Step 1 (See Table 3.1) is to trace the root of social change, which then points in the direction of the next step of the analytical pathway. With respect to this matter, individuals, social institutions and the environments that are formed of non-human elements, are suggested as three starting points for the framework. Three different starting points are used because each point has its own target that leads to different types of information.
<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Type of Data Needed</th>
<th>Data</th>
<th>Targeted Specific Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>- Identify all the relevant actors</td>
<td>- List of relevant actors</td>
<td>Primary data</td>
<td>✓ Potentially affected people</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Perception of research participants</td>
<td>✓ Potentially affected things</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Interpretation of assessors</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Secondary data</td>
<td>✓ Demographic record includes population profile</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Written documents (hardcopy)</td>
<td>✓ Social institution records</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Vision documents (softcopy)</td>
<td>✓ Topographical maps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Property ownership records</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Etc.</td>
</tr>
<tr>
<td>2</td>
<td>- Explore relevant capital stocks</td>
<td>- Types of capital stocks</td>
<td>Primary data</td>
<td>✓ Potentially relevant human capital stocks including culture and physical capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Perception of research participants</td>
<td>✓ Potentially relevant social capital stocks that related to groups of people and social institutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Interpretation of assessors</td>
<td>✓ Potentially relevant biophysical capital stocks that include natural and man-made capital in the area</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Secondary data</td>
<td>✓ Education or schooling patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Written documents (hardcopy)</td>
<td>✓ Population and health profiling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Vision documents (softcopy)</td>
<td>✓ Training or seminar records</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Living patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Working patterns and arrangements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Social activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Social networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Land use patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Infrastructure and facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Private and government projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ Etc.</td>
</tr>
</tbody>
</table>
As discussed in the SIA theory, a study which starts with individuals is aimed at obtaining information related to social actions, while the use of a social institution as a starting point is to understand issues of social structure. This information is important for understanding human factors that affect the behaviour of the individual and the community in responding to changes. The third starting point, a human’s biophysical environment, is needed to gather information of biophysical factors that contribute to social change.

Picking up information from different sources allows a flexible SIA practice that adjusts and adapts to the needs of the study environment. This is useful for studying social impacts where there are different background settings (Freudenburg, 1986).

3.4.2 Explore Capital Stocks that Enable Actors to React – Step 2

The second step of the framework (See Table 3.1), focuses on exploring the ability of actors to generate social actions. All the capital stocks attached to the different actors identified in Step 1 are explored and then the potential connections that affect the reactions of individuals and collective groups to changes, are identified. The three main types of capital stocks suggested for the framework are human capital, social capital and biophysical capital.

All these capital stocks are closely associated with each other through the various connections formed among actors. Each type of capital has a unique feature that determines the kind of contribution it makes to social change. In this framework, the specific indicators featuring different types of capital stocks, as suggested in the ANT-K Theory, are used for exploring and identifying the relevant kinds of capital stocks.

These indicators are:

- Human capital, which includes cultural capital and human physical capital: education and training backgrounds, living experiences, working experiences, intelligence levels, values or culture of schooling, age, gender, race, employment arrangements and income.

- Social capital, which includes social trust, social institution trust, social norms and social networks.

- Biophysical capital, which includes natural (ecological) capital and artificial capital: natural resources, natural services, artificial products and artificial services.

It is assumed that individuals and communities contribute both human capital and social capital, while the biophysical capital is supplied by Mother Earth or man-made activities.
3.4.3 Identify Connections of Actors, Social Actions & Change Agents – Step 3

The third step of the framework (See Table 3.2) has been developed to identify the possible connection that links actors, their actions and change agents to their surrounding environment. The change agents refer to specific opportunities or limitations created by the new environment which is being shaped by the development activities. In other words, the nature of the development determines the demand of capital stocks that can be supplied by actors in order to fulfil the opportunities and limitations created by the development activities.

The opportunities or limitations are determined by the change agent’s characteristics and it indicates the potential of any changes that may occur due to relevant actors’ actions in responding to change agents. Every opportunity and limitation created by change agents, brings certain values which reflect the function and importance of their existence to actors. The way in which actors respond to these change agents, depends on their access to capital stocks.

Three assumptions can be made about this matter, as suggested in the SIA theory:

- Only human-type actors are able to decide the way to deal with change agents, and affect the outcome of changes; the action related to non-human types of actors is controlled by man-made activities or natural phenomena.

- Social power determines actors’ accessibility to capital stocks, which affects their ability to handle the opportunities or limitations created by change agents, and the pattern of changes.

- Human actors with higher positions in a social structure will have stronger power that gives them advantages for dealing with change agents.

It is assumed that the changes brought by development projects which happen in background settings with rich capital stocks such as forest resources, social norms and properties, have stronger impacts on people and communities because those people and communities often have stronger relationships with their environment.
<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Type of Data Needed</th>
<th>Data</th>
<th>Targeted Specific Data</th>
</tr>
</thead>
</table>
| 3    | - Identify change agents | - The nature of development | Primary data  
- Perception of research participants  
- Interpretation of assessors | ✓ Potential connections of development activities with respect to demand and supply of the existing capital stocks and change agents |
|      |       | Secondary data  
- Written documents (hardcopy)  
- Vision documents (softcopy) | | ✓ Scale of development  
✓ Objectives of development  
✓ Development activities  
✓ Schedules and period of development  
✓ Etc. |
|      |       | - Existing social rules | Primary data  
- Perception of research participants  
- Interpretation of assessors | ✓ Potential connections of relevant social rules with respect to the way of manipulating capital stocks and change agents |
|      |       | Secondary data  
- Written documents (hardcopy)  
- Vision documents (softcopy) | | ✓ Official rules and regulations applying to the area  
✓ Unofficial local customs held by the local people and communities  
✓ Etc. |
| 4    | - Predict action effects | - Historical social, economic, political and environment backgrounds | Primary data  
- Perception of research participants  
- Interpretation of assessors | ✓ Potential contributions of historical backgrounds and the effects of actions |
|      |       | Secondary data  
- Written documents (hardcopy)  
- Vision documents (softcopy) | | ✓ Past social, economic, political and environmental conditions  
✓ Current social, economic, political and environmental conditions  
✓ Differences between past and current social, economic, political and environment background conditions  
✓ Etc. |
3.4.4 Predict Effects of Social Actions on Changes – Step 4

As suggested in the SIA theory, there are three main types of changes that could be generated due to social actions: individual change, collective change and environmental change. The changes in Step 4 (See Table 3.2), are built upon the matching of actors’ actions with the types of change agents identified in Step 3.

Individuals are predicted to create individual or personal changes while communities are predicted to create collective changes. Both types of change are related to human decisions on their behaviour and actions in dealing with personal issues or community issues. Changes seen in the environment are assumed to be the results of man-made activities or natural occurrences, and the outcomes lead to changes of the biophysical features in the surrounding human environment.

The combination of these three types of changes shapes the overall pattern of social change. As mentioned in Chapter 2, the indications of these changes may be derived from differences seen in the socio-economic and physical dimensions of humans’ lives and their environment.

3.4.5 Predict Change Impacts on People and the Community – Step 5

The analysis then leads to the last step of the framework, which is designed to trace the effect of social actions that respond to the change agents in Step 4. The last step of the framework (See Table 3.3), is designed to predict the potential impacts of changes, which will affect the social change happening in the development area. This social change reflects the actual social impact individuals and communities will face when responding to changes brought about by development activities. The prediction is done by establishing possible relationships between social changes identified at the early stage and potential social impact issues due to development activities.

3.4.6 Feedback Loop

Every framework system is completed by inputs, outputs and a feedback process that acts to adjust future connections of inputs and outputs in completing a new cycle of the system (Watkins, 1981). The same concept applies to this proposed framework, which requires a feedback loop to channel back the output into the framework system. In this case, the information gained from the prediction of the current social impact, is the output of the framework or feedback that tells what kinds of adjustments might be needed in the future. The meaning or value of this feedback can be transferred into suitable mitigation measures to minimise the negative impact and maximise the positive impact on people and their
environments. Besides that, the feedback also acts as a way to monitor the future changes of
different types of actors. This can help developers avoid the cost of correcting unforeseen
negative impacts from development, and save money in the long term (Burdge, 1987, 1990).

Table 3.3 Types of Data Needed for Step 5.

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Type of Data Needed</th>
<th>Data</th>
<th>Targeted Specific Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>- Predict change impacts</td>
<td>- More concerned social change issues</td>
<td>Primary data - Perception of research participants - Interpretation of assessors</td>
<td>✓ Potential key social change patterns ✓ Key concerns about social impact</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Secondary data - Written documents (hardcopy) - Vision documents (softcopy)</td>
<td>✓ Experience of social changes ✓ Perception of possible social changes ✓ Favourable social changes ✓ Etc.</td>
</tr>
</tbody>
</table>

The identification of actors’ abilities to react to changes at the early stage of analysis shows
the strengths and weaknesses of the actors involved in the study for dealing with changes.
This gives clues for assessors to find out which actors need assistance to adapt to the changes,
what kind of assistance is needed to achieve desirable change results, and how to encourage
actors to take part in order to improve the social impact created by the current development,
as well as accumulated impacts from past developments (Freudenburg, 1986).

In addition, the feedback from early studies done in accordance with the suggested
framework, accumulates experiences that help assessors to find out the best-suited way of
using the same framework for assessing social impacts happening under similar and different
circumstances. The feedback gives the assessors relevant knowledge of the current study’s
performance, and this helps them figure out what kind of adjustment or modification will be
needed if the same framework is used again in the future. This is possible because the
feedback alerts assessors to the advantages and disadvantages of the framework, and this
determines the capability and suitability of using the framework for studying social impacts.
3.5 Methods and Techniques

The framework needs both qualitative and quantitative approaches to transfer the idea of five analytical steps into a series of practical investigation actions for an SIA study. The two main actions required are to collect relevant data, and then through analysis, transform the data into meaningful information for predicting the social impact that individuals and communities face due to rural economic development. Different methods and techniques are suggested depending on their suitability for serving different purposes (Lee, 2006). The discussion of the way to select suitable methods and techniques is presented in the following two main sections: production of data, and analysis of data.

3.5.1 Production of Data

In an SIA study, it is important to produce data that is trusted by the interested public, in order to gain their support and acceptance of the SIA findings and recommendations for the particular development being studied (Esteves & Vanclay, 2009). To produce such data, the key is to allow interested members of the public, especially those impacted, marginalised individuals and communities, to be involved actively in an SIA study. By doing so, the interested public become aware of, and understand, what is actually going on with the study, and where all the data used for the study comes from. On top of that, the predictions made are closer to the needs of those who are affected and help them to cope with changes created by the development.

Craig (1990) described this kind of SIA practice as a political approach that emphasises local involvement. This is believed to be a more favourable way for producing SIA data that meets the needs of societies today. Local involvement provides information about social rules that can be used to link the actions of people and communities with their existing environment in a more coherent way. This shows the reason why developments that happen at different locations may face different responses from the affected people and communities. This links the action system with its respective local operating environment that consists of other organic, physico-chemical and telic systems (Münch, 1987).

Considering this information, the practice of using a political approach is incorporated into the methods and techniques suggested for conducting the SIA survey in this research whenever possible.
3.5.1.1 Types of Data Needed

Schirmer (2011) commented that the base level of the methodology for the SIA study is to compare the social situation of the impacted people with others, either in the same situation or unaffected from one state to another, which happens at different scales, times and locations of developments. In other words, the main task is to find out what happened to people in the past and present, and use the understanding of the baseline conditions to study what might happen to them in the future both without and with development. The differences found between the expected social situations without development, and the predicted social situations with development, shows the potential trend of social impact (Olsen et al., 1981). This indicates that the types of data needed for an SIA study consist of a range of data that can be used to present the baseline conditions of the actors, the social structure and its respective biophysical environments, and that can be manipulated for determining the predicted future conditions.

According to the theoretical framework, an SIA study needs to collect specific data for each step of the analytical path. On the first step, the task is to identify all the relevant actors for social change that are affected by the development being studied. As suggested in the framework, these actors are the starting points for an SIA study, and they could be grouped under three main components: individuals, social institutions and environmental features. These three starting points suggest three types of actors: individual actors, social institutional actors and biophysical feature actors. Each type of actor has its own specific type of change ability. This ability has connections with social actions, indicating the potential contribution of the relevant actors to social change.

The data needed for this step is the background information on the potential actors that are likely to contribute to social change due to the development; the existing population background and its biophysical settings could provide such information. For example, the rural economic development of a new township that creates new infrastructure, facilities, road networks, jobs and economic opportunities might change the common way of interacting and connecting within, and among, individuals, social institutions and its environmental features. The way to find out the relevant targeted actor is by answering questions about who are the people and items that might change in reaction to the newly developed environment.

Could it be Individual A, who used to be a farmer, finding another job in the new township? Or perhaps Community A, whose members used to be relaxed about their safety, but are now, starting to worry about the presence of outsiders in the area? If not, could it be Settlement A, which used to have a lack of infrastructure and facilities, and which needed upgrading with
better access to all these features? Or other persons or items besides those mentioned, that are
going to change when the proposed development approaches the area?

The ANT-K Theory suggests that an actor’s position in a social structure is the pointer for the
answer, as it shows the role of a person or an item that owns a certain ability to change. If
Individual A, Community A, or Settlement A is positioned at a structural level that provides
the ability to meet the needs of the change agents for a particular development, then this
person or item is assumed to be a relevant actor for the SIA study, and is listed under the
targeted actors for further studies in Step 2.

In Step 2, the task is to explore what kind of specific capital stocks, attached to the actors
identified in Step 1, might affect the potential of the actors to react to changes brought about
by development activities. What is needed here is data related to specific kinds of capital
stocks that could determine the reactions of actors to change, and further confirm to what
extent the actors identified in Step 1 can contribute to the social impact issue being studied.
The three main types of capital suggested in the framework are human capital, social capital
and biophysical capital. Each of them has a functional value that enables the attached actor to
create specific social actions in a certain way.

Therefore, if Individual A, Community A or Settlement A is identified as one of the relevant
actors in Step 1 after exploring the actor’s position in a social structure, the question then
becomes, what kinds of potential specific capital stock acts as a driving force that will help
this actor to react? Looking back at the framework, the tracing of capital stock for human-
type actors is linked to human capital, while community type actors assume their own social
type of capital stocks. For the environmental type of actors, it is assumed that there is a
connection with the biophysical type of capital stocks that include natural elements as well as
man-made elements.

As discussed above in the ANT-K Theory section (See Section 2.5.4 in Chapter 2), the study
of specific indicators derived from the ANT-K Theory is a way to identify the different types
of capital stocks discussed in this research. For instance, the ANT-K Theory suggests that the
understanding of an education and training background, the living and working experience,
intelligence levels, value or culture of schooling, age, gender, race, employment arrangements
and income, are the specific indicators for identifying the type of human capital stocks owned
by an individual. The information which shows the connections of these indicators with
social actions, is the data required for this step.
The next step of the framework, Step 3, aims to establish any potential linkages among social actions and change agents. Two additional items of data are required for this step: the nature of the development, and the existing social rules. The data needed for this study, to do with the nature of development is: the objectives, the location, the scale, the activities, the duration and the schedule for the development. This data is used to project the dimensions of the change agents that may be created by a particular development. In the meantime, this data is also used to determine the balance of demand and supply of the capital stocks, which affects the kinds of social actions to be produced by the existing impacted actors.

As for the data for the social rules, this data is needed to guide the identification of appropriate social practices held by people and communities at the specific affected location. As suggested in the SIA Common Assessment Model (See Figure 2.1), an SIA study needs to consider the geographical location of the study taking place, as each place has its unique social, economic, political and environmental conditions. In this framework, the social rules are suggested to be the products that represent the unique conditions of a particular place studied. These rules could be the local cultural and political system that is found at the social operating system level where a social action is taking place; they are the benchmarks which point out what kinds of actions are positively or negatively accepted by the impacted people and communities. Here, it is assumed that the interpretation of the “right” or “wrong” of a particular potential action is related to the specific social rule present in the affected area. This interpretation can be used to study the relationships of the predicted effects of certain actions on changes and the impacts of these changes that are to be identified in Step 4 and Step 5 respectively.

The last two leading steps of the framework, Step 4 and Step 5, are used to predict different types of changes, and the impacts that may occur in responding to the unbalanced situation of actions and change agents identified in Step 3. It is assumed that the original human actors and their environmental features, interrupted by the proposed development activities, are going to change when these actors respond to the needs of filling the gap of opportunities and limitations created by the development. The matching of potential social actions with the opportunities and limitations created by change agents of development shows the strengths and weaknesses of relevant actors in responding to changes brought by the development being studied. The identifying of these strengths and weaknesses of relevant actors indicates the types of changes needed to improve the development and also the potential impacts to be created by the development.
As suggested in the framework, there are three types of changes to be predicted in Step 4: individual change, collective change and environmental change. In Step 5, the task is to predict the accumulated change impacts from the different types of change identified in Step 4. Here, another assumption made is that the accumulated impacts from different change sources contribute to the pattern of social change, and the social change identified in Step 5 reflects the actual social impact.

Step 4 requires additional data related to the historical social, economic, political and environmental backgrounds in the area that show the trend of the original state, past changes and the impacts to the people and communities. This kind of data is required for making a comparison of the changes which have happened previously and in the present, and then for using the comparison results to predict what might happen in the future when the development takes place (Gårboan, 2005, 2010). Examples of relevant historical data are factors such as traditional lifestyles, original social structure, early population dimensions, and living and working environments.

For Step 5, assessors need to collect data which shows local perceptions towards important aspects of social change issues. The data is needed to help assessors understand the potential social change process, and the leading social impact issues that the impacted individuals and communities are most concerned with. Through the understanding of the people’s concerns and expectations, the prediction made for social change in this step can take into consideration all the main aspects raised by the people.

To gather all this data, it is important to locate a reliable source that can provide useful information. Discussion of the way to identify a reliable source of data is presented in the following section.

3.5.1.2 Targeted Data Sources

For the suggested framework, the specific data needed for each step is to be collected from primary and secondary sources. Esteves and Vanclay (2009) commented that most of the time, data used for an SIA study comes from multiple sources. Some of this data comes from primary sources or first-hand information, which requires assessors to collect original data, personally during a field survey, where secondary data is not available. Some data needed for the SIA study is already documented, furnishing specific information related to the study being conducted, that could be collected from secondary sources: unpublished and published.

The unpublished data or documented information might be obtained from the relevant people or social institutions that produced, owned and kept this data: for example, headmen (leaders
of communities or villages), representatives, local social organisations, private companies, authority agencies and departments. As for published documents, they could be sourced from accessible written, printed-paper or visual sources such as books, journals, newspapers, letters and records in hardcopies or softcopies.

To produce all this primary and secondary data very much depends on the abilities of relevant research participants and assessors to communicate their perceptions of issues studied (See Table 3.1).

3.5.1.2.1 Selection of population and sample
In an SIA study, it is important to have a proper plan for selecting the study population and sample. It is suggested to select the targeted population by focusing on the group of individuals with the same characteristics as the sample to which assessors would like to apply the conclusions of the study. The sample has to be individuals who can provide the answers for the questions raised in the study. The size of the sample required for developing sufficient information for the study depends on the purpose of the study.

In this study, the targeted population for the data are all the stakeholders of rural economic developments. The targeted sample may consist of all the stakeholders, individuals and communities, of the selected rural area in the specific case study (See Chapter 4). For the purpose of this study, a small sample size is targeted to generate the data needed for testing the framework. In this kind of survey, the small number of research participants involved is not going to affect the result, but the recruitment of the right participants may affect the survey because it is more important to produce sufficient quality data needed for a study rather than a huge amount of useless data.

3.5.1.2.2 Characteristics of research participants approached
It is suggested that the targeted research participants for an SIA study have to be individuals or representatives of social institutions who have experience and knowledge, or are better informed than other people, of the actors of social change, of the capital stocks, of the nature of the development being studied, of social rules and historical backgrounds related to the affected people and their surrounding environment. They could be the ones who will affect or who will be affected by the development being studied. The kind of targeted data for each step of the framework determines the suitability of a person to be approached and recruited as a participant for the study.

In Step 1, the data needed is clues about who or what is a potential actor for social change in the area. For this, a suitable participant is going to be a person who knows the characteristics
of the local people and the background settings in the area. Similarly, a suitable participant for Step 2 needs to be someone who is able to provide information about the distribution and ownership of capital stocks in the area. An outsider is not a suitable participant in these two steps because he or she might not be aware of certain facts or social practices and their meaning to the affected people. These kinds of facts or social practices are obvious to local people and they understand the importance of these facts and social practices to the local people and their environment.

There are two types of data needed for Step 3: the nature of the development and the existing social rules. Both of these items of data provide information that helps assessors to understand the connection of actors and their actions in responding to changes created by developments. It is assumed that a suitable participant for providing information about the nature of the development is a decision-maker or a developer who takes part in or is responsible for, a particular development studied; he or she knows and understands most of the detailed information about the development, and as such, this person has more accurate and up-to-date information. This person is most probably an outsider, or external actor, attached to the development team; however, a local person could be a suitable participant if he or she is part of the development team.

As for the data related to the existing social rules, both local people and outsiders need to be approached for such information. The reason is that both local people and outsiders might have knowledge of the common social rules held officially by society in general, but only the local people know about the specific unofficial rules that apply to their own community in the affected area. Here, it is assumed that an older person is more suitable as he or she is more knowledgeable of the traditional practices in the development area being studied.

It is suggested that the data on historical backgrounds needed for Step 4 and Step 5 should be obtained from local people who have good local knowledge and memories of the development area being studied. A suitable participant would be a person who has lived in the area for some time and knows certain things that happened in the past, or has such experiences. It is assumed that people who play different roles in the affected area might have different perceptions of what has happened to the people in the past and present, and as such, they might give different information when taking part in the study. For example, local people who are permanently living and working in the area might not necessarily have similar perceptions to those people who are temporarily living in the area and have attachments to other places. Both groups might feel different external influences.
Overall, the experience and knowledge of a person, and his or her awareness and accessibility to the information needed for a study, are the main characteristics that determine whether this person is suitable or not to be one of the participants for an SIA study.

3.5.1.2.3 Characteristics of assessors involved
Assessors who are involved in collecting the data for an SIA study, especially the primary data, have to be social scientists or practitioners who have a sufficient social science background. This is important, as some of the primary data cannot be verbally collected through communication with research participants. Instead, assessors need to be able to rely on their own understanding and ability to interpret what they have observed during the survey.

Therefore, the assessors involved need to have professional knowledge and ethics regarding how to find out and identify potential sources of data, and how to turn objects or events observed into useful and reliable data for all of the steps suggested.

3.5.1.3 Methods of collection
All the analysis steps suggested in the framework require both primary and secondary data (See Table 3.1). As mentioned before, the ability of research participants and assessors to communicate their ideas or their understanding of issues studied, accurately, affects the production of suitable data. Three ways to collect the primary and secondary data are therefore, suggested. The primary data can be collected through interviews with research participants and observations made by assessors, while secondary data can be derived from written or visual documents provided by individuals or representatives of social institutions who have access to the relevant data. Alternatively, assessors can search for the available free source data themselves.

3.5.1.3.1 Interview
Interviewing is a more direct and effective way to collect the first-hand data needed for each step. This is especially true when there is an expectation that the kind of data collected will hold certain meanings and values in representing a specific local condition and in representing the importance to the affected individuals and social institutions. For example, a waterway may be normally functioning as part of a simple drainage system and supplying the water source on a farm, but it may mean much more than that to those farmers who are cultivating farmlands that are lacking in roading infrastructure and networks. In these places, the waterway also plays an important role in helping farmers to transport agricultural inputs and
outputs, not just drainage and supplying the water source. In this case, the waterway brings different meanings and values to these farmers.

For the proposed SIA framework, it is suggested that it is better to link all the primary data targeted for each step with local conditions whenever this is possible. This is to make sure that a good coverage of the specific characteristics of the local conditions can be incorporated into the whole process of identifying the pattern of social changes, and thus to ensure that the outcome of the findings brings meaningful information of the social change that reflects the actual social impact, the affected individuals and social institutions face. To do that, a combination of individual interviews and focus group interviews is recommended to collect all the targeted data.

The individual type of interview approach is focused on the personal perceptions regarding the issues studied, either experienced by themselves or others in the community. The individual interview approach is suggested in the case of key informants who are knowledgeable about local conditions and local values of the studied areas. In other words, an understanding of local knowledge, or indigenous knowledge, is the key to selecting suitable research participants for this kind of interview session.

The potential key informants to be approached and recruited as part of the research are local leaders, representatives of social institutions or individuals nominated by other key informants for providing relevant data. Examples of these key informants are village headmen, social organisation leaders, officers of government agencies, the staff of private companies and individuals with useful knowledge or experience relevant to the study being conducted. It is expected that these key informants hold certain important roles or have valuable experiences that relate to the community being studied, and some of them are communication gatekeepers for the study area.

For the individual type of interview session, a structured and semi-structured interview plan is suggested to collect the data needed for every step of the framework, and both closed-ended and open-ended questions are suggested to guide the conversation with the participants involved. The decision as to which plan to use, or type of questions, depends on the kinds of data to be collected and the background of the participants involved. All the steps of the framework suggest using a structured interview plan with both closed-ended and open-ended questions. This is to make sure that the data collected is straight-forward and assessors can easily identify comparable items collected from different interview sessions, and match them with each step of the framework suggested for interpretation.
In addition, a semi-structured interview plan with open-ended questions is suggested to collect additional data that is more personal for Steps 4 and 5. This kind of data is more detailed and brings other messages, besides what is expected from the questions set in the structured interview plan. This is because the participants are free to share any extra ideas on particular issues that they are attracted to, for further discussion, and assessors might not realise the importance of these issues.

As for the focus group interview approach, targeted data is collected for all the steps. The purpose of carrying out a focus group interview is to collect the expansive data that comes from a collective opinion, rather than an individual opinion. This approach emphasises group actions, and not individual actions. Comparable with the individual interview approach, it is expected that the feedback that is collected from participants in the focus group interviews is experienced either by themselves or others with a similar background. For this research, it is suggested that the focus group interviews be conducted with representatives of minority groups and other segments of the population in the study area.

For the case study application, five types of focus groups are targeted for the group interview: seniors, youths, women, permanent villagers and temporary villagers. It is expected that those participants who are involved in the group interview could express the needs of people from different backgrounds that play specific common roles in the community (Babbie, 2011). For example, participants from the women’s group are expected to give their opinions from the standpoint of women in the community, while participants from the youth group are expected to put forward the concerns of young people in the area when responding to the issues raised during the interview.

An unstructured interview plan is proposed in order to collect data from the targeted focus groups. No specific guided questions are used in the interview; only a brief introduction regarding the purpose of conducting the study, and relevant topics about the study, are given to the participants involved. It is assumed that the unstructured interview can allow participants to talk about their thoughts in a more flexible way and yield unplanned information that represents the specific group opinion for the study, in addition to what has been planned for the individual interviews.

For this study, four different local languages were used to conduct interviews with the three ethnic groups present on Beliong: the Chinese, Malay and Iban. The languages used were: Hakka, Mandarin, Malay and Iban. Of these four languages, I can understand and speak three fluently, the Hakka, Mandarin and Malay. Hakka and Mandarin were used to communicate
with the Chinese people and Malay was used to communicate with the Malay people. Because I do not speak Iban, I used Malay when possible and otherwise, I used an interpreter who could understand and can speak Iban fluently.

3.5.1.3.2 Observation

Observation is another way that can be used to collect the first hand data needed for the study. Though participants for interview sessions may provide the same information, observation carried out can further confirm the reliability of the verbal data collected and provide additional non-verbal data to describe and explain the meaning of this data. This is important, especially if some of the information is difficult to describe and explain with language, or some useful information for a study has not already been pointed out by the participants involved as they may not have realised its importance for the study.

Such missing information is either not able to be collected through interviews, or is being put aside by participants. For that, assessors have to capture it themselves through observation, in order to have a better understanding of the feedback given by the participants involved in interviews, and in order for the assessors to have a better understanding of the topic being discussed with them. For example, when talking about problems faced with waterways in farmlands, participants may only discuss problems faced in transporting agricultural inputs and outputs but not mention other types of problems. Through observations, assessors could have a better picture of this problem and they may spot other problems such as poor water delivery to inner farm areas, or flooding problems due to poor maintenance or natural occurrences, happening to these waterways.

To carry out the observations, there is a need to disclose the whole purpose of the study to the relevant parties involved. The reason for the full disclosure is to gain their trust, and help them to feel more comfortable by knowing what is going on since strangers are present. As well, it is fulfilling the ethical requirements for the proper way to gather data for a survey; let the people involved be aware of what is happening, and seek their willingness to be included in the study. In general, for every observation carried out the focus is on three aspects of social life: 1) people and their abilities, 2) social activities and their value, and 3) background settings and their conditions. The emphasis of these focuses corresponds to the framework suggested, which needs information that can show the characteristics of actors, capital stocks, change agents and the leading effects of actions created by the actors, to humans and their environment.
3.5.1.3.3  Document investigation

Document investigation is suggested as an additional way to collect the relevant data needed besides the interviews and observations planned. The secondary data collected from documents is essential for the study as some of the targeted data might be unknown, or unclear, to the research participants who are involved in the interviews; but there will be records somewhere in hardcopy or softcopy. It is expected that most of the older records are kept in hardcopy and only the latest ones are kept in softcopy.

This kind of secondary data can help assessors to confirm and add to the primary data provided by the research participants during interviews, and also confirm and add to observation outcomes which lack clear clues for interpretation. Basically, assessors can refer to three types of documents for the secondary data: public domain, restricted access and secret (Denscombe, 1998). These documents could be in the form of newspapers, books, journals, website pages, magazines, records, government publications, letters, memos, diaries, maps and other published and unpublished materials.

To search for the public documents, assessors can either get the information from key informants, or search for them through public sources such as libraries, internet search engines or bookshops. For the unpublished restricted sources, or secret ones, individuals or representatives of private and public organisations or agencies, which produce and own them, have most likely kept copies of such documents. To obtain these sources of data, assessors need to get permission from the relevant parties that have privileged access to these documents, to release the information to them for research purposes. Some of the data may be released under confidential agreements, which means assessors are not supposed to disclose the content; but the awareness of the presence of this content at least alerts assessors to consider the effects on the related issues studied.

These documents could be any written or visual materials that show any connection between elements found in the development area, in the people and in their environment, regarding the social change issues related to the development being studied. Examples are documents recording social activities, background settings, ethno-history, development projects, land use patterns, important events or celebrations, social organisations, population profiles and other socio-economic characteristics.
3.5.1.4 Instrument

In the social impact assessment framework I developed for use in my case-study (See Chapter 4 for a full discussion of the case-study site), I wanted to find the factors and patterns of social impact. The main instrument used was a set of questionnaires developed to guide the interviews (Attached as Appendices D, F and G) and a set of research information sheets for participants (Attached as Appendices C and E). In this study, the questionnaire was designed by taking into consideration the types of data needed for studying social change, as suggested by the ANT-K Theory assessment framework (See Chapter 2, Section 2.5.4 and Chapter 3, Section 3.5.1.2.). A survey guide sheet (Attached as Appendix H) was prepared to guide the interview sessions conducted for this study.

The survey consists of three sets of questionnaires: the first one is for structured interviews, the second one for semi-structured interviews, and the third one for unstructured interviews. The details for each type of questionnaire form are discussed in the following sub-section.

3.5.1.4.1 Questionnaire 1 – for the structured group interviews

The questionnaire (See Appendix D) was used to guide the interview session conducted with a group of villagers, including the headman and other representatives. The questions asked were designed to obtain information that could provide a good description of the background settings of the village studied. The questionnaire is divided into two main components:

- Part I  – Background Information (Sections A-C)
- Part II  – Analytical Pathway Information (Stages 1-5)

Part I: Sections A-C

- Section A: Village/ The Environment Affected

This section is designed to collect brief background information about the current village name or previous names (if any), the number of households and the number of years existing in the location. The purpose is to gain a brief idea of the history of the village being studied.

- Section B: Villagers/ The People Affected

Section B is designed to collect brief background information related to the people who live in the area who might be affected by the proposed development. The information collected includes the name of the headman (current and previous headmen, if any), the origin of their ancestors, the reason for settling here, the population number, and the ethnic group and religion.
Section C: Development Project/ Plan/ Programme/ Policy in the Area

This section is designed to collect brief background information about the historical developments of the area (if any). This includes any information about past, present and future development projects, plans, programmes or policies that apply to the area. In addition to providing a brief picture of developments that have taken place in the area, this is also a way of finding out what the affected people may or may not be aware of in relation to these matters. All questions asked in this section are seeking information related to the development issues of what, when, who, why and how these developments took place in the area, and the community’s responses to them.

Part II: Stages 1-5

Stage 1: Actors of Social Change (Groups of Actors Assembled Together)

This section is designed to collect all of the data needed to support an analysis of all of the relevant actors of social change found in the area, in accordance with Step 1 of the framework (See Table 3.1 above). This includes questions pertaining to various types of human and non-human actors that contribute to social change due to development in the area, from the local perspective.

Stage 2: Capital Stocks of Actors (Potential Capital Stocks related to Change Agents)

This section is designed to collect all of the data needed for investigating the relationships of capital stocks in determining the ability of actors to react to change. This information is used to identify whether the social change that is happening in the area is because of individual, social or biophysical capital and the reasons for this (See Table 3.1). A following question is set to find out more information about each type of capital stock that the respondents are concerned about. Some choices were suggested to them with respect to each question. For example, in my case study, the respondents were asked to state specific types of individual capital they believed to be factors that will affect social change in the area. Choices suggested were education, occupation, skills, attitude/behaviour, experience, demographic (age and gender), and other. In addition, respondents were requested to scale the relationship of each type of capital stock to social change in the area, and the reasons.

Stage 3: Change Agents for Actions that Link Capital Stocks and Development Activities

Four main sections, Sections A-D, were designed for this stage. Section A focused on change agents that related to individual capital such as knowledge and skills. Under this section, four
parts were set up to find out the information about individual reasons related to change agents that affect the contribution of actors to social change. The individual reasons that came to the forefront in this survey were related to education status, occupation pattern, economic activities and migration patterns.

In Section B, the focus was on change agents responding to social capital such as trust and cooperation. There are five questions about social capital related to types of: local social institutions, local social activities, local social rules or cultures, local connections with outsiders, and their connections with social change in the area, were raised in the questionnaire. This data was needed to investigate the connections of the development activities and the social rules that affect the roles played by capital stocks and change agents in contributing to social change (See Table 3.1).

Section C focused on change agents that relate to natural biophysical capital, such as forest products and tidal cycles. For this section, six questions were set up to find out the contribution of natural biophysical capital in affecting social change that is happening due to the proposed development. The data required for this section is about the type and the relationships of, existing natural features that may become parts of the change agents. The questions asked were about the current functions of the natural features to the people, and their potential contribution to social change in the area. Some questions were set to target information gathering for a few types of important natural features for rural areas; (there are rivers, land, local markets and tourism spots in the area).

In Section D of Stage 3, the questions asked were related to change agents that have connections with man-made biophysical capital such as farms and bridges. For this section, eight sub-sections were created to focus on different types of man-made features identified for this study. The first part of this section was designed to collect data that shows the existing transportation system in the area, and the conditions and connections with lifestyles in the area. The second and third parts of this section dealt with the water supply and electricity supply issues in the area, respectively. The telecommunication and health status issues were asked in Parts 4 and 5 of the section.

Part 6 of Section D dealt with questions about sanitation in the area. The purpose was to find out some additional information about daily lifestyles. The questions asked in Part 7 related to issues of burial grounds and other culturally sensitive features found in the area. This is another kind of man-made biophysical feature that may become one of the main factors that affect social change in an area like Sarawak, Malaysia. The last part of this section (Section
8) was set to give opportunities to respondents to share their concerns about aspects of the existing biophysical features in the area, and which need improvements or changes.

Overall, all sections for this stage were designed to collect data that can be used to describe and explain the possible connections formed by matching the existing capital stocks available for development, with opportunities and limitations created by development activities, as discussed under Chapter 2 (Section 2.5.4).

- Stage 4: Change Effects of Change Agents’ Actions (Matters of Fact and Concern)

For this section, four questions were designed to collect data showing changes that might be seen in individuals, in social institutions and in biophysical features in the area. Respondents were asked to scale these changes from 1 (no change) to 10 (major change). The purpose was to collect some data that could be used to weigh different types of changes identified for the study.

- Stage 5: Impacts of Changes on Individuals and Communities

Ten questions were designed to collect the relevant data needed for analysing impacts of changes on individuals and communities affected by the proposed development. The data is mainly used to determine the potential key social changes that the affected people are most concerned about. For example, respondents were asked to rank a few selected aspects of social impact that may be a concern for them, from value 1 (most important) to 9 (least important), and the reasons for the rankings given. Other questions asked in this section were related to their perception of the role of local and non-local actors in affecting social changes happening in the area. These questions were designed to collect additional information about the importance of local and non-local actor contributions to social change.

3.5.1.4.2 Questionnaire 2 – for the semi-structured individual interviews

The questionnaire for the semi-structured interviews (See Appendix F) was designed to collect information that hopefully solicited a deeper level of personal response and attitude towards social impacts according to the roles that the participants play in village life. Ten relevant questions were designed for this questionnaire. The first few questions related to personal information about the respondents, and included their demographic backgrounds and their involvement in local social institutions in the area or outside. Some questions asked about their concerns with the types of social impact issues that had happened before, and the way they had dealt with them. The data collected from these kinds of questions gave an idea of respondents’ experiences in dealing with past social changes and their expectations for
future social changes. The data was also used to predict their perceptions towards the social changes happening due to the proposed road and bridge development (See Chapter 4).

3.5.1.4.3 Questionnaire 3 – for unstructured group interviews

The group interviews based on Questionnaire 3 (See Appendix G) were designed to provide opportunities to assess whether there are particular needs and concerns of women, the elderly, young people, permanent villagers and temporary villagers, in relation to rural economic development in the study area. No specific questions were designed for group interviews with different targeted groups of people. The interviews started with a brief introduction to the study. This was followed by an invitation to the respondents to give their opinions about issues of social impacts that concern them. This was asked of groups of people who have the same background: women; the elderly; young people; permanent villagers; and temporary villagers. The following are examples of questions: ‘What are the social impacts faced by you as women/ the elderly/ etc.?’, and ‘What are the elements that lead to social change for women/ the elderly/ etc. in the area?’ The data collected from these group interviews provided additional data to determine the priorities regarding social changes that concerned people with different roles in the village.

3.5.1.5 Preparation for the Survey

Prior to any action taken to collect data, assessors have to find out the proper procedures and preparations that legally and ethically allow them to do so at a targeted study area. Assessors have to identify any legal or ethical requirements that need to be fulfilled by them. Information about these requirements can be obtained from relevant bodies in charge of approving the conduct of researchers in their studies.

If there is any legal or ethical requirement for research permission, assessors need to submit their application for conducting a particular research project to the relevant bodies and wait for their decision before any action is taken to start the field survey. However, assessors can use the time to collect secondary data from public sources, as there is no legal or ethical restriction on that. In this situation, a research permit or written approval for allowing the conducting of the research will be issued to assessors. The time taken for such an application, and its processes, depends on the rules and regulations set by the relevant bodies; research taking place in different regions or countries usually has different requirements. These requirements could be concerned with issues related to human ethics, animal ethics or environmental policies.
On top of that, assessors have to find out whether there are any local custom requirements that apply to the targeted study area. Assessors are not legally required to follow this kind of local custom, but those who pay attention to such requirements could pick up some knowledge about local practices. In addition, it is a way for assessors to show their respect to the local culture through their understanding and care of these local customs. It is important for assessors to remember that some cultural activities might be seen as normal behaviour to the assessors, but people in a certain place might not have the same perception; people from different cultural backgrounds have a different list of “dos and don’ts”. Therefore, if assessors pay attention to this list, it could help them to avoid making mistakes that may cause offence and hence difficulty in collecting the data required.

3.5.2 Analysis of Data

For the framework suggested, the main analysis task is to establish clear linkages from Step 1 to Step 5, and then from the linkages formed, extract the meaning and value of these linkages to predict a social change pattern. The data collected from each step is used as a base level to identify the possible relationships among the data. The first step in the framework acts as the root to trace the linkage from one step to another step that, in turn, leads to the whole structure of linkages in the framework. The meaning and value of each element in the framework that ties the whole process of establishing these linkages, in the social system gives descriptions and explanations as to how social change is being created by actors over time, and what the effects will be to actors in the future.

Before proceeding to the data analysis process, all the raw data collected through interviews, observations, and document investigations, has to be transcribed, sorted and categorised in accordance with the types of data needed for each step of the framework. The purpose of transcribing, sorting and categorising is to explore the range and richness of the data manually. For that, coding of key words or statements is undertaken to trace the patterns and the dimensions of data collected. Matrices are constructed and used for making comparisons in order to identify similar trends and paradoxes.

The finalised data is then entered into a computer database for further explorations and interpretations using both quantitative and qualitative analysis methods. The main structure of the framework is investigated and explained by the qualitative analysis findings and supported by the quantitative analysis findings, whenever possible. The whole research places less emphasis on the quantitative findings because the motive of the research is to
explore the dimensions of method for predicting social impact based on the proposed framework, and not to use figures for justifying the dimension suggested in the framework.

### 3.5.2.1 Procedure for Analysing Qualitative Data

In this research, most of the data needed for testing the framework is collected in the qualitative form, as detailed information is needed to explore the suitability of each element suggested in the framework. This data is derived from interviews, observations and document investigations. NVivo is used to organise and analyse the data. In some situations, when there is unique data, a manual way of analysing the data is carried out to extract the relevant useful information (Gibbs, 2002; Bazeley, 2007).

In relation to the case study (See Chapter 4), for NVivo purposes, I kept all the relevant qualitative data used for testing the proposed conceptual framework. The data coded for the NVivo analysis has mainly come from the semi-structured interview sessions conducted with individual respondents. This data consists of respondents’ answers pertaining to issues raised in connection to the way human and non-human actors contribute to social change that leads to social impact in the case study area.

The relevant raw data was first transcribed and entered into the master file created in the NVivo programme. This was carried out to prepare a full database that could be used for exploring the range and richness of data that was relevant to the study of the social impact according to the framework. The data collected from respondents of different ethnic groups was kept under different sub-component sections created in the database. A series of wordings or themes are created to represent all the similar responses kept under the same component. For example, the answers given by each Malay respondent were entered into a sub-component called “Kampung Melayu Beliong”. (Kampung Melayu Beliong is the village where all the Malay respondents live.) Two other sub-components called “Kampung Sangkap” and “Kampung Sungai Tanju” were created to keep all the relevant answers provided by respondents from the Chinese and Iban communities respectively.

Besides the information gathered from individual respondents, I also kept other information collected from un-structured interview sessions with focus groups, and structured interview sessions with three headmen from different villages who are in this programme. The qualitative data is kept together in the same database because it is easier to trace and compare findings given by different sources when needed.

There is an analysis function in NVivo to look for words or statements organised and coded under different sources (Baseley, 2007). This function was used to connect combinations of
similar words and statements from various sources in order to trace the patterns and
dimensions of information relevant to each stage for further exploration and interpretation.
The connections formed from among the relevant data from various sources provide a
platform for comparing answers given by different ethnic groups. It helps to identify trends
and paradoxes given by respondents from different ethnic groups, to explain issues pointed
out in a social impact study.

For example, similar actors of social changes pointed out by respondents of different ethnic
groups were kept under four main components, created under the first stage of the framework:
individual type of actor, society type of actor, man-made feature type of actor and natural
feature type of actor. A summary analysis of the number of respondents from different ethnic
groups who mentioned each actor was then computed to find out the frequency. The findings
of the frequency factors were used to identify which ones are the main actors for the social
changes that respondents considered for the study. The same process was done for other
stages of the framework, where main components were created in accordance with elements
suggested for each stage of the framework. The frequencies of the same answers collected for
each component were computed to determine the major ones.

For every step of the framework, the qualitative data used for analysis is different, but the
basic concept used to guide the analysis is the same in accordance with the ANT-K Theory, as
discussed in Chapter 2. The theory suggests possible ways regarding how to establish
linkages among the various actors, capital stocks, change agents, change effects and its
leading impacts on social change studied in the framework. The theory tells the story of the
way to trace actors and the relevant associations of their abilities, actions, changes and
impacts on other actors and the environment.

As mentioned above, the data analysis focuses on identifying items in the framework that
could be connected to form linkages, which show the path of how social change is being
created and its consequential effect on people. To find out what kinds of linkages may exist,
the first task is to figure out what reasons could be used for saying any two or more items
have relationships; the reasons will show that these items may respond to each other. The
assumptions made for predicting the reason is related to the attraction of the capital concept
suggested in the ANT-K Theory. Therefore, the element suggested for the framework is
designed according to this ANT-K idea. The matching of the supply and demand offered
among items or the social power that attracts these items together, are reasons for establishing
linkages that determine the pattern of social change.
3.5.2.2 Procedure for Analysing Quantitative Data

The quantitative data is mainly collected from semi-structured interviews and document investigations. The kind of data collected from the semi-structured interviews relates to the demographic backgrounds of individual participants involved, and their responses to the questions raised. The questions were targeted to provide relevant data regarding historical social, economic, political and environmental backgrounds, and the perceptions towards social change issues that were of most concern to the affected people and their communities. This data is needed mainly to study the linkages formed at Steps 4 and 5, and its leading feedback loop in the framework. As for the document investigations, the quantitative data collected is statistical records showing the population profiles of the communities, living in the case study area. The amount of quantitative data collected is relatively small and straightforward.

Using SPSS (Statistical Package of Social Sciences), a simple thematic analysis (descriptive statistics and cross-tabulations) is conducted to place the relevant data into a more organised pattern, in order to show the dimensions of the data that has connections to the framework. For the data collected from the semi-structured interviews, the demographic background of the participants involved and a set of simplified data-coded individual feedback details, is recorded in an SPSS database. The database shows the distribution of participant backgrounds based on seven factors from the responses to the questions asked during the interviews: gender, age, occupation, educational background, life experiences in the case study area, ethnic groups and the village where the participant lives.

SPSS is not used to keep or analyse the quantitative data collected from document investigations as the data derived from the documents is already well organised, simple and easy to be manually analysed and interpreted. Therefore, no further statistical analysis is needed for such data.

3.6 Chapter Summary

The use of a proper methodology plan can avoid a number of theoretical and practical difficulties when a study proceeds. An inappropriate selection of a data collection method can lead to insufficient data for a detailed analysis, which in turn may generate unclear or misleading results. Therefore, it is important to have a well-planned methodology to outline the direction and procedure that will be used, so that it makes sense to, and is accepted by others, in the field. A clear methodology also provides guidelines for other future studies. This is what I am endeavouring to do in this chapter: discuss the methodology for this study.
in a way that clearly shows that adequate work was undertaken to enable a positive conclusion to be reached. The qualitative and quantitative methods used in this study provide a useful picture of people and their environments that are under study. This helps to build a good understanding of issues related to the study, of the social impacts of developments, based on the ANT-K Theory (See Chapter 2). The proposed conceptual framework for this study concerns various characteristics of both human and non-human actors that affect the creation of social change. These actors provide important information that helps to determine the actual social impact that will happen. To test the framework, a case study was carried out in Malaysia. The relevant information about this case study is presented in Chapter 4.
Chapter 4
The Malaysian Assessment Case Study

4.1 Introduction
This chapter introduces the Malaysian assessment case study. The case study is designed to apply and assess the practicality of the theoretical framework suggested for SIA applications. Through the case study, it illustrates how the framework is applied to identify and analyse the human and non-human factors of social change due to development. The case study also demonstrates how to interpret the results of an SIA study into useful information, describing the causes of social change and explaining the social significance of development, to individuals and communities in accordance with the framework (See Chapter 5).

4.2 The Malaysian Assessment Case Study Site
The study site is located in a rural area, called Beliong, in Sarawak, Malaysia. Beliong is a farming area located approximately 10 kilometres from the northeast side of Kuching, the main city of Sarawak. Geographically, the location of Beliong is unique, as the area is not connected to the mainland of Sarawak.

Beliong is surrounded by rivers and the sea. Two big rivers, a canal that extends from one of the branches of one of the rivers, and the sea, separate Beliong from neighbouring land. This makes Beliong an island, which restricts people and their communities from being able to move freely to and from the area. Figure 4.1 shows that three quarters of Beliong is bounded by the Samarahan River (Batang Samarahan) and the Sarawak River, and a canal called the “Loba Batu Belat”. The smaller boundary of Beliong faces the South China Sea.

At the time of the research, there was no direct road and bridge access to Beliong. The development studied for this case study site, is related to a proposed road and bridge project that will connect Beliong to the nearest administrative and marketing centres, particularly Kuching. At the time of writing this thesis, boats were the only mode of transportation to and from Beliong. The river transportation service forms the lifeline for the existing socio-economic activities and the overall development of the area.

From my conversations with the local people, they wished to see a direct road and bridge development project that would connect the area with the nearby settlements and townships. In addition, visitors I spoke to, especially those who want to visit the famous Fuk Teck Kung Temple, are in favour of the implementation of such a project. Besides that, some local
politicians also realise the importance of having a direct road and bridge project for the area, and they are trying to help the people get the project implemented in the near future (See Figure 4.10).

Beliong was selected as my case study site for three reasons. First, there is a road and bridge development project proposed, to improve the transportation system in Beliong, and its relevant social impacts need to be assessed. This has put Beliong under a prolonged “proposed development” environment and hence I argue in Chapter 1 that there is a need for a much better SIA theoretical framework and methodological design for assessing developments. The magnitude and the pace of change of developments is a major source of concern to most government agencies. In particular, government agencies desire to ensure that development activities are properly structured and carried out so that negative impacts are
minimised and positive impacts are strengthened. In addition, the government of Malaysia encourages the use of SIA for studying developments (See Chapter 1, Section 1.2.5). All of this provides a suitable background for testing the framework suggested for this study.

Second, Burdge (1995) commented that the introduction of SIA studies under different geographical settings and locations must work through local institutions, or local people, as they have knowledge and understanding from a local viewpoint. This makes it easier to reach mutual trust with the local people. Another reason why I chose a case study site in Sarawak, is that I am familiar with its socio-economic and environmental backgrounds and am confident to use my local knowledge in interpreting the issue studied. I have carried out many social studies in the rural areas of Sarawak in the past. This has given me a good understanding of my case study area. My relevant social background and experiences of carrying out social studies in similar areas puts me in a favourable position for getting more accurate messages from the collected data and transferring these messages into a useful SIA product, e.g. recommendations for mitigation measures and guidelines for SIA practices (Ross & McGee, 2006).

Lastly, Beliong was selected as it fulfils the basic criteria for testing the framework. The criteria are:

a) It must show the social impacts of rural economic developments

b) It must be a rural place with at least two generations of residents

c) It must be a rural area with diversified social, economic, political and environment backgrounds

d) It must constitute communities with rich social structure and cultural settings

For the purposes of this case study, only three villages, located at the southern part of Beliong, have been selected, as the qualitative approach used in this research requires more time and effort to collect sufficient data. These three villages are in the same administrative area of Kota Samarahan Division, and each village is occupied by a different ethnic group; the Malay, Chinese and Iban communities respectively.
4.3 Background of Beliong Case Study

To fulfill the legal and ethical requirements for conducting research at this case study site, two applications were submitted:

1) The human ethics application was submitted to Lincoln University Human Ethics Committee (HEC) to obtain ethical approval for a research project involving human participants, and

2) The research permit application was submitted to the State Planning Unit (SPU) of Sarawak to obtain legal permission for a research project to be carried out in Sarawak.

Each application for research approval to conduct this case study took about one and a half months to process. An additional purpose for obtaining approval from the HEC and SPU is a way to inform the public and the relevant authorities, that the survey will be conducted in a proper, ethical and lawful way. This means that the survey will be conducted in accordance with the rules and regulations associated with the ethical and legal requirements for the case study. Babbie (2011) commented that it is essential to follow the ethical and legal requirements for the conduct of social research in order to protect the rights of humans.

Through the HEC and the SPU, permission was given to contact research participants and obtain relevant data kept by local authorities and local leaders. It was easy to approach local authorities and local leaders for information because I could show them evidence of my identity as a researcher and my motives for obtaining the data, some of which may be restricted for public access but which is useful for this study.

Upon gaining approval, the case study was carried out in early January until the end of February 2011. Prior to the actual recruitment process, the first thing to do at Beliong was to get to know the headmen and other local leaders, and approach them for permission to carry out the study and for advice regarding potential participants who would be able to give relevant information required for the study.

According to the culture of the rural areas in Sarawak, a newcomer/outsider to a village, such as a researcher, needs to pay a visit to the headman/headwoman and get his or her permission prior to any formal meetings with villagers. The headman/headwoman then gives permission for the study and informs the villagers as to why the researcher is present in their village. The headman/headwoman will also ask the villagers to give their cooperation and help the researcher, and the researcher is then allowed to walk around the village to interview the
villagers. Relevant information about ‘dos’ and ‘don’ts’ in the village will be given by the headman/ headwoman at this time.

This is an important step, for outsiders, locals and foreigners who plan to carry out surveys in remote areas of Sarawak, where outsiders are seldom seen. Normally, the headman/ headwoman keeps a visitors record book and asks them to write down their background information such as: name, purpose of visit, date and duration of visit, contact details, signature and comments. The purpose of visiting the headman/ headwoman is to make the local people aware of the reasons for visiting their village and to ask for permission to walk around and approach others in the area. In addition, the local leaders, especially the headman/ headwoman, have a responsibility to assist visitors, if any help is needed, and to ensure visitors’safety in their area.

These actions around visiting the headman/ headwoman and other leaders in the village, show respect to these people and their culture. It is also a way to find out the appropriate approach methods to be used in the village at that period and receive warnings of any actions that are not allowed or are against their traditions, which visitors may not be familiar with. For example, an understanding of Iban mourning taboos will help to avoid carrying out any actions that may break the taboos and that result in fines in kind or money, for not respecting the dead (Wadley, 1999). Traditions differ within cultures, which might create misunderstandings or miscommunication. This especially applies to modern-minded people who may not think about the seriousness of the issue in the way that local people relate to it in their traditions.

However, if visitors want to be accepted and be treated like one of the local people, they have to act like the local people. Otherwise, it will be difficult to find out about the real lives of the local people because they may not be willing to share their actual thinking or act normally. To avoid this kind of problem, researchers are advised to follow the unofficial local practice of paying a visit to the headman/ headwoman’s house and, if needed, visit other local leaders as well, in order to build up a trusting relationship with them. It is believed that strong trust is the key to producing truthful and valuable responses from research participants (Costanza et al., 2006) which ensure the validity of a study (See Chapter 3, Section 3.5.1.2 for further discussion of gaining local trust).

4.4 Sources of Data

The investigation at Beliong started with individual interviews with headmen, local leaders and other individual respondents to identify the people and the biophysical features that play
important roles in the area studied, or that have great values that affect the contribution of individuals and communities to social change in the case study area. Following that, other relevant questions of capital stocks, social rules, background settings and social issues concerned with development were asked during the same interviews, to find out data needed for other steps suggested in the framework. Some of the questions raised in this study were modified from previous social studies carried out by Envisar Sdn Bhd (2007; 2008) in Sarawak.

Alongside interviews with individuals, group interviews were conducted to find out more specific data related to people with similar backgrounds. As explained in Chapter 3 (Section 3.5.1.3.1 – Interview), the focus group technique was used to identify data that could be used to explore other aspects of social impact that may be viewed differently by people in different focus groups.

To support and further confirm the data collected during interviews, observational and document investigations were carried out to extract more evidence, especially non-verbal information, to describe and explain the findings of the case study.

4.4.1 Interview Data

The interview data came from three sample sources: key informants, participants in five different focus groups and individual respondents, all of whom will potentially be affected by the development. The key informants interviewed in this study included the headmen from Kampung Beliong and Kampung Sangkap, who are leaders of the Malay and Chinese communities in the case study area respectively. For the Iban community, the assistant headman was approached for the interview, as their headman was no longer permanently living in the village, due to a health problem. Besides the local officials, interviews were also conducted with representatives of the Malay Women Association, Beliong Chinese Temple/Community Association, and Integrated Agricultural Development Area (IADA) Samarahan. For the purposes of the group interview, five groups of respondents with different backgrounds were interviewed. They were groups identified as “senior” people, “young” people, “permanent villagers”, “temporary villagers” and “women”. However, the information collected from the group interviews was very limited due to the small number of people available for interviews during the survey period, especially in the Iban community.

To recruit the right participants for the individual interview, the mixture of “assessed by local leaders especially the Headman in a village” and “a snowball technique” is used. I used this approach because the Headman and other local leaders have a good local knowledge of the
‘range’ of villagers I needed to contact. Therefore, they were the key sources for suggesting certain villagers at the beginning of my survey. These villagers were in turn asked to nominate other suitable villagers corresponding to the range I wished to approach for the information needed. For the purposes of this case study, I stopped approaching new respondents once I started getting the same answers regarding the same issues from those villagers approached earlier.

Before asking the Headman for suggestions for suitable respondents, I had talked to some of the local people about whom I should approach for information related to my study. They recommended to me that I should approach the Headman first for advising him about my study. They also commented that the Headman will be able to suggest to me the right persons for my interviews. Similar to other rural areas of Sarawak, it is also local culture, in my case study site, that an outsider like me should approach the Headman first to explain the purpose of my visit, and to get permission to conduct the survey in the case study area. Most of the time, the Headman can give a clear picture of the situation of the village and the people, as was explained in Section 4.3, Chapter 4.

The main data, related to the affected individuals and communities, came from individual interviews conducted with 30 respondents from different ethnic groups. These respondents were not randomly selected. Names of respondents were suggested by the Headman, local leaders and other respondents involved in the study via the snowball sampling technique. Twelve respondents were Malay, twelve were Chinese and six were Iban.

Overall and consistent with the use of “qualitative” methods, the small number of respondents involved in this case study did not constitute a representative sample for generalising results to the whole population, but they provided useful and sufficient data for applying and “testing” the framework. The recruitment of more samples was also constrained by time and by costs, and by the limits on other resources needed for conducting the case study as part of my PhD study.

4.4.2 Observation Data

Two aspects observed in this case study were daily socio-economic activities and biophysical environmental settings. The personal experience of seeing the existing living and working conditions in the case study area gave me a better grip on the real situation. In the meantime, it helped me to better communicate with respondents and understand what they were actually talking about during interviews. The observational data also triangulated the interview data to show if it was sound. Sometimes, this kind of observational data provides a better picture,
telling the story behind an individual’s or communities’ behaviours and decisions, for carrying out their daily lives in certain ways. Three examples follow.

First, in my visit to the case study area, I saw how farmers spent their time working on their farms. Most of them were quite old. I did not see many young people working on the farms. More accurately, I did not see many young people in the case study area most of the time. But I saw more young people and many outsiders who visited the Chinese temple (Fuk Teck Kung Temple) during the weekends. Young people, and outsiders, travelled back to the case study area during school holidays, non-working days or weekends. Young people, using their free time, went home to see their relatives while the outsiders spent their leisure time visiting the Fuk Teck Kung Temple, which is famous among Chinese people. The news about the temple was published in the local Chinese newspaper, and this attracted the attention of outsiders to this remote area.

Seeing the presence of different people at different times shows how the lifestyles of the local people may connect with people from outside the case study area. For example, the lives of the boatmen became much busier during weekends when more passengers needed to cross the river. Many of these boatmen were full-time farmers during the weekdays, but during the weekends, instead of working on the farms, they waited at the jetty to pick up passengers. While waiting for their turn, they chatted with others, e.g. other boatmen and friends, people whom they only got to see during this time as normally they would all be busy with their own jobs.

Second, I met some Malay women who made a traditional Malay biscuit (See Figure 4.2). During the group interview, these women told me that those who knew how to make traditional biscuits received many orders from the Chinese people in the case study area, especially during festival seasons. The Chinese people were celebrating the Chinese New Year around my survey time. That was why I got the chance of seeing the Malay women make traditional biscuits. At non-festival times, the women stay on farms, helping with planting activities.

This second observation informed me about the kinds of relationships between Malay and Chinese communities. I also was not aware that Malay women actually earned some extra income making biscuits using their traditional knowledge and skills. Hence this observation led me to take this aspect into consideration when studying social change in the case study area.
Third, and related to biophysical features, I viewed the waterways used by farmers to transfer coconuts from their farms, and the water gates used to control the water flow. Some coconuts were flowing through these waterways from the inner parts of farms to the designated collection places, where small sheds were located. However, the water levels of these waterways varied. Sometimes it was quite high and flowing towards inner parts of the farms. Sometimes the water flowed out from inner parts of the farms. In some areas, coconuts were just floating on the surface of the water and not moving due to the lack of current. I also observed some old and broken water gates and some small boats parked in wider waterway areas. During one observation, the water level was very low and there was no sign of any coconuts. At such times, coconuts are found on roadsides and are picked up by people on motorcycles. This is an alternative way of collecting the coconuts when the farmers cannot use the waterways to transfer coconuts to their sheds. These observations gave me a better picture of how important the waterways are to farmers and thus a point of shared knowledge and understanding.

4.4.3 Document Investigation Data

The main secondary data was collected from either published or unpublished documents, and articles produced by local social organisations and government agencies, such as: the Beliong Chinese Temple/ Community Association, IADA Samarahan, Asajaya District Office, Land and Survey Department and local English and Chinese newspapers. I also approached the
relevant Headman/ Assistant Headman and other local leaders for relevant unpublished records relating to different ethnic groups, namely Malay, Chinese and Iban people.

As mentioned in Chapter 3 (Section 3.5.1.3.3), secondary data can be used to support or question information gained from interviews or observations. For example, I managed to obtain copies of special publications, published in 1989 and 2003, about the Fuk Teck Kung Temple. The publications provided useful written and visual data about social changes in the case study area, especially with respect to the Chinese community in the last 100 years. For example, I would not have known about the old shop houses built on the riverbank of the Samarahan River (See Figure 4.3), which can no longer be seen in the case study area because erosion has led to the site being flooded by the Samarahan River. The shop house has a combination of shop-house structure, which the ground floor of the shop house is opened to do business and the owner of the shop is staying on the first floor.


Figure 4.3 The destroyed old shop houses due to erosion.

Other photos in these publications shows some of the changes to Beliong over the last five decades. This visual record enabled me to compare what I observed and heard during my visits with what has happened in the past. Figure 4.4, for example, shows the first main concrete building that was built at the Fuk Teck Kung Temple beside the new shop houses. It looks as though the contractor has built a very high construction platform for the building to avoid the surrounding swampy land.
When I went to the temple, its compound had been enlarged, and there were more concrete buildings being built for other purposes. The surrounding area of the first building mentioned above was now filled up and well-paved (See Figure 4.5). These two figures show the changes in the area used for the temple, over time.

Figure 4.4 A photo of construction at the Fuk Teck Kung Temple, next to the new shop houses (the building shown at the back).

Figure 4.5 A photo of the first building built at the Fuk Teck Kung Temple, Beliong.
Photos of various activities carried out by the Fuk Teck Kung Temple Association show the kinds of social networks existing among the Chinese community in Beliong, and their relationships with other Chinese communities from other places. The publications also include some historical stories that support the verbal history collected during the interviews. This kind of data is difficult to deliver verbally. I understood what the people described but when I saw the photos of the old days, showing their involvement in social activities, I learned additional information about their lifestyles, work habits, culture and other aspects of daily life.

Representatives of government agencies also provided me with records showing the agricultural and infrastructural development projects implemented for Beliong in the past. For example, the layout map shows the perimeter bunds built around Beliong and the locations of the water gates, which play an important role in controlling the water levels of the waterways. The map provided a good picture, indicating connections between the structure of the perimeter bunds and the water gates, with the existing living and farming environments in the case study area, and showing the direction of water flows and the intrusions of sea water. All these records gave some clues as to how the natural occurrences of additional fresh water from rain, and sea water from high tide cycles, (biophysical features) might affect the drainage systems in the case study area.

Other important sources of secondary data were a topographical map produced by the Land and Survey Department (Already cited: Figure 4.1) and a land use map of Beliong (See Figure 4.6). The topographical map shows the location of Beliong in relation to the city of Kuching and nearby areas. This map also shows clearly the road and river networks found in the area surrounding Beliong. This information gives a good picture of the transportation system in the case study area. It indicates the possible methods for people to travel to and from Beliong.

In the case of the land use map (Figure 4.6), the symbols show that at the time, (1993), the case study area was mainly covered by coconut farms, mangrove and nipah forests. Rubber gardens occupied a small portion of the land in Beliong; a small portion of the case study area was identified as shifting cultivation and mixed swamp forest areas; while lalang and unimproved coarse pasture or scrub grassland were found near the mouth of the Samarahan River that flows to the South China Sea. The data from this map shows the road networks, the rivers and the sea, and the connections to Beliong. A detailed map of the land use pattern is shown in Figure 4.7.
3C = Coconut
3GS = Senile rubber
8M = Mangrove
8SF = Mixed Swamp Forest

3GM = Mature rubber
4X = Shifting cultivation
8N = Nipah
6 = Lalang and unimproved coarse pasture and/or scrub grassland

Figure 4.6   The Land Use Map of Beliong.
Figure 4.7  Details of the Land Use Pattern within Beliong.

The land use map (Figure 4.7) also gives information relevant to the distribution of settlements and land ownership. For example, the location of coconut farms and rubber farms can be linked to the Chinese community, as most of these farms were owned by the Chinese.
people. The shifting cultivation land can be connected to farming activities carried out by either the Malay or Iban communities. This is mainly because Sarawak had two land tenure systems during the colonial time of Brooke’s Kingdom in 1841-1941 (Ngidang, 2005). (See 5.1.5.1 for the information relating to the Brooke’s Kingdom). One land right law applies to the traditional land use under the native customary law (Malaysians call it “adat”). This customary law was enforced to protect the rights of native people to land resources. Only the native people – the Malay and Iban people in this case study – can access the land under this native customary land right. The Chinese people are not considered to be native to Malaysia because their ancestors were immigrants from China (Ngidang, 2005). The other land right law applies to commercial land use under legalised private land ownership. Private land rights apply to all ethnic groups in Sarawak, including the Chinese people. Land under this law is known as Mixed Zone Land (Ngidang, 2005).

The Sarawak Land Code, 1958, maintains the distinction between customary rights and private land rights. Under this code, there are three different types of land title: Native Customary Right Land (NCR) and Native Area Land (NAL) for the native people, and Mixed Zone Land for other non-native people, including the Chinese people (Ngidang, 2005). Among these three different types of land rights, shifting cultivation is normally found in the NCR or NAL land areas, while the Mixed Zone Land area is normally used for other private purposes, including commercial farming. This indicates that the shifting cultivation area shown in the land use map (Figure 4.7) most likely belongs to the Malay, Iban or other native people in the case study area. The land use map, then, can tell the land use pattern of the case study area and provide evidence to support comments given by respondents drawn from different ethnic groups regarding farming issues faced by them.

As well as maps, I also tried to obtain relevant information from a number of local newspapers, which are mainly published in the English, Chinese and Malay languages. Normally, the Chinese newspapers highlight concerns relevant to the Chinese ethnic group and the Malay newspapers highlight concerns relevant to the Malay or Iban ethnic groups. As I can read all three languages, I could identify any articles relating to my case study site. Few articles related to educational, developmental progress and attraction issues in Beliong, were relevant to this case study, however. In the case of local Chinese newspapers, I found two relevant articles published by one of these Chinese newspapers called “Sin Chew Jit Poh”. One of the articles reported on religious activities organised by the Fuk Teck Kung Temple and showed photos of the temple (Sin Chew Jit Poh, dated December 27, 2010). The article provided useful information indicating initiatives by the temple’s committee members to
promote the temple, in an effort to build stronger social networks with people from other places. Committee members tried to gain the attention of outsiders by inviting them to be involved in social activities organised for the temple. (See Figure 4.8).

Figure 4.8 A Chinese newspaper article about the Fuk Teck Kung Temple.

The main content of the article above was about the news of the coming Chinese New Year 2011, the lighting candle activity organised by the Fuk Teck Kung Temple. This is the only Buddhist temple with a pagoda in the Samarahan District area. For the celebration of the Chinese New Year, the temple invited all Buddhist believers including those from other places, to offer prayers via the lighting up candle activity. The article also introduced in brief, the history of the temple. The construction of the temple was completed in September 2009. Since then, the temple has become a well-known worship place for Buddhist followers. The temple has also become an important tourist spot, attracting visitors from Kuching and other places. Detailed information of the lighting activity was given in the article. This includes the purpose, the duration and the way to become involved in the activity.

The second article (See Figure 4.9) discussed the schooling problem faced by the Chinese medium national primary school in Beliong and pointed out education problems in the case study area. These articles provided additional information showing the current situations faced not only by the Chinese people but also the Malay and Iban people in Beliong.
Figure 4.9 A Chinese newspaper article about the problems faced by the Beliong Chinese-Medium Primary School.

The article shown in Figure 4.9 mainly addresses the causes of the schooling problems in Beliong. The article stated that all the Chinese-medium primary schools in the city had either too many or enough numbers of new students. But other Chinese-medium primary schools in rural areas face insufficient numbers of new students. In Beliong’s case, only one new student had registered for the coming school term at the Chinese-medium primary school in the case study area. The shortage of new students had put the school in a difficult position regarding continuing its services. The article also mentioned that the under-developed conditions faced by the case study area with no bridge access, caused a serious out-migration of young people, which had significantly decreased the population. Because of the out-migration problem, not many young people remained or returned to the case study area. For this reason, the future of the Beliong Chinese School is uncertain.

Recently, news about a proposed bridge development was published in a few local newspapers. This kind of news alerted people to the government’s concerns about development in Beliong. One of the relevant articles about the proposed bridge development, published in the local English newspaper, “The Borneo Post”, is shown in Figure 4.10.
Figure 4.10 An English newspaper article about the proposed development of a bridge for Beliong.

4.5 Survey Experiences

My past experience in conducting social survey activities for assessing developments in rural areas of Sarawak, indicates that respondents from a particular study area are likely to give different feedback to interviewers, depending on the person(s) who introduced the interviewer to the respondents. It is important for interviewers to convince the respondents about the real purpose of their visit and about who they are representing in the survey.

Respondents are not likely to discuss detailed information with interviewers if the interviewers are accompanied by representatives of developers, property owners or government agencies. Most of the time, respondents also do not dare to discuss the bad things arising from a development. This might be because they are afraid of being treated differently once the developers are aware of their unfavourable thoughts about the development.

However, if interviewers approach respondents with the help of local leaders, especially the Headmen of villages, the respondents are more likely to trust you and be open to all kinds of...
questions. Importantly, with trust, respondents are more willing to share their personal thoughts and feelings. This is the kind of information that I need for my study.

I believe that my effort to gain the trust of the Headmen and local leaders was successful, as the villagers learned about me and my purpose for being there before I talked to them. Respondents then gave full cooperation to help me get my survey completed. They even offered assistance to get in touch with other respondents and to show me around their farmlands and the nearby villages. During this period of time, they shared valuable information and their feelings with me. This meant that I was able to get all the information needed for my study, and I have built a network with the local people of my case study site.

Based on my experience as a professional assessor and as a student in this project, I believe that the information I was able to gather and the openness of the people I interviewed was similar to other research projects. However, some of the local people were curious about why I as a student, would want to carry out research at their remote area, Beliong, and not at other places which are easier to access. Did I have another identity besides being a student in this research? Because of their curiosity, I had to explain to them again that I was a PhD student and wanted to test my proposed framework in a suitable research background environment, and Beliong provided me with a suitable and convenient location for this purpose. I also had to show the legal research permit that I had obtained from the State Planning Unit (SPU) of Sarawak to support my explanations and to gain their trust and understanding that I am a real student.

In the past, local people, especially those who lived in rural areas and rarely met outsiders who visited their areas for research purposes, had never been curious about my identity as a professional assessor and my reason for conducting research in their area. I guessed the main reason might have been because they thought that I was being paid to carry out the study, and as such, I did not choose the location of my study. Normally, local people accept that I, as a professional assessor, would need to go to the place likely to be affected by the development being studied. With this research, I had to convince some of the local people that I am a student and that I just wanted to test my framework, and that there was no other hidden purpose for visiting their area nor for conducting interview sessions with the local people.

My experience from previous research also gives me a better idea of where and how to collect all the data needed for my study, as the proposed framework provided me with guidelines on the specific data needed. Previously, I lacked proper guidelines that indicated how to determine the quality and quantity of the data needed for my study, although I had made
proper plans for conducting my fieldwork. Sometimes in the past, I had to spend more time and money to identify and collect the extra data needed. But as a result of this research, I now know what kinds of data are needed and how to look for this data. I also now know whether I have collected sufficient data for my study and whether I have done enough for my fieldwork. My involvement in this research has also enhanced my knowledge and experience on how to conduct more effective surveys.

4.6 Chapter Summary

This chapter introduced the background of the Beliong case study area in Sarawak, Malaysia. The reasons for selecting Beliong as my case study area and the preparations made for the study were discussed. The purposes of this chapter are to provide a clearer picture of my case study area and also to help those who are not familiar with the rules and culture of Malaysia to better understand the situation; the proper procedures for conducting social surveys in Malaysia, particularly the State of Sarawak. In addition, the sources of data used to collect the information required for the case study are presented and discussed in this chapter. The last section of this chapter discusses my experiences as a student in carrying out the survey for my case study. The main findings of this case study following Steps 1 to 5 of the framework are presented in Chapter 5.
Chapter 5
The Findings of the Malaysian Assessment Case Study

5.1 Introduction

This chapter discusses the findings of the Beliong case study. As mentioned in the previous chapter, the Beliong case study was conducted to assess the theoretical framework suggested by this thesis (See Chapter 3, Section 3.4 and Figure 3.3). The framework consists of a five-step analytical path for investigating specific human and non-human factors that contribute to social change.

Each step links to specific elements of social change that show the process of social transformation from actors to actions, and its effects that are connected to humans and the biophysical environment, which then lead to the estimation of social impacts. The first three steps of the framework start with the identification of the actors, the capital stocks of actors and the change agents. Then, Step 4 guides the way to link all these actors, capital stocks and change agents together in order to establish the relationships, which are used to estimate the actions and the leading effects of these actions, on individuals, collective groups and environmental conditions.

The last step of the framework provides a platform for analysing the interactions of the changes estimated from the relationships established in Step 4, and the estimation of the impacts on individuals and communities, who hold social power to shape these changes. The findings from the last step are channelled back to the first step of the framework, to provide feedback for carrying out a more advanced and in depth SIA study in the future.

5.1.1 The Identification of Relevant Actors

As suggested in Step 1 of the framework (See Section 3.4.1), the first step in investigating social impacts is to identify all the relevant actors involved. By following the three starting points (individuals, collective groups and environmental features), as suggested in the framework, the question of who are the relevant actors of social change in the case study area, leads to the identification of the three main groups of actors. These groups are:

1) Individuals with different roles,
2) Social organisations with different functions, and
3) Biophysical features with different values and meanings to the people and their environment.
There were three types of actors found in the area, interacting with each other and establishing complex relationships among themselves. Each type of actor carried a specific value, representing their importance and position in the social structure existing in the area. This position affects the way actors interact and connect with other actors in responding to developments.

The individual interviews, responding to questions related to the actors of social change, suggested that the relevant actors identified in this case study, were either people or biophysical features that were likely to be affected by the proposed road and bridge development. At the same time, these people or biophysical features were the ones that were likely to affect changes in the case study area. The people and the biophysical features brought their own meanings and values to the individuals and communities in the area (See Table 5.1). For example, boat operators were identified as one group of relevant actors who provided private boat services to anyone who wanted to cross over the river or transfer goods. The presence of these boat operators ensured transportation to the outside world, so their value lay in solving the transportation obstacles that otherwise would have stopped individuals and communities in the case study area from being connected with the outside world.

In this case study, the feedback given by the individual respondents was used to identify the degree of concern of an actor, in contributing to social change in the area. As shown in Table 5.1 and Table 5.2, the same feedback of respondents was summed up in the ‘frequency’ column. The ‘frequency’ indicates which actors have a more important role in affecting the pattern of social change in an area. Based on this ‘frequency’, the percentage of respondents who gave the same feedback, was calculated. This ‘percentage’ figure determined the ranking of actors, in more to less importance, who affect social change in the case study area.

For instance, the boat operator was identified as Rank 7 in accordance with respondent feedback. This meant that respondents believed that the boat operator is one of the actors who contribute to change in the case study area. But respondents did not see the boat operator as the most central actor who affects change in the case study area. The central actor for social change in the case study area is the temporary resident, who was mentioned by 22 out of 30 respondents. This is followed by permanent residents, which was mentioned by 20 respondents. Descriptions of the temporary resident and the permanent resident are discussed below.
In the individual interviews related to the human actors of social change, many respondents mentioned that the temporary residents consisted of local people who worked and lived in the city. They only came back during festival seasons or over the weekends to visit their family members who still live in the case study area. Without their presence in the case study area, Beliong was like a place for the retired and older people. The life was quiet and social activities were restricted. The respondents commented that the temporary residents are the people who bring changes to the lives of the permanent residents. They are the young generation who decide the fate of their family members, either to remain living in the area or to move to other places in the future. Without this group of temporary residents, Beliong contains an insufficient number of people for encouraging major social activities or changes. In addition, the permanent residents who are mainly older people, are less able to think and consider consequences, unlike the temporary residents who are mainly young and educated. Young people are likely to do more thinking and planning for their future lives while the older people tend to follow the decisions made for them by their children. Therefore, respondents believed that the temporary residents will make a greater contribution to social change in the case study area in the future.

The same concept of ‘frequency’ was used to identify the influences of the other elements suggested in the framework for Steps 2 to 5, to identify their contribution to social changes in the case study area. As shown in Table 5.1 (individuals and social organisations’ types of actors) and Table 5.2 (biophysical features’ types of actors), the relevant actors identified in this study were mostly local people or biophysical features made up of the case study area’s existing human and biophysical environments. Only a small number of these actors were outsiders, or non-local features found in other places outside the case study area, or bridging biophysical features that had relationships with the case study area and its surrounding environment. Identification of the relevant actors gave a brief picture of who the people or biophysical features are that are likely to be the root cause of social change in the case study area, and, as such, they are the targeted actors for tracing the social changes happening in the area. By adapting and adjusting to the local conditions of the case study area, the study estimated what had occurred in accordance with the preferences, interests and concerns of the affected people about their futures and not according to the perceptions of outside assessors.

In Table 5.1, *Locals* refers to those individuals who have experience of living in the Beliong case study area. They are either permanent or temporary villagers, who have living experiences in the case study area for some time and have some local knowledge. The differences between permanent and temporary villagers are that temporary villagers are no
longer living in the case study area most of the time. They come back for special events, such as celebrating festival seasons, visiting relatives and friends who are still living in the area or just to spend their leisure time.

*Local features* refers to biophysical features found in the case study area, including natural features or man-made features such as rivers and waterways (See Table 5.2). Depending on their roles or functions in the case study area, their contributions to the social changes in the case study area are relatively varied.

*Outsiders or non-local features* refers to those individuals, social organisations or biophysical features found at other places, but that have connections with *locals* or *local features*. Examples of outsiders, who have interactions with social activities happening in the case study area, are people such as middlemen, representatives of government agencies and contractor workers. They are the people who come to Beliong for certain business purposes. Middlemen come to buy agricultural products like bananas from farmers. Representatives of government agencies, such as the respective officers from the relevant District Office and Integrated Agricultural Development Area (IADP) Samarahan, come to inspect local conditions that are under their supervision. They talk to *locals*, meet local leaders and carry out their projects with the help of individuals and local social organisations.

For instance, the IADP have implemented a few upgrading infrastructure projects, such as the upgrading of farm roads that link Kampung Melayu Beliong, Kampung Sungai Tanju and Kampung Sangkap (MOA, 2012). The projects have created opportunities for outsiders to cooperate with individuals and social organisations in the case study area. The projects have also created opportunities for contractors and their workers from outside to take part in development in the case study area. With the efforts of these workers, some old tracks have been upgraded (See Figure 5.1 and Figure 5.2).

Similar to the *locals* or *local features*, the contributions of *outsiders or non-local features* to social change are dependent on their roles. The same concept applies to the bridging *biophysical features*, which refer to man-made features or natural features such as boats or rivers that link or separate the case study area and the nearby land.
## Table 5.1 Summary of Relevant Actors Identified from the Survey.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Actor</th>
<th>Relevant Actor</th>
<th>Involved</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Frequency Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Individuals</td>
<td>• Temporary resident</td>
<td>✓ Locals</td>
<td>22</td>
<td>73.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Permanent resident</td>
<td>✓ Locals</td>
<td>20</td>
<td>66.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Non-resident</td>
<td>✓ Outsiders</td>
<td>11</td>
<td>36.7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Labour</td>
<td>✓ Locals/ Outsiders</td>
<td>9</td>
<td>30.0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Local leader</td>
<td>✓ Locals</td>
<td>8</td>
<td>26.7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Farmer</td>
<td>✓ Locals</td>
<td>6</td>
<td>20.0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Boat operator</td>
<td>✓ Locals</td>
<td>5</td>
<td>16.7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Women</td>
<td>✓ Locals</td>
<td>3</td>
<td>10.0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Middlemen</td>
<td>✓ Locals/ Outsiders</td>
<td>2</td>
<td>6.7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• New resident</td>
<td>✓ Outsiders</td>
<td>2</td>
<td>6.7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fixed buyer</td>
<td>✓ Locals/ Outsiders</td>
<td>1</td>
<td>3.3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Social</td>
<td>• Government agencies</td>
<td>✓ Locals/ Outsiders</td>
<td>13</td>
<td>43.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>organisations</td>
<td>• JKKK</td>
<td>✓ Locals</td>
<td>7</td>
<td>23.3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fuk Teck Kung Temple Association</td>
<td>✓ Locals/ Outsiders</td>
<td>4</td>
<td>13.3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Malay Women Association</td>
<td>✓ Locals</td>
<td>3</td>
<td>10.0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RELA</td>
<td>✓ Locals</td>
<td>3</td>
<td>10.0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Developers</td>
<td>✓ Locals/ Outsiders</td>
<td>2</td>
<td>6.7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Financial agencies</td>
<td>✓ Locals/ Outsiders</td>
<td>2</td>
<td>6.7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Farmer Association/ IADA</td>
<td>✓ Locals/ Outsiders</td>
<td>1</td>
<td>3.3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chinese Community Association</td>
<td>✓ Locals</td>
<td>1</td>
<td>3.3</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: Interviews conducted during the field survey carried out in 2011.
Table 5.2  Summary of Relevant Actors Identified from the Survey.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Actor</th>
<th>Relevant Actor</th>
<th>Involved</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Frequency Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>Biophysical features</td>
<td>• Coconut farms</td>
<td>✓ Local features</td>
<td>14</td>
<td>46.7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Internal roads</td>
<td>✓ Local features</td>
<td>13</td>
<td>43.3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nearby access roads</td>
<td>✓ Non-local features</td>
<td>11</td>
<td>36.7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Other infrastructure</td>
<td>✓ Local features</td>
<td>10</td>
<td>33.3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Direct connectors to the mainland (road, bridge or ferry service)</td>
<td>✓ Bridging features</td>
<td>8</td>
<td>26.7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Land</td>
<td>✓ Local features</td>
<td>8</td>
<td>26.7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rivers</td>
<td>✓ Bridging features</td>
<td>8</td>
<td>26.7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Perimeter bunds/ Water gates</td>
<td>✓ Local features</td>
<td>6</td>
<td>20.0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Vehicles</td>
<td>✓ Local/ Non-local features</td>
<td>5</td>
<td>16.7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Advance agricultural technology</td>
<td>✓ Local features</td>
<td>3</td>
<td>10.0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Small mixed farms</td>
<td>✓ Local features</td>
<td>3</td>
<td>10.0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chinese Temple</td>
<td>✓ Local features</td>
<td>3</td>
<td>10.0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Village reserve land</td>
<td>✓ Local features</td>
<td>1</td>
<td>3.3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Settlements</td>
<td>✓ Local/ Non-local features</td>
<td>1</td>
<td>3.3</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Interviews conducted during the field survey carried out in 2011.
Figure 5.1 This photo shows the closer part of the road leading to Kampung Sungai Tanju that has been tar-sealed.

Figure 5.2 A dirt track leading to Kampung Sangkap that has been gravelled with stone.

5.1.2 Background of the Local People and Villages

Based on the responses gained from the questions asked in the village headman survey (Appendix D), the three villages in the case study area have a total population of approximately 856 people. They are Kampung Melayu Beliong (a Malay village), Kampung Sangkap (a Chinese village) and Kampung Sungai Tanju (an Iban village) (See Figure 5.3). The majority of the population are Malay residents from Kampung Melayu Beliong, approximately 462 people (54.0%). This is followed by the Chinese people (264, 30.8%) and the Iban people (130, 15.2%). There are about 84 households and 35 households residing in Kampung Melayu Beliong and Kampung Sungai Tanju, respectively. In Kampung Sangkap,
there are only approximately 50 households are still living permanently in the case study area, as many of the Chinese families have moved and settled in Kuching city, leaving their farmhouses permanently unattended. No clear records show how many villagers are permanent or temporary residents though the majority of them are permanent.

Figure 5.3 The Approximate Location of Houses Found at Kampung Melayu Beliong, Kampung Sungai Tanju and Kampung Sangkap.
The survey with the headmen also indicates that the Malay people live at Kampung Melayu Beliong, which is located near the jetty point. Kampung Sungai Tanju is an Iban village located approximately a half an hours walk from the jetty. The Malay and Iban people from Kampung Melayu Beliong and Kampung Sungai Tanju have built their houses within the village reserve land; government allocated land. In these two villages, the people have built their houses quite close to each other, which have made the village patterns appear concentrated.

The houses found in Kampung Melayu Beliong are very close to each other. In the case of the Chinese village at Kampung Sangkap, the houses are scattered around as the people have built their houses within their own farm areas. Some of the houses are located approximately two to three kilometres away from other houses, as some Chinese own big farms in the case study area. Some houses are about one to two hours walk from each other. Most of these houses have very big compounds with various types of vegetables and fruit trees planted in the surrounding areas.

Each village has its own headman and other local leaders who take care of their daily social activities and village welfare. Interviews conducted with individual respondents from different ethnic groups regarding the actors of social change, indicate that a number of local social organisations have been established to help individuals and communities in the case study area deal with social issues, including religious matters. They have different social organisations which manage and organise social issues happening in different villages. All three villages have their own religious associations that handle local religious activities or issues pertaining to different religions: the Muslim Association (Kampung Beliong – Muslim religion), the Fuk Teck Kung Temple Association (Kampung Sangkap – Buddha or Taolism religion) and the Christian Fellowship (Kampung Sungai Tanju – Christian religion).

Other active social organisations found in the Malay village are the Village Development and Security Committee (JKKK – Jawatankuasa Kemajuan dan Keselamatan Kampung), the People’s Volunteer Corps (RELA – Ikatan Relawan Rakyat Malaysia) and the Malay Women’s Association. Among these three social organisations, only JKKK and RELA are identified as also being relevant to Kampung Sungai Tanju, the Iban village. In the Chinese village, the function of JKKK or RELA was managed by the Chinese Community Association, which basically looks after all the social issues relating to the Chinese community in the case study area. As well as the locally based social organisations, the Farmers’ Association/ IADA, government agencies, development companies and financial
agencies are believed to be forms of external social organisations, that involve and cooperate with local people to deal with any development issues found in the case study area.

Most of the development efforts that can be seen in the case study area are related to the development of transportation and agricultural facilities, which were carried out to improve standards of living in the case study area and also to provide a better infrastructure needed for carrying out planting activities. These facilities exist in various forms of biophysical features such as roading, perimeter bunds, water gates and other types of infrastructure. These kinds of man-made biophysical features have mainly enabled individuals and communities to carry out their daily activities in a more convenient way and to also provide them with better living and working conditions. Most of the time, the needs of local people for man-made biophysical features are dependent on the existing natural biophysical features, especially the land and the rivers, which determine whether and which, man-made features are suitable for the case study area.

5.1.3 The Exploration of Capital Stocks that Enable Actors to React (Perceived and Performed)

The identification of relevant actors in Step 1 then leads to the exploration of the capabilities of the actors and how that affects their thoughts or actions in responding to development. As discussed in Chapter 3 (Section 3.4.2) regarding capital stocks, the ownership of different types of capital depends on the position of each actor in the social structure. This position affects the accessibility an actor has to types of capital stocks that give social power for an actor to react. In the case study, tracing the ownership of capital and the types of capital related to social change in the case study area, is carried out through three main groups of actors identified in Step 1 (See Table 5.1 and Table 5.2). A summary of the information collected for different types of capital stocks for the case study area is presented in Table 5.3.

Based on the survey work carried out, three types of ownership for three types of social power were recognised as important for studying the existing capital stocks available for development:

a) The ownership of human types of capital stocks is related to the social power of an individual.

b) The ownership of social types of capital stocks is related to the social power of a collective group.

c) The ownership of biophysical types of capital stocks is related to the social power of an individual or a collective group.
As mentioned in Section 5.1, the frequency of each key theme mentioned by respondents was used to determine the importance of each theme in contributing to social change in the case study area. For this step, respondents’ feedback about different types of capital stocks was used to identify the importance of different capital stocks suggested in Step 2 of the framework. Relevant questions regarding individual, social, man-made and natural capital stocks were asked during the individual interview sessions. The findings of the frequency of each key theme based on respondents’ feedback on the relevant questions, shows that attitude, friendship and the transportation network were identified as the aspects causing the most concern for the three different types of capital stocks. This means that these three capital stocks have a greater value in affecting social change in the case study area.

Table 5.3 summarises capital stocks that are perceived to be the relevant capital most likely to affect social change in the case study area. In terms of human types of capital stocks; education background, living experience, employment status, local or indigenous knowledge, attitude, age, financial status or income, farm ownership, leadership, friendship and kinship, were perceived to be the main relevant capital stocks that hold certain social power. This social power determines the capability of an individual to act and respond to others and the biophysical features in their surrounding environment. Social types of capital stocks, that is, leadership, external cooperation or assistance, local or neighbourhood norms, home attachment values, the Malay culture, the Chinese culture and the Iban culture, are seen as giving social power for collective groups to shape changes in the case study area.

The biophysical types of capital stock that are owned by the public, involve the accessibility to natural and man-made features by individuals or collective groups; stock such as farmland, rivers, places of public worship, drainage basins and modern settlement patterns. This biophysical type of capital stock is capable of generating social power for an individual or a collective group. For certain types of natural features, like the rainy season, tide cycle and sea water, neither an individual nor a collective group can restrict others’ access to them. They are natural occurrences that have their own value, and which affect the way individuals or collective groups decide and achieve what they want for their living and working lives in the case study area.
Table 5.3 Information about Capital Stocks.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Capital</th>
<th>Relevant Capital Stocks</th>
<th>Social Power</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Frequency Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Human capital</td>
<td>• Attitude ♚ Individual matter</td>
<td>13</td>
<td>43.3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Employment status ♚ Individual matter</td>
<td>10</td>
<td>33.3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Education background ♚ Individual matter</td>
<td>5</td>
<td>16.7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Farm ownership ♚ Individual matter</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Home attachment ♚ Individual matter</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Local/Indigenous knowledge ♚ Individual matter</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Financial status/Income ♚ Individual matter</td>
<td>3</td>
<td>10.0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Age ♚ Individual matter</td>
<td>2</td>
<td>6.7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Social capital</td>
<td>• Friendship ♚ Collective group matter</td>
<td>7</td>
<td>23.3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• External cooperation/Assistance ♚ Collective group matter</td>
<td>5</td>
<td>16.7</td>
<td>2</td>
<td></td>
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<td></td>
<td></td>
<td>• Local/Neighbourhood norm ♚ Collective group matter</td>
<td>4</td>
<td>13.3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Trust and cooperation ♚ Collective group matter</td>
<td>4</td>
<td>13.3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Kampung life’s value ♚ Collective group matter</td>
<td>3</td>
<td>10.0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Leadership ♚ Collective group matter</td>
<td>3</td>
<td>10.0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Kinship ♚ Collective group matter</td>
<td>2</td>
<td>6.7</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Malay culture ♚ Collective group matter</td>
<td>2</td>
<td>6.7</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chinese culture ♚ Collective group matter</td>
<td>2</td>
<td>6.7</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Role model ♚ Collective group matter</td>
<td>1</td>
<td>3.3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Biophysical capital</td>
<td>• Transportation network ♚ Co-matter</td>
<td>8</td>
<td>26.7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agricultural land ♚ Co-matter</td>
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<td>10.0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Place of public worship ♚ Co-matter</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Drainage basin ♚ Co-matter</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Modern settlement pattern ♚ Co-matter</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Other facilities ♚ Co-matter</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Communication network ♚ Co-matter</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Utilities supply ♚ Co-matter</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tide cycle ♚ Co-matter</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fresh water/Rainwater ♚ Co-matter</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Source: Interviews conducted during the field survey carried out in 2011.
As explained in Chapter 3 (Section 3.5.1.1), capital stocks are driving forces that determine the capability of individuals or communities to react to development. It is assumed that the direct or indirect methods of accessing these capital stocks encourage or discourage individuals or communities to take actions or not, that contribute to social change in the case study area. The greater the accessibility of these capital stocks, the stronger position an individual or a community is in, to direct social change towards their desired outcomes that fulfil their needs.

5.1.4 The Identification of Connections of Actors, Social Actions and Change Agents

The question that needs to be explored now is to find out the opportunities and limitations that exist due to interactions between development activities and social rules, that affect the appropriate or possible ways for individuals and communities to access, allocate or use relevant capital stocks for producing actions. The relevant data that was useful for this case study relating to the proposed road and bridge development, includes the objective of the development, the location where it is proposed to build the road and bridge, development size/scale, construction activities, duration of development, schedule of development, size of workforce, etc. All of this information is needed to estimate the kinds of relevant relationships that might be established in the future. For this case study, the data relating to development activities is not discussed in detail as the proposed road and bridge development is only used as an example of possible developments planned for the case study area.

In terms of data relating to social rules that apply to the case study area, two types of social rules were considered, in studying the distribution and accessibility of capital stocks in the area by different individuals and communities. These rules are unofficial customary practices and local cultural practices that apply to specific communities, and official legal systems that apply to all people, in general. In this case study area, it was found that different ethnic groups have their own unique customary or cultural practices, which indicate the appropriate ways of carrying out social activities or social actions that meet the expectations of others in the same ethnic group. The role of this customary practice or local cultural practice is to ensure harmonious relationships among individuals within the same ethnic group and also to keep associations appropriate to their environments, especially the spirit world and the related forest and natural resources.

When questioned about which aspect of social capital that individual and senior focus group respondents believe will affect social change in their area, local people mentioned traditional beliefs. Respondents commented that people in Sarawak, especially older people, still hold
very strong beliefs in the spirit world. In this case study, the concern was whether this kind of customary practice or local cultural practice concealed which practice belonged to which ethnic group; the Malay, the Chinese or the Iban people. Though they live in three different villages, daily interactions and connections exist among them and they have built up a good understanding of the customary and cultural practices of the other ethnic groups in the other villages. They respect each other’s cultures and pick up other ethnic groups’ practices that are perceived to be positive and which could improve their lifestyles.

For example, the Chinese people place a greater value on education and schooling opportunities; many of the Chinese families in the case study area send their children to attend better schools or higher education in the city and have done so since the old days when the area was lacking proper schooling facilities. The Malay and Iban people generally have not sent their children to school outside of the case study area or for higher education. Financial difficulties are the main reasons. But for these people, compared to the Chinese, the meaning and value of education has been not as great. Generally, most of the higher educated people from the case study area are Chinese. However at the time of this study, the Malay and Iban families were taking the matter of providing their children with better educational opportunities more seriously and are now encouraging their children to pursue a higher education. These changes are partly because of the improvement in their financial conditions and because of opportunities for education and because of evidence that those with higher educational backgrounds have better job prospects. Today, the benefits of education as a stepping stone for achieving better living standards are recognised by all ethnic groups.

Based on the feedback gained from the individual interviews and also the village headmen interviews, the conclusions made regarding the relationships of this social rule to the local lifestyle, was that the perceived value made by the affected individuals and communities towards social, economic, political and environmental issues pertaining to their lifestyles, was guided by the local culture. This perceived value affects individuals and communities trying to access or build certain types of capital stock, allocate capital stocks within their responsibility to others in the communities or use the owned capital stocks in a way that leads to their desired outcomes. Besides customary practice and local culture, two more types of social rules that guide the actions of individuals or communities are two separate legal systems. One is under the State Government, while the other is under the Federal Government. Both legal systems apply to social activities happening in the case study area. An example of a development activity that is covered by both legal systems is the practice of Environmental Impact Assessment (EIA) in Sarawak (See Chapter 1, Section 1.2.5).
The legal systems indicate the rights and wrongs of individuals and communities being involved in or carrying out actions. Similar to the customary and cultural practices, these legal systems directly or indirectly determined the appropriate ways of accessing and using different types of capital stocks to achieve the needs and wants of these individuals or communities. This is especially applied to individual or community rights to access various kinds of public goods or certain types of assistance and opportunities, as defined and recognised by the rules and regulations enforced under the relevant State Laws, or Federal Laws, of Sarawak.

In Sarawak, most local social activities are related to the State Laws. However, development activities planned for an area in Sarawak may also be tied to the Federal Laws (Fong, 2008). The same situation is expected for the Beliong case study area, as it is part of Sarawak. Thus, there is a need to explore the relationships of both legal systems and how they may be relevant to the proposed development in the case study area. The understanding of the nature of development activities and the customary or local cultural practices and legal systems, shows the relationships between actors identified with capital stocks, and the ways of transferring and transforming the capital stocks into desired actions in responding to the proposed development.

A summary of the possible change agents related to social change in the case study area is shown in Table 5.4. These possible change agents were identified through the interviews conducted with individual respondents. As with Steps 1 and 2, the frequency of respondents’ feedback for the same issues was used to identify their importance to social change in the case study area. Issues showing higher frequency meant that respondents were more concerned about the changes in this aspect of their lives that will result from the proposed roading and bridge development going ahead.

5.1.5 The Estimation of Changes due to Development

As discussed in Chapter 3 (Section 3.4.4.) regarding the leading effects of social actions, the indications derived from local customary practices and laws enforced by the State and Federal governments, give a clearer picture of how capital stocks could be distributed to individuals and collective groups before being transformed into meaningful actions. An understanding of capital stocks, in Step 3, also allows views on what kinds of linkages could be formed among and within the relevant actors and the proposed development activities. These linkages show the possible match of suitable characteristics between relevant actors and development activities. The existing social rules determine the kinds of linkages formed.
Table 5.4 Information on Possible Change Agents.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Change Agents</th>
<th>Relevant Change Agents</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Frequency Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Individual</td>
<td>• Living standards</td>
<td>9</td>
<td>30.0</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>• Labour force pool</td>
<td>8</td>
<td>26.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lifestyle pattern</td>
<td>8</td>
<td>26.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Knowledge and skills</td>
<td>6</td>
<td>20.0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Leisure activity</td>
<td>5</td>
<td>16.7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Local working attitude</td>
<td>5</td>
<td>16.7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motivation to settle back</td>
<td>3</td>
<td>10.0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• New property ownership</td>
<td>2</td>
<td>6.7</td>
<td>6</td>
</tr>
<tr>
<td>II</td>
<td>Society</td>
<td>• Diversified local social organisation activities</td>
<td>5</td>
<td>16.7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Access to resources and services</td>
<td>5</td>
<td>16.7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cooperation among farmers</td>
<td>4</td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cooperation with government agencies</td>
<td>4</td>
<td>13.3</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>• Sense of attachment to a kampung’s life</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>• Empowerment of social organisation</td>
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<td>6.7</td>
<td>3</td>
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<td></td>
<td></td>
<td>• Women’s role in a society</td>
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<td>6.7</td>
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<td></td>
<td></td>
<td>• Marketing channel</td>
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<td>4</td>
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<td></td>
<td></td>
<td>• Ethnic groups’ population distribution</td>
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<td>3.3</td>
<td>4</td>
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<tr>
<td>III</td>
<td>Biophysical</td>
<td>• Agricultural practice</td>
<td>6</td>
<td>20.0</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>• External access links to Beliong</td>
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<td>20.0</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>• Internal access links within Beliong</td>
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<td>13.3</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>• Water discharge control</td>
<td>4</td>
<td>13.3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tourist spot attraction for visitors</td>
<td>3</td>
<td>10.0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Use of agrochemicals</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Interviews conducted during the field survey carried out in 2011.
To gain a better idea of which linkages might play a more important role in the case study area, past and current changes experienced by the affected local individuals and communities provide the clues. The past trends of developments indicate the likely responses that may be shown by the people and their environment in dealing with proposed developments. By finding out the historical social, economic, political and environmental backgrounds in the case study area, the estimation for changes could be made in accordance with the past trends, especially when a similar kind of development is approaching the case study area.

In the past, the case study area was only accessible by travelling on a long boat journey from the jetty in Kuching City to the case study area but thanks to the improvements in transportation in the surrounding areas, access to the nearest land transportation network has made the journey much shorter: from one to three hours to less than 10 minutes boat distance across the river, joining a good gravelled road leading to the city. However, there is no direct-access road or bridge linking the case study area to the city side of the river. Hence, the purpose of this proposed direct-linking road and bridge is also to improve the existing transportation conditions; it is a similar development effort to the previous development and is designed to provide the people living in the case study area with more convenient transportation facilities.

The improvement in the transportation system is expected to directly and indirectly affect the ways individuals and communities deal with their daily transportation issues relating to social, economic, political and environmental aspects in the case study area. These transportation issues are related to the people’s decisions in looking for options that settle their problem of travelling, or carrying necessary goods in and out of the case study area. The relevant transportation issues are: an available transportation service, transportation expenses, types of vehicles used, and the choice of owning or hiring a vehicle that pertains to any actions that are needed to deal with the transportation system in the case study area. For example, besides thinking about the need to travel to other places to obtain daily necessary goods, farmers have to think of the transportation issues involved in getting necessary farming inputs, such as fertilisers and pesticides, and marketing their farming outputs, such as coconuts, bananas, vegetables and oil palm fruits.

As with the previous experience, the proposed road and bridge development is expected to bring similar kinds of changes to the people and their environment and with similar social transformation processes contributing to social changes in the case study area. The difference is that the past changes have given them experience and expectations for the kinds of development changes that they want in the future. As a result, individuals, social
organisations and biophysical features are likely to change in a similar transformation process towards a new direction, by adjusting according to the needs of existing situations, the availability of change opportunities and the limitations created by the relationships between the proposed road and bridge development and the relevant actors.

As suggested in Chapter 3 (Section 3.5.1.1), the additional data needed for Step 4 requires the collection of primary and secondary data related to the historical social, economic, political and environmental backgrounds to support the investigation of social changes happening to individuals and collective groups due to past developments. The survey conducted in the case study area shows that interviews, observations and documented investigations managed to collect historical data that suggests the possible direction for future social change. The relevant questions asked during the interviews gave an idea for possible social changes that the people would like to see happen in their area in the future (See Table 5.5).

5.1.5.1 Ethno-History of Social Background

As mentioned above, the historical social background is one of the data set that is required for an SIA study. This kind of data provides relevant hidden information that helps assessors to understand historical norms and values, and these norms and values affect the reactions of local people towards development. The survey found that the people living in Beliong who originated from different places, chose to start a new life and settle there when the place was open to anyone who was willing to turn it from jungle into farms, during the White Rajahs period.

“White Rajahs” refers to the Brooke’s Kingdom (1841-1941) that ruled Sarawak before the British colonists came to Sarawak. Under the Brooke administration, legal rights for land use had been created (Ngidang, 2005). According to an article written by Yuan Min (1989) for the Fuk Teck Kung Temple Special Issue Publication, Beliong was virgin jungle before the 1900s. People started to clear the land in Beliong for farming purposes in the early 1900s when the White Rajahs, who ruled Sarawak at that time, encouraged people to develop farming activities in the river mouth area.
Table 5.5 Information on Possible Changes.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Changes</th>
<th>Relevant Changes</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Frequency Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Individual</td>
<td>• Willingness to stay in village</td>
<td>4</td>
<td>13.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Engagement with different buyers</td>
<td>4</td>
<td>13.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Engagement with a multi mixed farm</td>
<td>3</td>
<td>10.0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Engagement with the agricultural expert from outside</td>
<td>3</td>
<td>10.0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Engagement with the developer</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>Collective</td>
<td>• Institutional power</td>
<td>7</td>
<td>23.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Kampung’s home attachment culture</td>
<td>5</td>
<td>16.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Women’s empowerment</td>
<td>2</td>
<td>6.7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• One Malaysia concept</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
</tr>
<tr>
<td>III</td>
<td>Environment</td>
<td>• Modern living environment</td>
<td>10</td>
<td>33.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Accessibility to and from the city</td>
<td>5</td>
<td>16.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Technology intensive farming systems</td>
<td>5</td>
<td>16.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Agricultural facilities</td>
<td>4</td>
<td>13.3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Convert the coconut farms into others</td>
<td>4</td>
<td>13.3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transforming of agricultural land image</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Safe and healthy environment for seniors and children</td>
<td>1</td>
<td>3.3</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Interviews conducted during the field survey carried out in 2011.
Farming activities were necessary to meet the demand from Kuching residents for fresh vegetables at the market. The White Rajahs saw the potential of Beliong for farming activities and offered lands in Beliong to people to solve the problem of the lack of vegetable supplies in the market. The White Rajahs gave people special permission, allowing everyone to cut trees in the virgin jungle, for five years. Within these five years, they were allowed to cut down as many trees as they could for carrying out farming activities; no land tax was enforced and all the land cleared and developed was then measured and issued with a proper land title, which was seen as a way of officially rewarding their hard work by recognising them as land owners for all the areas cleared (Yuan Min, 1989).

This marked the beginning of a human presence or human life history in Beliong and the start of biophysical changes taking place in Beliong. The place changed from a natural jungle with no sign of man-made features to a place with villages, farms, infrastructure and more that supported daily human activities. Since then, development has been kept going to provide the Chinese, Malay and Iban communities with a better living and working environment.

5.1.5.1.1 Chinese community

Many Chinese farmers became big farm owners under the system offered by the White Rajahs in the early 1900s. Most of them were attracted to settle in Beliong because of the opportunity to own suitable lands for farming and living, without paying anything for the land (Special Publication for Fuk Teck Kung Temple, 1989). The ownership of land was then transferred to their children and many of the descendants of the original settlers remain big farm owners in the case study area, continuing their lives with commercial farming activities as their forebears have done for nearly a century. The Chinese in Beliong are believed to be the descendants of Chinese immigrants who arrived earlier, before the offer of farming lands by the White Rajahs, and also, a group of new immigrants from China who accepted the White Rajahs’ invitations.

As stated in the Special Publication for Fuk Teck Kung Temple (1989), most of the ancestors of the Chinese people in Beliong came from China in the late 1800s and early 1900s, when China faced war with Britain, France and Japan. Many Chinese people migrated to Nanyang (Southeast Asia) to country’s like Malaya (now known as “Malaysia”), with the hope of starting a new life. The settlement of Chinese people in Beliong began with a small group of people and then expanded as their relatives and friends joined them, having seen the better way of life in Beliong. They slowly cleared out the jungle lands and turned it into farms; they planted fast growing vegetables first and then more effort was put into planting commercial crops, especially coconuts. Some of the Chinese settlers became big farm owners, owing to
their hard work in clearing the jungle lands and planting the areas with coconut trees (Special Publication for Fuk Teck Kung Temple, 1989).

Yuan Min (1989) pointed out that the White Rajahs tried to source new Chinese immigrants to develop the farming sector in Kuching in the 1900s. The invitations to people in China to come to Sarawak were supported by providing transportation to Kuching for those who wanted to accept the invitation. The group of people targeted by the White Rajahs were mainly peasants who had experience in farming activities. The White Rajahs hoped that the farming knowledge and skills of these people would be transferred to others in Kuching and, at the same time, the skills and knowledge of these immigrants would manage to produce sufficient daily vegetable supplies for the people in Kuching (Special Publication for the Fuk Teck Kung Temple, 1989).

Jong (1989) stated that the fertile soil in Beliong was suitable for planting. The harvest from the planting activities was encouraging, with excess to sell. In the early stages, people in Beliong only planted crops such as melons, yams and ginger to fulfil their own needs and to generate cash incomes in the short term. Then, the planting of coconut trees and other fast growing cash crops such as corn, rice, bananas and pineapples, followed. Some of them were even involved in raising livestock such as pigs, chickens and ducks. They were among the main suppliers of daily goods for the people in Kuching during that time. Bigger farms were mainly planted with coconuts and a few other types of commercial crops such as bananas, peppers, cocoas and green oranges established later on (Special Publication for Fuk Teck Kung Temple, 1989).

5.1.5.1.2 Iban community
It is believed that the ancestors of the Iban people moved to Beliong for the same reasons that attracted the ancestors of the Chinese and Malay people to the case study area. That is, the offer of using the unlimited farming land attracted them to settle in Beliong. The elder Iban people claimed that they were originally from Kampung Tabuan Dayak in Kuching, one of the Iban settlements that was located upstream of the Sarawak River (Malay language: Sungai Sarawak). The Sarawak River is the river that marks the western boundary of Beliong and the Iban settlement studied for this research, is located to the south-west side of Beliong, which is not far from small streams that flow into the Sarawak River.

Chang (2006) stated that Kampung Tabuan Dayak was an old village, aged about 150 years, that existed in the 1860s. The people were the descendants of people who had migrated from West Kalimantan, Indonesia. Their ancestors had first travelled and settled in Sri Aman.
Some of them moved out from the area later on and settled in several areas in Kuching, before occupying the land at Kampung Tabuan Dayak (Chang, 2006). Chang also mentioned that the old Kampung Tabuan Dayak then expanded into two new villages, called “Kampung Tabuan Lalang”, which was established in 1959 and “Kampung Tabuan Paya”, which was established in 2000. This was mainly due to the population pressure increasing. However, no further discussion or statements were made by Chang about the fact that some of them had migrated to other places, such as Beliong, between the period of the early 1900s to 1959, or later. The findings gained from the survey conducted for my case study at Beliong adds new information to the ethno-history of the Iban people in Sarawak.

5.1.5.1.3 Malay Community
The ancestors of the Malay people settled near the riverbank, not far from the Fuk Teck Kung Chinese Temple. The respondents reported that their ancestors came from Saratok, in the Betong Division of Sarawak. They reached Kuching first, in 1884, before moving to Beliong. The settlement started with only two families and it has now become the settlement with the largest number of households that are still living there. As distinct from the Chinese and Iban people, the first two Malay families who arrived in Beliong did not start their life in Beliong working on farm activities for economic survival, but instead they carried out fishing activities in the case study area for a living.

Later, more Malay people moved to the case study area for labouring jobs when the Chinese farm owners started to hire labour to work for them. Due to daily needs, the Malays then also planted some crops such as rice and vegetables, for their own consumption; few commercial crops were planted by the Malay people at that time. This situation is changing, however; Malays are planting commercial crops right now and their numbers are greater than that of the Chinese or Iban people who are still living in the case study area.

5.1.5.2 History of Economic Development
A rural area, like Beliong, plays an important role in supporting the lives of the people in the urban area of Sarawak. As stated by Heilig (2002), who carried out rural area projects for the International Institute for Applied Systems Analysis (IIASA), a rural area is an important area providing agricultural products, natural resources, leisure places, biodiversity reserves and suitable living environments for the nearby urban people. In order to maintain the importance of rural areas to the people, there are five rural development dimensions believed to be the key factors. They are human, economic, science and technology, resources and the environment, and political influences, that affect the sustainability of rural development activities (Heilig, 2002). The same concept applies to the case study site of Beliong. These
five rural development dimensions were also identified as main factors that affect the pattern of rural developments in the case study area. Although there were no massive development projects happening in the settlements studied, development from time to time, has slowly changed the culture, socio-economic, environmental and political structures in the case study area; the life of the people and their surrounding areas were no longer the same.

The case study settlements started as rural agricultural land with a few farming and fishing settlements. The farming settlements remain but the people nowadays, due to depletion of the fish stocks, carry out fewer fishing activities. Although the case study area physically remains as a rural place with farming communities, the existing working and living environments have changed. It used to be a very busy and famous coconut farmland area but it is now more like a quiet place for elderly people to live in.

People from outside of Beliong can see changes in the different ethnic groups, especially the Chinese and Malay people in the case study area, based on their focus and involvement in farming activities throughout time. In the past, Chinese people monopolised the commercial farming activities while Malay people mainly contributed to the labour force. At the time of the study, the domination of commercial farming activities by Chinese people in the case study area has changed, as many Chinese people have abandoned their farms and many Malay people have started to be involved in planting commercial crops. In addition, the proportion of Chinese people to Malay or Iban people in the area compared to the old days is decreasing, as many of the Chinese people have left the case study area and settled elsewhere, in the city, or other places. Many Chinese families have a second home in the city and they send their children to further study in the city or other higher educational institutions found in other places. Most of the time, this group of young Chinese chooses to settle and work in the city after completing their studies. The main reason is that it is easier to find a suitable job that is suited to their abilities and at the same time, the city offers a better benefits and working environment. In addition, the city and other places could provide a better living environment for them.

In the old days, the Chinese people in the case study area mainly planted coconuts, besides bananas, for commercial purposes, but there are signs that farmers intend to replant the coconut farms with oil palm, in the near future. Currently, a group of second and third generation Chinese farmers in the case study area have started to plant oil palm in the coconut farmlands they inherited from their parents. They tried to save the value of the land by making use of these big farmlands. This group of people are those with a better financial background and as such, they are able to start planting oil palm in the case study area by
themselves. They brought in new knowledge and skills of planting, maintaining and operating palm oil farms, which requires the usage of modern machinery, equipment and other different agricultural inputs. Their initiative has developed and changed the traditional coconut farm into a modern farming practice. It was common for farmers to manually do all the planting, harvesting, collecting and processing jobs of coconuts; all of these jobs are labour and time intensive. But with modern farming practices, farmers have become more reliant on high technology machinery and equipment.

Other developments seen in the case study area are the implementation of infrastructure development projects by the government. Beliong is like other rural places in Sarawak that are undergoing rural economic development processes. The government is carrying out various types of development projects for the case study area through various agencies. For example, Beliong, as one of the areas targeted by the Integrated Agriculture Development Area (IADA) Samarahan Unit, has benefited from some infrastructure development projects carried out under the Ministry of Agricultural and Agro-Based Industry Malaysia. In 2006-2010, the IADA Samarahan Unit successfully obtained approval for the construction of three and a half kilometres of farm roads, seven kilometres of drains, one jetty, three bridges and a culvert system for Beliong (MOA, 2012). This development brought changes to the physical environment in the case study area and it consequently changed the lives of people. IADA has planned more development projects for Beliong for the coming years.

Of all the agricultural and infrastructure developments planned and implemented for the case study area, the direct-access link from Beliong to the mainland of Sarawak is perceived to be one of the main developments that might bring greater change to the lives of the people there. This link refers to a bridge, a ferry service and a road that connects the case study area to the city; a more easy and flexible way that enables the people to go back and forth to the city or, at least, to the nearby settlements out of Beliong. As mentioned before in the early section of this chapter, Beliong is like an island surrounded by rivers and the sea. Boats are the only transportation mode found in the case study area. One boat can carry a maximum of eight to ten people or five persons with two motorcycles, at a time.

However, if there is a direct access link to the mainland of Sarawak, such as the proposed road and bridge, the ways of living and working in the case study area will change accordingly. The costly transportation fee to transfer goods across the river has added to the living costs of the people and their communities. For example, due to this transportation difficulty, the profits from selling agricultural products are lower and the costs of bringing in goods for the farm or other purposes are relatively higher than other places in the surrounding
settlements which are accessible by roads. The transportation difficulty is also a barrier for other types of development to happen in the case study area.

5.2 The Predicted Change Impacts on People and the Community

This section corresponds to the discussion presented in Chapter 3 (Section 3.4.5) about the predicted impacts of changes due to development. A good understanding of the background settings for the development is essential and includes: local experiences and local expectations, action plans for the proposed road and bridge, local available resources that are able to be provided by the affected people and communities, and the related social rules that allow relationships to be formed among the affected people and things. This understanding provides clues for estimating the reaction of individuals and communities in handling potential changes that will occur from the proposed road and bridge. The reaction of these people and communities will indicate whether the proposed road and bridge is in the position of receiving support for implementation, or whether additional and alternative effort will be needed to address the non-supporting elements prior to the implementation of the proposed road and bridge.

It is expected that the message, derived from the information collected from the early four steps of analysis, will show multiple possible positive and negative attributes to the development. The feedback given by the respondents during individual interviews for the questions related to Steps 1 to 4 of the framework, reflect the main inputs or contributors for each step. This information provides answers for a series of questions that lead to the identification of outcomes created by possible relationships, formed for the development:

i. Who are the actors who need more attention for the proposed road and bridge development?

ii. What are the social forces (available capital) that contribute to the way actors react to the proposed development?

iii. What are the relationships of people, the biophysical environment and development activities that affect the outcomes of the development?

iv. What are the outcomes for the development due to the existing relationships?

Now, the question is “What are the meanings of these outcomes to individuals and communities”? In the suggested conceptual framework, the outcomes refer to the predicted individual, collective and environmental change issues arising from the proposed road and bridge development.
Based on the understanding of connections formed between human and non-human elements in dealing with developments, and the linkages from actors to changes, the findings show the leading effects of changes established from the social forces available, that contribute to social change in the case study area.

The comments made by affected individuals and communities are used to weigh the relationships of relevant issues in shaping social change in the case study area. It is assumed that common issues as shown as concern by the affected individuals and communities during interview sessions, tell which one of the social issues established from the first four steps plays a more important role in contributing to the prediction of social change by reviewing the local needs, expectations and potential changes of the proposed road and bridge development.

For example, the findings indicate that the “willingness to stay in the village” was the issue of most concern in terms of individual change for the case study. This individual change issue could be traced from the findings found for the first three steps suggested for the framework. The findings of the early steps show that most of the respondents believe that local people themselves play an important role in shaping social change for the case study area in future. From the interviews, it can be seen that individual human actors in Beliong could be mainly grouped under two positions, either as permanent residents or as temporary residents. Their position as a permanent resident or a temporary resident was determined according to their role in the community. The residents who live and work in the case study area are perceived as members of the permanent residents group while those who only visit the case study area for a short time or during the weekends were considered as part of the temporary residents group. To the permanent and temporary residents groups, government agencies, JKKK, the Chinese Temple Association and the Malay Women Association are among the most significant social organisations which play important roles in helping them to carry out social activities in the case study area. Respondents also mentioned that the existing biophysical features (e.g. coconut farms, internal roads and rivers) and conditions were able to affect the people in deciding plans for their activities.

When further exploring the characteristics of these factors (actors of social change), it was found that attitude, employment status, friendship and external cooperation were the main characteristics considered by the people when making decisions. The majority of the respondents mentioned that attitude affects the decisions made by an individual as to whether to live and work in the case study area. In this case study, a preferred job opportunity and friendships with others in the case study area, were perceived to be the two main factors that contribute to a positive attitude for a person wanting to remain living and working in the case
study area (permanent resident). The temporary residents were mainly those who could not find a preferred job in the case study area. They choose to move to other places or to the city, where they can find better working and living environments. Another reason that encourages people to move to other places or to the city is having friends or relatives in those places.

Respondents also mentioned that an opportunity to cooperate with external individuals or parties (public or private) was one of the key factors which attracted people to continue living in the case study area. If such an opportunity is missing, then they may move to other places or to the city. Some respondents believe that they will have better access to various types of resources and services through external cooperation. The advantages brought by external cooperation can support development in the case study area, and will create more job and business opportunities for the people. If this happens, those temporary residents may choose to stay back and work in the case study area instead of moving to other places or to the city.

As well as factors relating to human beings, there are for example, two non-human factors (transportation and agricultural land) given above that may also affect the decisions made by the people as to whether to stay in the case study area as a permanent resident, or to be a temporary resident. Respondents commented that the poor transportation system and network in the case study area had become the main obstacle for new developments to be planned for the case study area. Therefore, many young and educated people choose to work and live in other places or in the city since they are not interested in being involved in farming activities and there are no other suitable job opportunities for them either. Also, the lack of a direct link road and bridge network between Beliong and the city side of the river has slowed down the existing agricultural development. The extra transportation costs for boat services to travel across the river cause additional expenses and discourages people from bringing in more development activities for the case study area.

All the human and non-human factors affect the willingness of an individual to stay in their village. At present, many people are not willing to live there and have left because of the difficulties faced due to the absence of a direct link road into Beliong. However, the situation might be different if there is a direct link road as proposed for the area in this case study. With the implementation of this proposed road and bridge development, respondents believe that it will favourably affect the degree of willingness of an individual to stay in their village. It is estimated that more people will be willing to stay in the village as the proposed road and bridge development is going to provide a better transportation system and network. In addition, with the improvement of the existing transportation conditions, all the obstacles faced previously due to the absence of a direct link road are likely to be solved. At the same
time, respondents believe and hope that this proposed development will generate other types of developments for the case study area. All these developments will create more jobs and business opportunities for the case study area; the proposed link road and bridge development is also expected to improve the living environment in the case study area and increase the living standards for the people. All of these positive factors are expected to be among the key reasons that might be likely to attract the existing permanent residents to remain in the case study area, while the temporary residents might be more likely to move back to the area. The temporary residents might move back either because they find suitable jobs in the case study area or they might move back because of the improvements in the living environment in the case study area. In addition, improvements in the existing transportation network and conditions may allow those young temporary residents, who work in other places or in the city, to move back to live with their parents in the rural environment.

The issues, discussed in the interviews, include respondents’ perceptions of actors who may have stronger impacts on changes in the case study area and the reasons for this. As given in the example above, the understandings of the main concerns, and the perceptions of the affected individuals and communities about the impacts of the proposed development, are then considered as central for addressing social change and the leading social impacts being studied.

5.3 The Feedback Loop that Indicates the Possible Pattern of Change

Section 5.1 to Section 5.3 presents the findings found for Steps 1 to 5 of the proposed theoretical framework for this thesis, the details of which were discussed in Chapter 3 (Section 3.4.1-3.4.5). In this section, I discussed the meaning of these findings for the case study (See Section 3.4.6 regarding the feedback loop). Once all the data has been collected and analysed step by step, the framework will then lead to the identification of possible changes in the case study area. From the changes identified, the pattern of possible social impacts can be predicted for Beliong. This will provide feedback for assessors and developers about the possible social impacts that may be brought about by the proposed development. As discussed in Chapter 2 (Section 2.5.6), this is an outcome that can be deduced from the framework.

The social impact that may result from the proposed road and bridge development at Beliong, can be assessed by explaining linkages established for identifying relationships contributing to the pattern of social change in the case study area. From among all the possible linkages
identified and the comments made by individual respondents about social changes concerning them, the question is, which are the main social changes that may reflect the potential social impacts due to the proposed road and bridge development? The possible changes are identified by considering all the visual and verbal information provided by the respondents during the interviews and by also considering additional information gained from observations and from document investigations.

5.3.1 Using Nodes to Build Themes

Based on the qualitative analysis procedures suggested in Chapter 3 (Section 3.5.2.1), the collected data was first transcribed, organised and coded systematically. A summary of all the data coded in the NVivo programme is shown in Figure 5.4. This figure illustrates the distribution pattern of all the data coded as shown in the frequency tables, Tables 5.1 to 5.5 above. The coded data was kept separately according to its value for each step/ stage of the framework. Five main components representing the five steps/ stages of the framework were created to keep the relevant data together under the same folder. It was then grouped under different sub-components according to the relationships formed within the relevant data. This established sub-components that represent specific meanings for the data extracted from the survey. The value for each sub-component created for the analysis is known by its folders’ names – a series of specific themes or wordings identified for each step of the framework. The content of these themes and wordings were then used as guidelines to form possible connections within key elements suggested in the framework.

Figure 5.4 shows that five main stages were created to group all the relevant data extracted from the individual interviews. For example, two main components under human and non-human actors were created to link all the relevant actors mentioned by the respondents. The details of the number of respondents who mentioned about the different types of actors were tabulated in the frequency table shown in Table 5.1. The ‘frequency’ is the key that determines the size of the space occupied by different themes shown in Figure 5.4. The similar, different or relative size of the areas occupied by every theme, shows the degree of concern of those particular themes by respondents.
Figure 5.4 A Summary of the Key Themes Coded in NVivo.
For example, in Stage 1 on the left side of the figure, the two human actors, the temporary resident (green colour) and the permanent resident (light green colour) occupy the biggest spaces in the figure. These two actors were more frequently mentioned by respondents during the individual interviews. This means that the temporary resident and the permanent resident (As explained in Chapter 5, Section 5.1.1) are two actors who are perceived by respondents as actors who play a more important role in contributing to social change in the case study area. As for the society group of actors in Step 1, the government was identified as the most important social institution that is likely to affect the most, the reactions of the people and the community in dealing with changes created by developments.

The same concepts are applied to understanding the data shown in Figure 5.4 for the other steps/ stages of the framework. Tracing the meanings of these connections from one step/ stage to another following the analytical pathway of the framework, gives descriptions and explanations that can be used to identify the possible changes that may happen to the affected people and their environment (See Figure 5.5).

As shown in Figure 5.5, each element identified for studying the patterns of social change in the case study area is tied together via multiple continuous networks. These networks link all the steps/ stages suggested for the framework from the beginning to the end of the analytical pathway, leading back to Step 1, via the feedback loop. Tracing the connections found at these steps/ stages, formed within elements that have similar meanings, helps to identify the contributions that may affect possible changes in the case study area. In Figure 5.5, those elements that have similar meanings were represented by circles with the same colour. The purpose of having the same coloured circles is to show tracing tracks of elements which have connections to each other. In this way, those elements that contribute to a similar social change are more recognisable, and it clearly shows the connections of the related elements.

In Step 5, seven possible main changes were identified, based on the interpretation of the meanings in the networks shown in Figure 5.5, along with consideration of the main concerns mentioned by individual respondents during the interviews. The frequency of views stated by respondents regarding their main concerns on changes in their daily lifestyles and socio-economic activities due to development is shown in Table 5.6.
Figure 5.5 A Summary of Connections Established in Accordance with the Framework.
Table 5.6 Possible Changes for the Case Study.

<table>
<thead>
<tr>
<th>No</th>
<th>Possible Changes</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Changes in the agricultural community’s condition</td>
<td>24</td>
<td>80.0%</td>
</tr>
<tr>
<td>2.</td>
<td>Changes in women’s lives</td>
<td>10</td>
<td>33.3%</td>
</tr>
<tr>
<td>3.</td>
<td>Maintain past gains, with young people around</td>
<td>8</td>
<td>26.7%</td>
</tr>
<tr>
<td>4.</td>
<td>Maintain village health and safety</td>
<td>4</td>
<td>13.3%</td>
</tr>
<tr>
<td>5.</td>
<td>Changes in agricultural land image</td>
<td>3</td>
<td>10.0%</td>
</tr>
<tr>
<td>6.</td>
<td>Changes in village social organisational culture</td>
<td>2</td>
<td>6.7%</td>
</tr>
<tr>
<td>7.</td>
<td>Changes in the rural lifestyle value</td>
<td>1</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Source: Interviews conducted during the field survey carried out in 2011.

Based on the frequency figures in Table 5.6, the expected changes to be seen on individuals and communities are related to:

1) Changes in the agricultural community’s condition

The changes in the agricultural community’s condition refer to the changes from a traditional lifestyle to a more modern lifestyle with the usage of high technology agricultural practices. Farming activities are no longer hard works that require a lot of energy and time. Modern farming activities can be carried out in a more fun and interesting way than with traditional farming practices. The changes in farming practices, can favourably affect the mindset of people away from seeing the agricultural community as having a low standard of living in an environment that is being left behind by the modern world and stuck in jobs that are always hard, tough and boring.

2) Changes in women’s lives

Changes in women’s lives refer to changes in the roles of women in the traditional rural areas. Women in the rural areas can have more roles besides their role as the housewife. They can be involved in various social activities and contribute to society. Cooking and washing will not be the only jobs done by them. More responsibilities will be given to women such as handling the lives of their families and being involved in the functioning of their society.

3) Maintain past gains, with young people around

Beliong was a famous place in the old days and had a higher population density. However, as there was a lack of development and few job opportunities, many young people left their village and moved to other places. Now, the place is like an old
people’s island with very few young people around. Many social and economic activities cannot be undertaken due to the lack of young people in the area to support these activities. Only with the return of young people can the social life of people in Beliong become richer.

4) Maintain village health and safety
There are some people in the case study area who are afraid that developments will change their simple and quiet lives due to the encroachment of outsiders, who bring in negative aspects of culture such as drinking alcohol, drug usage, vandalism and other criminal activities. It is therefore important that a healthy and safe living environment be maintained.

5) Changes in agricultural land image
The changes in agricultural land image refer to a change in Beliong’s image as solely an agricultural land, to a place with more tourism facilities and activities. It is hoped that outsiders will go to Beliong not only to buy agricultural products and to visit tourist spots such as the Chinese temple, but also to visit the beach and to stay at home stays at coconut farms found in Beliong. It is probable that more recreational facilities will be provided in the case study area in the future for visitors.

6) Changes in village social organisational culture
The changes in village social organisational culture refer to changes in the traditional ways of social organisations operating at the village level. The local social organisations can be strong institutions providing channels for the local people to voice their opinions and to give them opportunities to take part in decisions on developments that will affect their lives.

7) Changes in the rural lifestyle value
Changes in the rural lifestyle value refer to the perception people have as to the value of a rural lifestyle, which is commonly linked to the poor people who work as farmers. There will be an outlook change that people living in rural areas can also work as white-collar workers or other such jobs in other places or in the city. At the same time, these white-collar workers can continue to have their homes in a rural setting which is away from the tense city environment. Even though they are not living in an urban residential area, they will however, still be able to enjoy modern living environments similar to those of houses in other places or in the city, with modern furniture and facilities provided.
5.3.2 An Example of Tracing Linkages Related to Changes in Women’s Lives

A detailed diagram showing one of a series of nodes built to link all the elements, which have relationships, is given in Figure 5.6. In this example, women and the Malay Women’s Association were identified as two of the relevant actors that play important roles in contributing to social change in Step 1. Many Malay women in the case study area stay in the village to take care of their children and elders while their husbands work in other places or in the city. They are also the active group of villagers who contribute to the labour force in the area. Almost all of them help in farm jobs besides looking after their families.

In Step 2, respondents mentioned that the Malay Women’s Association plays a role in creating more employment opportunities for the Malay women in the case study area. This effort was identified as one of the factors that changed women’s traditional roles in the society from being solely housewives. The Association, lead by a group of Malay women, created training opportunities for those women interested to learn new skills and knowledge. For instance, some of them were involved in cooking and sewing classes.

With the stronger trust and cooperation being built within Malay women in the case study area and outside the area via this Association, the Malay women in the case study area have developed stronger communication networks with more experienced women’s associations in other places. These associations have helped the local Malay Women’s Association improve their operation in terms of advice and some funding (Step 3). The women hope that more learning and business opportunities will be created to empower them in the future. They hope they can contribute to their families’ incomes and be active members of society. All these connections indicate that there will be changes in the lives of women when the proposed road and bridge development takes place. The reason for this is that the women have an interest in learning new skills and knowledge, and there is also an active Malay Women’s Association which is ready to help them. Once the proposed road and bridge development is being implemented, the Malay Women’s Association will be the channel that will allow women to access opportunities that will be created by the development, for the case study area.

As shown in Step 4, the empowerment of women through these opportunities could be one of the main factors that will affect their willingness to remain in the case study area. The changes in women’s roles in society and the Malay Women’s Association efforts, will then favourably affect the women’s lives in the case study area (Step 5).
Figure 5.6 An example of a series of nodes, which traces changes in women’s roles, in dealing with the proposed roading and bridge development.
The process of social transformation experienced by these women is then used to estimate social impact and mitigation measures needed to deal with the proposed roading and bridge development (Feedback). For example, development will create more jobs and business opportunities in the case study area, but women are not able to compete with the men due to their lack of experience. Therefore, there is a need to consider the assistance required by the women in order to help them cope with the changes brought about by the development.

5.4 The Predicted Pattern of Social Impact

Based on the understanding of the creation of these changes, the social impact due to the proposed road and bridge development is expected to be seen in two main categories. All of the issues stated under the two main categories identified for the case study area of Beliong, are presented in the following sub-section. They are:

1) Social impact on the social fabric aspects that include population (age and gender), ethnic group composition, education level, employment patterns, wealth (cash income) and regional values (the people and the environment).

2) Social impact on well-being aspects that include lifestyle patterns, the culture of social organisations, new interest for farming, health and safety, and personal and property rights.

5.4.1 Social Impact on the Social Fabric

The prediction of impacts on the social fabric of the affected individuals and communities shows what might happen to the existing social formation of human actors due to changes happening to the people and their surrounding biophysical environment. The evidence of these impacts is shown in the changing demographic pattern, which includes the distribution of the population structure in terms of age and gender, ethnic group composition, education level, employment patterns, wealth, and regional values of the people and the environment.

5.4.1.1 Population (Age and Gender)

The proposed road and bridge, creating easier access to the case study area, might affect the distribution of the population in the area, in terms of age and gender. Overall, it is expected that the number of people residing in the case study area will increase. Past changes show that the improvement of the nearby road network and the condition of the roads has become a positive driving force, which has attracted individuals who work in other places or in the city, to live back in their village. This is especially the case for individuals whose parents are still
living in the village. Evidences from the survey show that this situation has happened particularly in the Malay community.

Other reasons that have contributed to this change are the increase in living expenses and the congested living environment in other places, especially in the city. Furthermore, the standard of living in Beliong has improved and the social lives of the people have diversified and are not limited to rural activities, as easier access to the nearby townships and the city provide almost all the necessities local people need and want to remain living in the case study area. With all these reasons acting as driving forces that are attracting people back to their villages, it is believed that further improvement in the form of the proposed direct-access road and bridge will increase the population in the case study area in the future.

The return of the people who are presently working in other places or in the city and who are mostly young people, will fill the existing age gap and balance the existing distribution of young and old people in Beliong. On top of that, there might be a minor impact on the distribution of gender in the case study area. The survey found that there are a number of Malay women whose husbands are working and living apart from them, in other places or in the city. In future, their husbands might be able to move back to live in the village again when it becomes easier and more convenient for them to go back and forth to work elsewhere. The return of this group of people will affect the distribution of gender in the case study area.

5.4.1.2 Ethnic Group Composition

In terms of ethnic group composition, the Malay people are predicted to remain as the major ethnic group with the biggest population and with an increasing ratio of Malay to Chinese or Iban people residing in the case study area. The number of Chinese and Iban people expected to be affected by the proposed road and bridge development, is smaller compared to the Malay community. Not as many Chinese and Iban people have the intention of living in the village, as Malays do. It is believed that the proposed development taking place in the case study area will bring certain impacts to the ethnic group composition in the area. However, the main reason that affects the decisions made by Malay, Chinese or Iban people to live in the case study area or move to other places or to the city, comes from the history of economic development in the case study area (see Section 4.5.4.2).

The strong desire of young Malays to come back and live in their village shows that Malay people may face bigger impacts from the development suggested for the case study area. Due to the small number of Iban respondents involved in the survey, the actual perception of Iban people about the young generation moving back and settling in the area is unclear. However,
other relevant information about the background history of the Iban people indicates that they are likely to show a response similar to the Malay people. The information shows that not many Iban people own second homes in other places or in the city and not many of the current generation of Iban people had the opportunity to study in the city when they were young due to financial constraints. Only a small number of them have had the opportunity for further study in the city or in other places.

Like those Chinese who study in the city, this group of educated Iban people tend to settle and work in the city. In addition, some of the current Iban generation have moved to the city as well, after completing their study locally, to look for jobs. However, not many of them have the opportunity to get good jobs due to their lack of higher education. This means the jobs that can be done by them are limited and the salaries earned are relatively lower. On top of that, the high living expenses for working and living in the city have become a burden for them, especially those who do not own second homes in the city. With the development of the proposed road and bridge, they will be able to travel more easily to and from the city every day. The change to a more convenient travel mode – one which does not rely on a boat service – could be the driving force that attracts them to settle back in the case study area and work in the city at the same time.

Unlike the Iban people, many of the current generation of Chinese families who moved to the city to study when they were young, are used to the lifestyle of the city. Many Chinese people have a better financial background, compared to Malay or Iban people; most Chinese people own second homes in the city and most of them are no longer involved in farming activities but are working instead in other sectors. Those Chinese people, who remain in the case study area, have mainly continued on with the old coconut farming activities that they have been doing for generations. Most of them inherited the farms from their families. A small number from this group of people have converted their land into new crops, planting crops such as oil palm and fruit crops, as the old coconut farms are no longer productive.

5.4.1.3 Education Level

The impact of the proposed road and bridge development on the education level of the people is related to the changes in the whole population and ethnic group composition, in the case study area. When more young and educated people move back to the case study area, especially young Malays, it is expected that the overall level of education in the area will be upgraded. These people generally have a higher educational background and it is common for the younger generation to have at least a secondary school education, while the older
generation through lack of access and opportunity, did not normally finish or even take up secondary school education when they were young.

Furthermore, fewer of the older generation, especially the Malay or Iban people, have any education at a higher education level due to financial difficulties. However, the Chinese community have a number of people with higher education levels. This group of Chinese people come from families with a better financial background and most of them left the case study area when they were younger and settled in other places or in the city. Consequently, most of the old generation still living in the case study area have not attended any higher education. This is the reason why few people in the case study area have higher education backgrounds. However, a change in local education patterns is predicted when the young educated people move back to the case study area when the proposed road and bridge development is completed.

5.4.1.4 Employment Patterns

Similar to the issues around the impact of development on the education levels in the case study area, the employment patterns of the people also have a close connection with the changes in the population and in the ethnic group composition. Previously and currently, farming was and is the main occupation of the people living in the case study area. Almost all the Malay, Chinese and Iban people living in the area are involved in full-time or part-time farming activities. Only a small number of them are working in other jobs, such as boat operators, carpenters, palm sugar makers and farm labourers. This kind of employment pattern will change when people working in different jobs elsewhere return to live in the case study area. Examples of these people’s jobs are factory workers, teachers, retail staffs and construction workers. Their presence in the case study area will change the local employment pattern in the future.

In addition, the upgrading of the transportation system in the case study area by the proposed road and bridge development will tend to generate other economic activities and opportunities for the people living in the case study area. The establishment of a better network to the outside world has the potential to attract investors. It also has the potential to help the existing residents put more effort into bringing in other types of developments to the case study area. This effort has the social power to create more job opportunities in various fields for the people and for outsiders.

However, the job of farmer will remain the major employment choice for the people in the short term. This is predicted mainly because they have been involved in farming activities for
decades and it is not easy to change their life-time habit of working as farmers, especially in the case of the elderly. In addition, the nature of agricultural land resources and ownership in the case study area may become a barrier that slows down other types of economic developments that need land. At present, most of the farmland belongs to the local people and none of the land in the area is owned by companies. The private ownership of small blocks of land in the case study area makes the change in land-use for other purposes in the area difficult. The effort to transform each privately owned farmland block needs agreement from various land-owners and this process of communicating and coordinating with all affected land-owners takes time and effort.

5.4.1.5 Wealth (Cash Income)

Currently, the cash incomes of the people mainly come from their involvement in farming activities and odd jobs. Some parents also receive remittances sent by their children who are working in other places. The young and educated who are working elsewhere, earn salaries for being workers in the private and public sectors and in various jobs. It is expected that more people with stable incomes will be found in the case study area as a result of the return of the young people when the proposed road and bridge development is completed and begins to generate a better living environment and rural lifestyle for the local people.

In addition, the development of the road and bridge is expected to open up a direct market for farmers and this will help them to get a better return because they will be able to directly sell their agricultural products without going through any middlemen. The present small and limited market channel, especially for Malay farmers, is one of the main negative forces that makes the people unenthusiastic about putting more effort into their farm work. Direct access to the case study area will also remove a lot of the transportation costs involved in hiring boat services to transfer goods, a cost that is quite high, RM40, for one trip (NZ$16, if the currency rate is NZ$1 = RM2.5).

Therefore, the change that is expected as a result of the proposed road and bridge development is expected to encourage people to become more involve, more actively in farming activities. It is also expected to give farmers the hope of having a better position when marketing their farming products and bettering their living standards. With these changes to the people and the environment, the sources of income for the existing people living in the case study area are also expected to change. The future income levels of the people are predicted to grow, following the return of the higher income people to the case study area.
5.4.1.6 Regional Values (the People and the Environment)

As mentioned earlier, under Section 5.3, concerning seven types of possible changes, changes in rural lifestyle values is one of the possible changes identified for the case study area. In addition, other predicted changes in the agricultural community’s life, such as social organisations’ culture, women’s lives, agricultural land image, a village’s health and safety and a balance between age groups (young versus senior people), suggest that the proposed road and bridge development will tend to create a better living and working environment, once the proposed development takes place.

If these changes happen as predicted, it can be expected to see some positive changes in the regional values of the people and the environment, from the point of view of outsiders. In this case study, the regional value is derived from the perception of outsiders about the general idea of the existing standards of living achieved by the people in the rural case study area. Therefore, the positive changes in regional values indicate that there is a possibility of changing the view of outsiders to the overall quality of the people’s lives and their environment.

The outlook for this change happening is positive as the locals hope to improve their lifestyle. As mentioned above, it seems that the locals want to get rid of the old rural lifestyle that is always linked to poor people or farmers. The ways of the modern lifestyle enjoyed by the city people looks so distant to the locals, but with the proposed road and bridge development it may be possible, as they want to have a more modern lifestyle, and they have intentions of bringing in the changes that could help them transform their lifestyles. More discussion about this future lifestyle pattern is presented in Sub-Section 5.4.2.1 below.

5.4.2 Social Impact on Well-Being

Another type of impact predicted by this case study focuses on the well-being of individuals and communities in the case study area. The evidences for the well-being impact is shown in the various aspects of the lives of human actors, which includes lifestyle patterns, cultural practices, farming interests, health and safety, and fear or negative expectations.

5.4.2.3 Lifestyle Patterns

In a rural area like Beliong, the people have simple and traditional lifestyles. From the houses that they live in to the clothes that they wear, everything can be represented by the word “simple”. People rely less on high technological products and they do not really care about the latest model of a product. What they need and want is a product that helps them to get a
job completed. However, it cannot be denied that the expectations of the rural people are changing when faced with development. They have new thoughts of enjoying a modern lifestyle, especially in the case of young people who have explored modern lifestyles in the city.

The findings for the changes expected for the rural life value, show that the lives of the people are progressing towards a more modern lifestyle. This is due to the trend of developments taking place in the case study area, which include the proposed road and bridge. This modern lifestyle leaves behind the traditional ways of working and living, which were much simpler. Developments in the case study area have made individuals and communities start to look for alternative ways that can help the local people to improve their lives. They want a more convenient way of carrying out their daily activities.

As stated above, in Sub-Section 5.4.1.6, this kind of change may affect the mind-sets of the permanent and temporary residents regarding the value of their rural lifestyles, when they see more evidence of more comfortable living and working environments being created by the developments taking place in the rural area. The old mind-set of having a simple life in the rural area may no longer be valid. This idea of a new value for a rural lifestyle has become a driving force that drives locals to move towards this direction. On the other hand, the idea also leads outsiders to expect that the lifestyle pattern in the case study area is going to be transformed into a more modern lifestyle.

5.4.2.2 The Culture of Social Organisations

The proposed road and bridge development will connect individuals and communities at Beliong with a wider social network found in other places. The connections formed will potentially strengthen the existing networks, which are weak due to the poor transportation network. With the change in networks between the local people and outsiders who have better resources, it is expected that the local cultural practices will change along with the role and function of the social organisations.

Over the years, local social organisations such as JKKK, Fuk Teck Kung Temple Association, Beliong Chinese Association and the Malay Women’s Association, have built up their reputations by extending their assistance to cover more people and more issues. (See Section 5.1.2 for more information about the role of these local social organisations in different villages.) Throughout the change process, these organisations have grown and adapted and are finding better operating systems with which to serve individuals and communities. At the
same time, they gain more trust and cooperation from local people and more people become willing to be involved in activities organised by these organisations.

For example, the Fuk Teck Kung Temple Association of the Chinese community and the Malay Women’s Association managed to link people with mutual interests to work together to achieve their needs or wants as outcomes. The reputations built by these two social organisations lead to a change of perception towards their roles and functions in the case study area. Individuals and communities have started to see these organisations from different angles and expect different social issues to be solved by these organisations. To meet the expectations of relevant individuals and communities, the Fuk Teck Kung Temple Association and the Malay Women’s Association are likely to change the practices of their organisations’ cultures in order to meet the needs of the emerging situations.

For example, a more organised and bigger committee is being formed to manage the operations of these organisations, which have become more complicated due to higher local expectations. This can happen when more people become aware of the possible contributions of these organisations, in leading the people to carry out social activities in the case study area. Therefore, these organisations need a stronger operational structure to support them. The upgrading of the existing operational structures also means that these organisations need to set up more internal rules to manage the people involved and also the activities. In addition, the organisations might need external help such as advice and funding to support their operations.

5.4.2.3 New Interest for Farming

The slowly improving transportation conditions in the case study area have changed the way farmers handle their farm issues. For example, a small group of Chinese farmers transformed their traditional coconut farms into palm oil farms, which required more modern farming practices. These Chinese farmers decided to convert their coconut farms into palm oil farms when they failed to be able to continue coconut farming due to a shortage in the labour force and the low market returns for coconuts. Also, palm oil is believed to be a more valuable crop to invest in. As a result, they introduced new farming practices to the case study area as modern technologies are used for planting palm oil plants.

It is therefore expected that there will be changes in farmers’ interests, which will affect their lifestyles. For example, people will need to learn how to use different machinery or equipment, and other types of agricultural inputs, which are new to them. The used-to-be quiet farmland will start to produce noise from farming activities when machines are running.
All these changes will lead to the creation of a different farming community which has to get used to the new working and living environments.

The change in farmers’ interests in farming practices is expected to grow as it is believed that others will follow in their foot-steps. The reason is that those who planted palm oil plants will start to see the outcome of their efforts when selling the palm fruits. The agricultural community will soon see the palm trees growing well and fruiting. The harvested palm fruits are sent to the nearby mill for processing. At the time of the study, these fruits needed to be transferred from their farms to the jetty and then to the other side of the riverbank by boat, before being picked up by a vehicle from the mill. In these processes, the most costly transportation fee came from transferring these palms from the jetty to the other side of the river. This cost significantly reduced the farmers’ profits.

At present, farmers don’t have other choices. However, if there is a direct road leading to the case study area, farmers will be able to cut costs when a vehicle from the mill is able to cross over the river to reach the area. In addition, the improvement of accessibility to the case study area will be a strong driving force that will make transferring palm fruits and other produces and goods as well as modern support and development, easier.

5.4.2.4 Health and Safety

One of the social change findings predicted for the case study area is that the people hope to maintain and secure a healthy and safe village environment. At present, no direct access road and bridge links the case study area to the nearby townships or to the city.

Previously, not many outsiders visited the case study area, except a few regular middlemen buying their farm products and sales persons selling all kinds of goods. However, recently the boat operators have been carrying more passengers who mostly come to visit the Fuk Teck Kung Temple. Most of these passengers are outsiders from the city (See Section 4.4.2 for the discussion of observation data that relates to the Fuk Teck Kung Temple). The increasing number of visitors to the temple makes the place more alive, but then the locals have become concerned with issues of village health and safety due to the presence of these outsiders.

As mentioned above (See Section 5.3.1 regarding the expected possible change of maintaining village health and safety), the locals are worried that outsiders might bring negative culture to the case study area, and that this might create an unhealthy and unsafe living environment. For example, more criminal incidents may happen due to alcohol or drug usage by outsiders. Because of the influence of outsiders, it is feared that some of the locals
might follow in the footsteps of outsiders. Therefore, there is the possibility of seeing an increase of local involvement in negative activities, though no cases have happened yet. This is the kind of negative impact that individuals and communities in the case study area may face, if the proposed road and bridge development goes ahead. The proposed road and bridge will make the case study area become easier to be reached by outsiders.

Nevertheless, this concern will not be strong enough to make the people disagree with this proposed development as they are looking forward to seeing this development happen in the near future. They believe that the proposed road and bridge development will change their lives dramatically and favourably from various perspectives.

5.4.2.5 Personal and Property Rights

The last social impact predicted for the case study is related to personal and property rights. As the locals expect to see an improvement in the standards of living in the case study area, they have tendencies to build stronger feelings of home attachment and environment attachment. Examples are changes in their involvement in local social organisations and social activities, and their adaptation to the changing living and working habits in the case study area. The Malay women hope to see changes in their contribution to their families and society and the older generation hope to see young people coming back, following the improvement in the living standards in the case study area. The building of stronger positive feelings towards the case study area as their home, sparks a higher demand for their personal and property rights. This applies to the existing people and the returning people in the case study area. The stronger their attachments to the case study area, the stronger their concerns for their rights.

With the possibility of developments, locals can see more value to living in the case study area as their home, and are concerned more with social activities happening in their surrounding area because these may affect the personal and property rights of people who live there. They want developments to take place in the case study area in order to give the people a more comfortable life, especially in the case of those who work hard as farmers. At the same time, locals want the upcoming developments to take into consideration the issue of protecting personal and property rights as the development activities might bring certain impacts on their rights, e.g. their right to be the workers that developers consider when hiring people to work for them, or their right to have access to economic opportunities created by the developments.
5.5 Chapter Summary

This chapter presents the findings of the Beliong case study following the five main steps of the theoretical framework suggested for this thesis. Although the findings presented in this chapter might not show comprehensive SIA results, the brief estimation of social impacts happening in the case study area gives a clear picture of human and non-human factors (See Section 5.1.4 and Table 5.4) that affect the pattern of social change, due to the proposed road and bridge development. The exploration of actors in Step 1, to changing evidence in Step 5, and the feedback loop to the whole analytical process of social change, helps to project the possible social changes and their leading effects onto the life of individuals and communities. The results also provide some guidance on the way to identify social impacts that might be seen on the social fabric and the well-being issues of the affected individuals and communities. In Chapter 6, more discussion of the case study area using the theoretical framework to study social change is provided, with the assistance of diagrams and examples.
Chapter 6
Discussion

6.1 Introduction
This chapter summarises and discusses the findings of the case study to assess the use of the framework to study the social impacts of rural developments. Diagrams are used to explain the analytical process for each step of the framework. The diagrams show the methods used to explore, organise and analyse the data collected for each step of the framework according to the ANT-K theory.

6.2 Discussion of the Case Study’s Findings
The findings of the case study were presented in Chapters 4 and 5. The data collected for each step of the framework, and its function in the analytical pathway for investigating social impacts was then discussed. Altogether, five steps were suggested in my methodological framework. Different types of data were collected for different steps of the framework. Each type of data brought certain meanings that traced the social transformation process from the root of social change to the creation of social action, and its connections with individual, collective and environmental changes.

These five steps were:

1. Identifying relevant actors involved
2. Exploring capital stocks that enable actors to react
3. Identifying the connections of actors, social actions and change agents
4. Predicting effects of social actions on three types of changes
5. Predicting impacts of these changes on wider social changes

The beginning of the case study attempted to identify all the potential actors who might contribute to social changes in the case study area due to the proposed road and bridge development (See Figure 6.1). The findings in Chapter 4 refer to the investigations carried out in three different villages. Each village is occupied by one ethnic group, Malay, Chinese or Iban people. Based on the framework, human and non-human actors were the objects
studied at the start of the investigation process. These objects were individuals, social institutions and biophysical features (See Figure 6.1(a)).

As shown in Figure 6.1(a), all the potential actors found in the case study area were identified and grouped under their respective village (V1, V2 and V3). However, not all of these actors may contribute to social change. Through interviews, all the relevant actors (that is, A₁, A₂, A₃ … A₈) concerned with social change were identified and grouped accordingly. In some situations, similar actors were claimed by more than one village (Figure 6.1(b)). This step led to the identification of a list of relevant main actors who may contribute to social change (See Chapter 4, Figure 4.1). The actors identified were then grouped into three main sub-lists in accordance with the three types of objects or starting points suggested for the framework. (See Chapter 2, Section 2.5.2 and Chapter 3, Section 3.4.1). One list recorded relevant individuals, a second list recorded relevant social institutions and a third list recorded relevant biophysical features. The findings of this step suggested which human and non-human elements needed to be considered in the subsequent step of the framework. For example, in this case study, farmers and permanent villagers were identified as two of the human types of actors who may contribute to future social changes.

In Step 2, the investigation continued with the exploration of capital stocks (See Chapter 3, Table 3.1). Each of the three groups of actors (See Chapter 3, Section 3.4), identified in Step
1, were expected to have their/ its own specific type of capital stocks. For example, a human type of actor may own human capital such as knowledge, skills and physical strength that allows him or her to act, while a social institution type of actor may own social capital such as trust, norm and culture, which guides its operations and functions in society. The ownership of different types of capital determines the capability of an actor to respond. Those who had similar interests were likely to act in the same way, even if they came from different villages and owned different capital stock.

Figure 6.2(a) shows the example of identified relevant actors and their capital stocks for each village. The actors may or may not have similar types of capital stocks. Some actors may own more capital than others. The findings of the case study showed that the same type of actor may or may not own the same type of capital stocks depending on their accessibility to these capital stocks and their desire to own them. For example, A₁ may own the same type of capital as A₂ or A₃, but A₁ may also own other types of capital (See Figure 6.2(a)). Actors with the same interests were expected to attract each other through interaction and form connections. Figure 6.2(b) shows groups of actors with the same interests being grouped under four different groups: I¹, I², I³ and I⁴.

Figure 6.2 The Analytical Process for Step 2 of the Framework.

Note:
V₁ = Village 1, V₂ = Village 2, V₃ = Village 3; each society represented by a big circle
A₁,₈ = Actor 1 to Actor 8; each actor and its respective capital stocks is represented by a circle with star(s) I¹, I², I³ and I⁴ = Interests 1, 2, 3 and 4
☆ = a white star represents an existing capital stock owned by an actor
The findings of Step 2 demonstrate both the richness and the shortage of available capital stocks in the case study area. This information reflects local conditions in supplying resources and services that may fulfil the demand offered by development. The status of the supply and demand of capital for development gives a picture of the possible way for actors to respond to changes created by development. The accessibility and ownership of these capital stocks determines the social position and social power of actors in a social structure. This status affects the potential of an actor to deal with development.

When we know the relevant actors and their potential, we then want to know the reason that attracts an actor to take an action. For that, Step 3 was carried out to find out the possible relationships between actors and developments that may affect actors’ decisions as to how to respond. Investigation of the data of social rules and development plans, looked at possible ways that linkages form between actors found in the local background settings, and opportunities or limitations created by developments. The relationships between them have been identified by studying the connections of actors, social actions and change agents (See Chapter 3, Section 3.4.3).

For example, in the Beliong case study, farmers are identified as the main actors contributing to social change in the area. Among these farmers, some have strong biophysical capital stocks such as farmlands and farming facilities, while others have strong human capital stocks, such as physical strength, and skills and knowledge of farming activities. However, the farmers lack social capital stocks in terms of external connections with outsiders, such as buyers for farming products and financial providers. This is one of the main problems faced by the existing farmers; marketing their products and getting external financial support to further develop or maintain the operation of their farms. It was understood that the lack of a road and bridge was the main cause of the weak connections with outsiders. In addition, the poor transportation network that requires boat services for all trips to Beliong adds high transportation costs to transferring farming products or inputs such as fertilisers and agrochemicals. The extra costs reduced the profits expected by farmers or buyers. As mentioned in the findings of the case study (See Chapter 5, Section 5.4.1.5), one trip to the other side of the riverbank costs RM40 (NZ$16, if the currency rate is NZ$1 = RM2.5). Therefore, many buyers prefer to buy from farms in places which are accessible by road. The lack of a road and bridge in the case study area also discourages farmers from looking for other ways to market their products as it is costly and inconvenient to sell their products directly in the city.
This situation may be rectified by the proposed road and bridge development. Once the proposed road and bridge is developed and completed, it is expected to provide direct land access to Beliong. The improvement of the transportation network may attract more buyers and other outsiders who previously thought that the extra transportation costs were an obstacle to conduct business or plan any developments in Beliong. The changes will create opportunities for farmers. Farmers who have the same desire to look for new markets for their products, will tend to react in the same way by dealing with new buyers who may come to their area. Other farmers may decide to market their products directly to buyers in the city since the proposed road and bridge will provide a convenient way to transfer their products to the city. Alternatively, farmers will have better chances of selling their products directly to consumers who visit the case study area. In addition, the improvements in the transportation network may also give a better investment value to the case study area. The changes may attract financial investors to give more financial support to farmers in the area.

As mentioned above, the development may create opportunities for actors, and actors with similar interests may deal with the development in a similar way. However, not all potential actors are able to grasp the opportunities created by the development. Only actors who have sufficient suitable capital stock, are in a good position to win from these opportunities. However, other actors may be able to compete as well for the same opportunities if changes are made to fulfill the demands of the development. The information extracted from the data shows the mismatch between what kinds of capital stocks might be supplied by actors and what kinds of capital stocks might be demanded by development (See Figure 6.3(a)). The results of the mismatch indicate the strengths and weaknesses of the potential actors to deal with development. The data also indicates the improvements needed by certain actors in order to grasp the opportunities provided by development projects (See Figure 6.3(b)).

For example, the case study revealed that many farmers have the same desire to continue on with their lives as a farming community in the case study area. They have various types of capital stocks such as farmlands, physical strength, farming experience, skills, money and marketing knowledge to offer, for the opportunities created by development. Each farmer may have different types of capital stocks that can fulfill the new market, new employment and other business opportunities brought in by development. Some actors with farmland, farming experience, money and marketing knowledge can grasp the new market opened up by the development. Farmers with physical strength can take up the employment opportunities offered by the construction activities being carried out as part of the development. Other business opportunities created can also be taken up by farmers. In the case of some actors
who have insufficient capital stocks such as skills, knowledge or financial resources that are needed to take up these opportunities, they need to look for ways to gain these capital stocks. As shown in the example in Figure 6.3(b), an actor, \(A_8\), lacks sufficient capital stocks to take up an opportunity, \(O_4\), created by the development. However, this actor can meet the demand created by this opportunity by obtaining new capital stocks (the black stars) that will give the actor the power to meet the new demand. This finding gives a matched picture of the existing conditions that allows an actor to react to development, and the potential actions to be created by specific types of actors in dealing with development.

The identification of possible actions describes the way these actors may interact with development and align with other actors in contributing to similar or dissimilar kinds of actions; some actors may benefit from the development and some may well drop out or become marginalised from the mainstream of development due to dissimilar interests or due to being unable to fill the gap that matches the opportunities created by development. In Step 3, we identified the capability conditions that allow actors to form connections with developments.
In Step 4, we explored the possible changes and the resulting effects, due to the connections between actors and developments taking place. These changes could be individual, collective or environmental. The changes were predicted based on the understanding of the existing conditions of actors themselves in dealing with development issues (See Figure 6.4(a)). The changes were also predicted by understanding the influence of socio-economic and biophysical background settings on the reactions of these actors towards development (See Figure 6.4(b)). The information from these predictions indicates the relationships of experiences and historical backgrounds in an area with human actions.

In the example given for Step 3, I mentioned that farmers with farmlands, farming experience, money and marketing knowledge will be able to take up the new market created by the roading and bridge development. This is the kind of connection that may exist between actors.
and development. Because of this connection, the lives of the farmers will no longer be the same. For instance, changes may be seen in the way farmers market their farming products. Changes may also be noticed in the social network of farmers. The group of people that farmers work with and are in contact with may be different from the pre-development period. The farmers may also change the equipment or facilities they use for packaging or for transferring their products to the market. All these individuals, collective groups and environmental changes will reflect the differences between the original and the new ways of marketing their farming products.

When investigating these changes, and from the point of view of the socio-economic and biophysical backgrounds of the farmers, most Malay and Iban farmers lack connections with other buyers in other places or in the city. These Malay farmers are small producers of commercial crops and have limited resources in terms of farm size or money. Chinese farmers are bigger producers and have fixed buyers from other places or the city. Unlike Chinese farmers, the Malay and Iban farmers mainly market their products through middlemen. These middlemen come regularly to collect products from the case study area. Poor transportation networks had become the key obstacle that discouraged these farmers from looking for alternative markets in other places or the city. The development of the proposed road and bridge will solve the transportation problems that affect the availability of markets for their products. With the road and bridge, these farmers will be able to market their products directly to other buyers in other places or the city.

Step 4 was carried out to show the strengths and weaknesses of actors at the time of the study and provide information about the capabilities found among and within actors to fill the opportunities created by development. The findings were also used to indicate which aspects of the development needed improving. The information gained from this step helped to identify the kinds of changes which needed to be made in order to maximise the positive and minimise the negative social impacts of the development in question.

Lastly, Step 5 shows the way to identify relevant data that can be used to produce information that identifies the leading effects of changes due to individual, collective and environmental changes. As suggested in the framework (See Chapter 3, Section 3.4.5), the evidence of these effects is predicted in two forms: individuals and the communities. Different types of development activities bring about different kinds of impacts.

It was expected that these impacts would show on individuals and communities (See Figure 6.5(a)). For example, the predictions made for Individual, Collective and Environmental
Changes 1 (ICE$_1$) brings two kinds of impacts on individuals (CI$_2$ and CI$_3$) and another two kinds of impacts on communities (CI$_1$ and CI$_4$) according to the match of actors’ capabilities and development plans that were carried out earlier. However, not all of these four impacts make significant contributions to the social changes in the affected area; some of them may have only a minor impact while some may have a major impact that brings changes to the lives of individuals and communities.

The comments made by people affected by the development regarding the areas of social change that are of most concern, were used to determine which social impacts created by the development, are more significant to the study, and as such, need more attention. For example, among four types of impacts of change identified for ICE$_1$, only the Changes Impact 1 (CI$_1$) was most important for the affected people and as such, it was predicted to be among the major social impacts for the study (See Figure 6.5(b)).

Figure 6.5 (a): The creation of evidence of possible changes
Figure 6.5 (b): Expected evidence of main changes

Figure 6.5 The Analytical Process for Step 5 of the Framework.

Note:
ICE$_{1-7}$ = Individual, Collective and Environment Changes 1-7
CI$_{1-12}$ = Change Impacts 1-12
= Evidence on an individual
= Evidence on a community

To conclude, the findings of the case study provide an insight into how social change may be formed from the interactions of humans and their environment in a development situation. The tracing of the linkages formed among actors (human and non-human elements), actions and their leading effects, gives clues to anticipate what will be the likely reactions of
individuals and communities in dealing with the new environment created by a particular development.

6.3 Chapter Summary

In this chapter, more examples and diagrams were provided, to give a better picture of the potential use of each step of the analytical pathway to collect information as part of the study of social change. The key elements suggested for the framework were transformed into visible pictures that show their relationships to the social change study under different background conditions. Although it might not be a comprehensive social impact study carried out for the case study area, the predictions of social impacts for the area show factors that cause the potential changes that people and communities might face. This information provides clues for assessors to make recommendations that can maximise the positive social impacts and minimise the negative social impacts of the development under investigation.
7.1 Study Aims

This study aimed to improve the understanding of issues associated with the social impacts people may face in responding to changes brought by development projects. Although many past studies discussed the appropriate practice of Social Impact Assessment (SIA), not many provided insight into how social impacts are being created from developments (Freudenburg, 1986; Burdge (2001); Rossouw & Malan (2007). No clear explanation about the connections of these impacts with the actors of social change in specific local settings, could be found in the literature. The objective of this study was to develop a theory that could explain the practice of Social Impact Assessment (SIA) study (Chapter 1).

In this study, a local-oriented approach was used in the suggested analytical pathway, that is underpinned by the ANT-K Theory, to explain the study of social change (Chapter 2). The theory suggests actors of social change as the study unit to study social change, and it considers the local view in estimating the reactions of affected people to developments. Based on this theory, the study aimed to propose a framework that could be used to plan a best-suited investigation for predicting the social impacts of development projects. The discussion of this framework was discussed in Chapter 3. Lastly, the study attempted to assess the value of the framework I developed to collect and produce the right information, using a case study conducted in Malaysia. The nature, findings and discussions of the case study were presented in Chapters 4, 5 and 6.

In the current chapter, the suitability of the proposed theoretical framework for studying social impacts is discussed further. The main content of this chapter is to present the strengths and weaknesses of the framework to guide the way for assessors conducting social impact studies, and to find information that could help assessors identify the way to best respond when social impacts occur. The next section discusses the logic of using the ANT-K Theory to design the SIA practice. Then the discussion turns to the explanation for using the framework developed from the ANT-K Theory, to conduct the Social Impact Assessment (SIA). The chapter concludes by addressing the implications of the study, which requires that the significance as well as the limitations be considered, leading to recommendations for future research.
7.2 Research Question and Methodology

As explained in Chapter 1, there is a need to improve the practice of Social Impact Assessment (SIA). The aim of the study was to discover a tailor-made SIA methodological design that is best-suited to different settings and a wider context. Chapter 2 discussed various theories of social change, which include Maslow’s Need Theory, Darwin Theory, Moral Theory, Human Capital Theory, Knowledge Theory, Social Learning Theory, Social Network Theory, Social Capital Theory and Actor-Network Theory (ANT). From the understanding of these social change theories and their relationships to social impact studies, a modified ANT Theory – ANT-K Theory – was developed as a theoretical framework to assist with the methodological design of SIA studies.

Following the establishment of the framework for this thesis, a case study was conducted at “Beliong” to test the correctness of the framework for collecting the appropriate data for studying social impacts and to convert this data into information useful to decision-makers. The social impact issue in this case study was related to the changes created by a proposed road and bridge development – a development designed to provide a better land transportation network in the case study area, and one which would replace the existing river transport which is at present the only way of connecting the case study area to nearby townships and the city.

The case study used both qualitative and quantitative approaches to collect the data required for the framework. As the purpose of this case study was not to test an established instrument for social impact assessment, but to help assess the effectiveness of the framework I developed, the case study only covered three villages in the southern part of Beliong. In these villages, I recruited 30 villagers, two headmen, one assistant headman, a few local leaders and representatives of government agencies. They provided information related to changes and developments in the case study area. The respondents for the interviews were identified through a snow-ball technique which began with interviews with the headmen/assistant headman of the villages under study.

As discussed in Chapter 3, interviews, observations and document investigations were the main sources of data needed for the case study. Phenomena to be observed included socio-economic activities, natural occurrences, and man-made and natural features. The written and visual documents, including statistical records, were provided by local leaders and representatives of government agencies, special publications by the Fuk Teck Kung Temple Association, articles reported by Sin Chew Jit Poh, a local Chinese-language newspaper, and
maps produced by the Land and Survey Department of Sarawak. This secondary data provided additional information to support the evidence obtained from interviews and observations.

7.3 Summary of the Study

This study has three objectives. The first objective is to develop a theory for SIA that can underpin the practice of social impact assessment. The study developed the ANT-K Theory as a possible and effective way to measure social impact. This ANT-K Theory proposes a systematic and analytical way to trace and explore the social transformation processes that lead to the identification of social impacts. The theory explains key elements that need to be studied when investigating social change. The identification of these elements, and their relationships to social change, direct the path of analysis for tracing the social transformation process. The aim of the theory is to use the linkage of actors, capital stocks and social rules to explain the creation of social change.

The ANT-K theory describes the possible way to merge any linkages identified and to show their effects on social impacts by the end of a development; how two or more actors with similar or dissimilar ownerships of and accessibility to capital stocks might connect with others in responding to development. The tracing of these connections, pinpoints which actors with mutual interests may direct the pattern of social change in the area affected by development.

The case study demonstrated that the theory can be used to investigate the connections between development and the social impact that individuals and communities face. The idea of using the relationships among human and non-human actors, capital stocks, change agents, social actions’ effects and change impacts, as the analytical guidelines to carrying out the investigation for estimating the likely social impacts, as suggested by the theory, was workable.

The second objective of the study is to develop an SIA theoretical framework that draws in the theoretical basis underpinning Objective 1; linking the SIA theory developed in this thesis with an investigation process, for identifying social impacts. Based on the ANT-K Theory, a theoretical framework was suggested to determine the social concepts that underpin the methods used to investigate social impacts. The framework consists of five steps of analysis: identification of relevant actors (human and non-human) due to development; exploration of the ownership of resources (capital) that determine the capabilities of actors to change; identification of change agents attached to the capital of principal actors; tracing which
interests of actors are aligned to deal with the development; and, an analysis of the social change platform (mobilisation of actors) based on connections of all principal actors with other actors and how social change occurs. Each of the steps of the framework provide the basis for determining what should be assessed in SIA, how to structure the assessment, and how to interpret the results of an SIA.

My case study has shown that the elements suggested in the framework can be used as indicators to identify the types of data required for investigating social change. These indicators helped me to recognise the contributions made by different types of human and non-human actors to individual, collective and environmental changes and the links to effects on social impacts. The framework also simplified the whole analytical process of studying the social impact of a proposed development. The framework gave a clear picture showing the way to proceed from one step to another in the analysis. By the time I reached the last step of my data analysis, I had linked and mapped the relevant data under seven main themes, indicating seven possible main social changes due to the proposed development being studied. This network map provided SIA information that indicates the possible connections of causes and effects of social change. Based on this SIA information, I can tell what might actually happen to the affected people due to a proposed development. This gives an answer to my first research question, as stated in Section 1.4, Chapter 1.

The third objective is to test the SIA theoretical framework developed for this thesis and to determine how easy the theoretical framework in Objective 2 is to use, and its effectiveness in capturing measurable social impacts. The case study conducted in Malaysia showed that the framework provides guidelines on which the SIA practice builds. It enhanced the understanding of the way social impacts can be predicted by tracing and exploring the root causes of social change, connections with change agents and the leading effects on individual changes, collective changes and environmental changes. The elements suggested in the framework indicated what kinds of capital stocks and change agents I could use to investigate the capabilities of key local actors to react to changes, their connections with other actors, and their integral responses to change.

Through a step-by-step process from the identification of key actors to their integral responses, the outcome from the changes created by these actors in responding to development constitutes the social impact. The actors and their respective capital stocks that positively affect the possible changes identified for an area can then be used to support development activities. In addition, actors that can negatively affect the outcomes of change,
such as weak resources and weak services (capital stocks), can be identified and modified into potential useable capital for development.

In the case study conducted in Malaysia, the framework provided a systematic pathway to guide the investigative work for assessing the social impact of the proposed road and bridge development. Based on the elements suggested in the framework, I was able to easily and quickly determine suitable methods to use for carrying out my investigations, as I knew where to start, what to investigate and how to structure my investigations. The framework also provided a clear platform for me, to use the relevant information of the capabilities of actors, the availability of capital stocks, the opportunities/weaknesses of change agents, the effects of social actions on changes and the leading impacts of these changes to convince others that this is what will happen to people as a result of a proposed development, and what the social returns will be from this effort, as raised in my second research question (See Chapter 1, Section 1.4).

7.4 Study Findings

Many past studies of social impact linked the application of Social Impact Assessment (SIA) to specific issues with their own context. Few addressed the application of SIA at different background settings and with a wider context (Burdge, 1990; Vanclay, 2003a). The lack of SIA studies in a wider context leads to questions about the appropriateness of applying current SIA implications (Burdge, 1990; Hindmarsh, 1990; Momtaz, 2005). Moreover, each SIA study is subject to a specific-situation that requires specific attention (Slootweg et al., 2001). In this study, I have focused on the methodological design for SIA in order to identify a methodology best-suited to conducting SIA in different background settings and in wider contexts. For that purpose, a theoretical framework was proposed.

The theoretical framework uses ANT-K Theory, which is modified from ANT Theory and other theories of social change, to describe and explain the assessment-making process for predicting social impact. These theories in conjunction, provide an analytical pathway for an SIA framework. Each type of data proposed by the ANT-K Theory brings information that explains certain aspects of the process of social change that links to development. This helps assessors identify the necessary data to collect for investigating social impact issues. With a clearer idea of the types of data needed for assessing the impact of development, the burden of creating extra data or useless data for that particular study (Burdge & Opryszek, 1984) is more likely to be avoided.
The step-by-step analytical pathway required by the framework suggests:

- The place/site to begin an SIA study;
- The direction to look for the data; the kinds of data needed;
- The sources of this data; and
- The way to link this data to the development in question.

The selection of data, including local biophysical features and the consequences of development activities, provides the space to review any possible conflicts arising between background settings and a developing environment. Past studies show that a clear mapping of the needs of local conditions in facing the issue of development can provide a good knowledge of conflict (Peltonen & Sairinen, 2010). The knowledge of conflict enables assessors to identify the best way to modify potential changes to meet local needs and to meet the purposes of the development. This is in line with suggestions made by some authors, such as Glasson and Cozens (2011), about the importance of considering locality issues when in the process of assessing development.

The case study showed possible ways to become aware of local priorities and how to find hidden information about local values, and incorporating these values into the assessment process for identifying social impacts. For example, outsiders may not be aware that, in general, the Chinese community of the case study area has a stronger financial background compared to the Malay or Iban communities. This difference affects their expectations towards future developments taking place in Beliong. Unlike the Malay or Iban families, most Chinese families own second homes in the city and many of their children attend primary or secondary schools there. Therefore, many young generation Chinese are already used to the city lifestyle and they have less experience of living in the rural environment. Their backgrounds make them less attached to life in Beliong, when compared to Malay or Iban young people who do not have such experiences and who have stronger attachments towards life in Beliong as their only home.

An understanding of local values is a way to see the development from a local perspective (D. R. Becker et al., 2003; Odell, Scoble, & Recharte Bullard, 2011). The starting point suggested for an SIA study is the core of social change, which from an ANT-K perspective, are actors in the context of individuals, social institutions, and biophysical features. These actors come from the area where the development is proposed. The source of information for identifying an actor is provided by the affected people and other key informants who have
varying, sometimes conflicting, interests in the development. The information gained in tracing the way actors transform their capability into actions that contribute to social change is gathered via interviewing local people and observing local conditions.

All of these data sources create opportunities for affected people and related stakeholders to contribute to the process of decision-making in regard to the development, as has been recommended by many scholars (Ahmadvand et al., 2009; Dasgupta & Beard, 2007; Duncan, 2007; Okediji, 2011; Rajaram & Das, 2006; Stevenson, 1996). As a consequence, the findings of such SIA studies manage to communicate the needs of the affected people as well as the hopes of the decision-makers involved (Chamala, 1990). The framework proposed here is in line with other research concerning an appropriate research environment that emphasises local input in investigating social impacts and helps in developing an SIA method that is best-suited to local conditions (Gondolf & Wells, 1986; West, 1986).

In addition, the data sources, and starting points suggested by the framework, are designed to use local knowledge in identifying specific criteria that best represent local conditions of the area in which a development is to take place. The framework leads an assessor to closely trace the social transformation process by using relationships between actors and their capital stocks to produce actions that contribute to social change in a particular specific location. By doing so, SIA has a better chance of identifying the specific needs of each development, which is normally one of the obstacles assessors face in assessing developments (Dreyer et al., 2010; Riethmuller, 2003). However, the framework suggests a tracing track to identify the local needs via the recognition of their connections to opportunities or limitations of capital stocks due to the development. This is to avoid some of the local needs, that do not have direct connections to the development, from being overlooked in the process.

In general, the framework creates a way to help assessors look for hidden data or indirect data by providing directional criteria. For example, in collecting data related to social rules assessors are led to look for information about relevant norms and cultures that affect the beliefs and mind-sets of the affected people and their communities. This effort provides assessors with leads as to possible connections between the information collected and the thinking of the local people towards their daily lives, priorities and opportunities. As mentioned earlier in this section, the majority of Malay and Iban communities have a weaker financial background compared to the Chinese community in the case study area. Because of this weaker financial condition, they are less able to go to the city regularly or to live there. The Malay and Iban people thus have fewer opportunities and experiences of city life.
The examples in my case study showed that a poorer financial background might be one of the reasons that causes the Malay and Iban people to have fewer connections with buyers from the city or other places. As a result, they have fewer contacts with potential buyers from outside and, as such, they have access to only a smaller market for their farming products which they sell through middlemen, who call personally to buy from them. These farmers hope to see changes that could help them to overcome their existing difficulties in looking for new markets. The proposed improvement of the road and bridge access will create an opportunity for them to access new markets in the city or further afield. In addition, Beliong is the only home for most of the Malay and Iban families. They also hope for changes that will improve the standards of living in the case study area, which would enable them to enjoy more modern lifestyles and homes like the city people.

In a different geographical location, an SIA method that reflects the practice of local culture is useful for predicting social impacts that involve indigenous people (Duncan, 2007). This is because many of the indigenous people practice a unique traditional culture, which gives them different experiences. Moreover, local living conditions further shape their life experiences (Gössling, 2002). Once local people have an experience with a similar pattern of social impact of development, the experience will be the bridge that link their lives to their surrounding environment, and this relationship affects their feelings and perceptions toward changes happening around them in the future (Schroeder, 2007). This includes helping local people to see the development from different angles and to value the development from the viewpoint of others who have had different experiences. For example, the indigenous people who live near the jungle and believe in the presence of spirits in the jungle, have a special sense of attachment to the jungle. Any development taking place which involves or affects the jungle, means more than just an opportunity cost of removing use-values associated with trees, logs and more generally, forestry. It is also a matter of other traditional issues that relate to the beliefs in the spirits of the jungle.

In such situations as mentioned in the example above, the identification of possible connections that link local culture to other contributors of social change, means that the social impacts of development can be estimated more accurately. The outcomes of this kind of estimation show more specific information about the possible ways that help the affected indigenous people and the decision-makers in dealing with potential changes.
7.5 Study Implications

This study has explored the literature relating to the practice of Social Impact Assessment (SIA) and theories of social change. The focus of this study is to contribute to the identification of a best-suited SIA methodological design for studying development projects that happen in different background settings and in wider contexts. To achieve this, I explored theories of social change to find out aspects that could be used to discuss the connections of social change with developments, and that could also be used to understand these connections and to develop systematic ways of investigating social impacts. The findings of this study add to a growing body of literature on the topic of SIA theory and the theoretical framework, where previously, the knowledge of SIA application was mainly related to the concepts and principles of SIA.

7.5.1 Significance of the Study

In investigating social impacts, the purpose is to provide useful information that can help decision-makers, especially the developers, planners and investors of developments, to understand the ways social change is being formed in the affected area, and to identify a more suitable plan for carrying out such a development. The proposed conceptual framework in this thesis potentially enhances the understanding of the ways social impact can be predicted, by tracing and exploring the root of social change that is derived from local-based factors, and then by connecting the structures of social change with the development plans. By identifying the possible connections in the nature of social change in the area as well as in the development plans, a positive driving force can be established from the existing available human and biophysical features and conditions, leading the direction of development towards changes that maximise benefits and minimise harms to the affected people.

The positive factors that affect the possible changes identified for an area are used to support the developmental activities and to turn the negative factors, such as weak resources and services, into potential useable resources and services. The example in the case study shows that the positive factors for the proposed road and bridge development are: farmers’ efforts to develop farming activities in the case study area; the younger generation which is keen to work on the farms; and peoples hopes for road and bridge improvements to provide a better network with other places. The negative factors are the lack of economic attractions for developers and the lack of a labour force. With the knowledge of these background conditions, decision-makers can adjust their development plans accordingly, and thus the
development can create a more desirable outcome that fits into the people’s ongoing lives and their changing environment.

In the case study of Sarawak in Malaysia, the state government has taken some initiatives to deal with the issue of social impacts. However, SIA is not yet a compulsory aspect of development projects. Sarawak has its own state-enacted laws which control and protect its environment and natural resources through the Natural Resource and Environment Board (NREB), established in 1994, which only requires the conducting of Environmental Impact Assessment (EIA) for certain developments (See Chapter 1, Section 1.2.5). Although the socio-economic component is one of the main components of the EIA (See Chapter 1, Section 1.2.5), the study of the social impact of developments in Sarawak is limited and no specific guidelines have been drawn to enforce or to conduct the SIA practice.

Whilst this study cannot fully address all aspects of conducting a good SIA practice, it hopefully bridges a gap in SIA knowledge as regards to its practice in the context of any developing territory, such as Sarawak.

**7.5.2 Limitations of the Study and Future Research**

It is important to note the methodological limitations in considering the contribution of this study and the further investigations needed to build the knowledge and the literature for the effective practicing of SIA in different background settings and in wider contexts.

First, given that I studied only three villages in order to gain an in-depth understanding of the social impact issues which are of concern to village members, only further research in other, rural locations in Sarawak and in relation to other types of development projects, can it be fully established whether the framework I have developed and the individual, social institutional and biophysical priorities of rural villagers, have wider significance.

Second, the present study only explores the way to identify which aspects of social change, due to developments, might be more significant for the affected people, but makes no attempt to weigh the social change scientifically. The design of the proposed theoretical framework focused on investigating the potential social change, mainly in accordance with the qualitative data collected from feedback provided by respondents through interviews, observations and document investigations that I conducted. In the process, less attention was paid to how to estimate the social changes being studied. In this study, some questions were designed to seek information about the importance of social change to the lives of the affected people.
But, the feedback gained from such questions can only be used to discuss the issue of social change that is of concern to the affected people.

That feedback could not indicate which particular social change issues have more significant impacts than other issues identified in the roading and bridge development case study. The main reason for this is that all the information needed for testing the framework was collected in single interviews. Respondents were not asked to respond to or weigh up all the social change issues identified by the case study. No cross referencing was made in the interviews to the feedback given by others. In future research, some modifications will be needed to collect the relevant data for valuing the scale of social change. This would include a revision of the procedure for collecting relevant data, using two interviews for each respondent, with the second interview communicating a complete list of all potential social changes.

Lastly, the present framework is not able to consider all the aspects of specific needs for estimating people’s responses to developments. The framework examines the connections between actors of social change, and the proposed roading and bridge development. But the need for change to maximise the positive impacts of developments, depends on the opportunities and limitations created by the development. Hence, the indirect local needs which fall outside the scope of this study are not taken into consideration for the study. Actors of social change, such as individuals or communities, respond to the change agents generated from opportunities or limitations of development. Although the outcome sought from this investigation process took into account the needs of local conditions, those needs were addressed in a passive way, to show the connections to opportunities or limitations of capital stocks, due to the standing argument of the need for the development, and not the other way around (See Chapter 3). Future research needs a more thorough understanding of how the needs of local people for change also could be integrated into the framework, to find the best-matching results of supply and demand of capital stocks provided by actors and developments, and the effects on the social change process.

7.6 Conclusion

In this final chapter, I have restated the research question and methodology design for my study. This was followed by the summary and discussion of the Beliong case study, which was conducted to assess the theoretical framework I developed for this thesis. The findings of the study provide some guidelines as to identifying and measuring social impact by using the theoretical framework I developed from the modified ANT-K Theory. This theory explains the relationship between social change and development, which suggests possible ways to
investigate social impact issues that the people and communities face under different background settings and local conditions. The framework also shows possible ways to transform the results of SIA studies into meaningful information for planning developments. In addition, a better understanding of the logic behind the methodological design for conducting SIA studies for developments may shift the public’s current view about the importance of having SIA studies completed as part of the procedure for planning any development. Only with an increase in the public’s awareness towards the role of SIA in developments, is it likely that the public concern to see that SIA studies are conducted when developments take place will be raised. Hopefully, this study will generate a greater acceptance of the benefits of having SIA as normal practice and will encourage more decision-makers to apply SIA studies for planning developments in the future.
References


Gârboan, R. A. (2005). The actual knowledge stage in the area of social impact assessment on international level and in Romania, related to the most recently references from specialized literature. *Rezista Transilvană de Științe Administrative, 13*(1), 73-80.


Appendix A

Human Ethics Approval Letter

Application No: 2010-24

12 August 2010

Title: Social impacts of rural economic development in developing countries: A case study in Sarawak, Malaysia.

Applicants: Chiew-Ing Liew (Samantha)

The Lincoln University Human Ethics Committee has reviewed the above noted application.

Dear Samantha

Thank you for your detailed response to the questions which were forwarded to you on the Committee's behalf.

I am satisfied on the Committee's behalf that the remaining issues of concern have been satisfactorily addressed.

I am pleased to give final approval to your project and may I, on behalf of the Committee, wish you success in your research.

Yours sincerely

[Signature]

Professor Grant Cushman
Chair, Human Ethics Committee

cc Assoc Profs H Bigsby & B Gidlow

PLEASE NOTE: The Human Ethics Committee has an audit process in place for applications. Please see 7.3 of the Human Ethics Committee Operating Procedures (ACHE) in the Lincoln University Policies and Procedures Manual for more information.
Appendix B

Research Permit Approval Letter

STATE PLANNING UNIT
CHIEF MINISTER’S DEPARTMENT
6th & 7th Floor, Wisma Bapa Malaysia
93502 Kuching
Sarawak, Malaysia

Tel: (6)082 – 492276/492285  Fax: (6)082 – 449481/442536
Website: http://www.spu.sarawak.gov.my

Our Ref.: (02) UPN/S/G1/10 Vol.13
Date: 20 January 2011

Liew Chiew Ing
No.523, Lot 301, Jalan Ixora
Off Jalan Dahlia, Matang
93050 Kuching Sarawak

Dear Ms Liew Chiew Ing,

APPLICATION TO CONDUCT RESEARCH IN SARAWAK

I am pleased to inform you that approval is hereby given to enable you to conduct a research in Sarawak titled “Social Impacts Of Rural Economic Development In Developing Countries: A Case Study Of Beliong Area, Sarawak, Malaysia” from 03.01.2011 to 03.12.2012 (24 months).

This approval is subject to the following terms and conditions:

(i) You are to complete your study within the stipulated time as indicated in this letter of approval;
(ii) Any data provided should be used for this particular research only;
(iii) The Government has the right to withdraw this approval should you deviate from the original scope of your study based on the application form submitted to us; and
(iv) Upon completion of your research, printed copies of the final report of your study are to be extended free to the State Planning Unit; Sarawak State Library, (the designated State Depository Centre) (5 copies); NREB; UNIMAS and other departments/agencies connected with your study at no cost.

Thank you.

“BERSATU BERUSAHA BERBAKTI”
“AN HONOUR TO SERVE”

(DATU HAJI ISMAWI BIN HAJI ISMUNI)
Director
State Planning Unit
for State Secretary Sarawak
C.c.:

1. Kontroller
   **Lembaga Sumber Asli dan Persekitaran Sarawak (NREB)**
   Levels 18 and 19, Menara Pelita,
   Jalan Tunku Abdul Rahman Yaakub
   Petra Jaya, 93050 Kuching,
   Sarawak.
   (your letter ref: (29)NREB/6-12/2/47 dated 14.01.2011 is referred)

2. Pegawai Daerah
   **Pejabat Daerah Asajaya**
   94600 Asajaya
   (your letter ref: (DOA/G/1/9(57) dated 13.12.2010 is referred)

3. Vice Cancelor
   **Universiti Malaysia Sarawak (UNIMAS)**
   94300 Kota Samarahan
   (your letter ref: UNIMAS/TNC(AA)-07/09-02(27) dated 20.12.2010 is referred)
Appendix C

Research Information Sheet for Questionnaire 1

Research Information Sheet for Participants – Method 1 (Structured Interview)

My name is Liew Chiew Ing. You are invited to participate as a subject in a study entitled “Social impacts of rural economic development: A case study of Sarawak, Malaysia”. This study is carried out as part of my fieldwork for my PhD in the Commerce Faculty at Lincoln University, New Zealand.

The aim of this study is to investigate the social impacts of rural economic development in Sarawak, and examine how local factors might contribute to social impacts and sustainable development.

Participation in this study is voluntary. If you agree to participate, this will involve answering a series of questions. All the questions are short and straightforward. The first part of the questionnaire looks at your background information such as age, sex, education level and occupation. The questions asked in the second part of the questionnaire are related to your living and working environment. The results of this survey will be reported in my PhD thesis. It is also possible that these results may inform rural development in Sarawak, making such development more responsive to the expressed needs of local people.

In the final report of study, all the data and information obtained in the survey will be illustrated in aggregate statistics and graphics. All the information provided is strictly anonymous. All the raw data collected will be entered in a password-protected data file; only my supervisors and I will have access to it. No name or other individual information will be presented in the findings. You have the rights to withdraw at any time during the survey without explanation. If you wish to withdraw your data at a later date, please contact me at the email address or telephone number, below. Feel free to ask any relevant questions to me as the researcher for this study.

My contact details, as the researcher for this project, are given as below:-

Name : Liew Chiew Ing
Telephone : (64) (3) 325 3859 E-mail Address : chiew.liew@lincolnuni.ac.nz

I will be pleased to discuss any concerns you have about participation in the project.

My supervisors’ contact details are shown as below:-

Name : Assoc. Prof. Hugh Bigsby
Telephone : (64) (3) 321 8193 E-mail Address : hugh.bigsby@lincoln.ac.nz

Name : Assoc. Prof. Bob Gidlow
Telephone : (64) (3) 325 3820 E-mail Address : robert.gidlow@lincoln.ac.nz

This research has been approved by Lincoln University’s Human Ethics Committee.

Thank you very much.
Appendix D
Questionnaire 1 (Structured Interview)

Method 1 - Questions for Structured Interview with the Headman and Community Members

PART I: BACKGROUND INFORMATION

Section A: Village/ The Environment Affected

1. Village Name: ________________________________________________________________
   Any previous/other village name: _____________________________________________
2. Number of door/house: _____________________________________________________
3. Number of year exist here: __________________________________________________

Section B: Villagers/ The People Affected

1. Headman Name: __________________________________________________________
   Any previous headman name: ________________________________________________
2. Original from where: _______________________________________________________
3. Reasons for settled there: __________________________________________________
4. Number of population: _____________________________________________________
5. Ethnic/race group: _________________________________________________________
6. Religion: ________________________________________________________________

Section C: Development Project/Plan/Program/Policy in the Area

1. What kind of development found in the area at the past and present? Or planned to be
carried out in the future? Since when/ when will start?
   _______________________________________________________________________
   _______________________________________________________________________

2. Who are the parties involved in these development activities? Are they mostly local or
non-local? Do you think it is important to have local people involved in these activities?
Why?
   _______________________________________________________________________
   _______________________________________________________________________
3. How do the people know about these development activities? Do they agree with it? Are these developments good or bad for the people and their surrounding environment?

________________________________________________________________________
________________________________________________________________________

4. Are there any other comments on developments in your village?
________________________________________________________________________
________________________________________________________________________

PART II: ANALYTICAL PATHWAY INFORMATION

Step 1: Actors of Social Change (Groups of actors that assembled together)

1. Who do you think contributing to social change due to rural economic development in the area?
   - Local actor (refer 2)
   - Non-local actor (refer 3)

2. What are the type of local actors that you referring to?
   - Human actors/people (refer 2(a))
   - Non-human actors/factors (refer 2(b))

   2(a) Who are the people contributing to social change in the area?
   ______________________________________________________________________

   2(b) What are the non-human actors/factors affecting social change in the area?
   ______________________________________________________________________

3. What is the type of non-local actors that you referring to?
   - Human actors/people (refer 3(a))
   - Non-human actors/factors (refer 3(b))

   3(a) Who are the people contributing to social change in the area?
   ______________________________________________________________________

   3(b) What are the non-human actors/factors affecting social change in the area?
   ______________________________________________________________________

4. Who do you think interested on development activities in the area? Why?
   - Developer
   - Contractor
   - Government Officer
   - NGOs
   - Consultant
   - People Affected
   - Other (please specify):
   ______________________________________________________________________
Why do you say this?

5. Normally, what kinds of connections exist among these people?

<table>
<thead>
<tr>
<th>People</th>
<th>People</th>
<th>Type of relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Developer</td>
<td>□ Developer</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Contractor</td>
<td>□ Contractor</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Government Officer</td>
<td>□ Government Officer</td>
<td>____________________</td>
</tr>
<tr>
<td>□ NGOs</td>
<td>□ NGOs</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Consultant</td>
<td>□ Consultant</td>
<td>____________________</td>
</tr>
<tr>
<td>□ People Affected</td>
<td>□ People Affected</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Other (please specify)</td>
<td>□ Other (please specify)</td>
<td>____________________</td>
</tr>
</tbody>
</table>

6. What are the things that affect social change in the area? Why?

- □ Forest Resource
- □ Facility
- □ Land
- □ Technology
- □ Transportation network
- □ Other (please specify): __________________________________________________

Why do you give this answer?

7. Normally, what kinds of connections exist among these things?

<table>
<thead>
<tr>
<th>Thing</th>
<th>Thing</th>
<th>Type of connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Forest Resource</td>
<td>□ Forest Resource</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Facility</td>
<td>□ Facility</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Land</td>
<td>□ Land</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Technology</td>
<td>□ Technology</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Transportation network</td>
<td>□ Transportation network</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Other (please specify)</td>
<td>□ Other (please specify)</td>
<td>____________________</td>
</tr>
</tbody>
</table>

8. What kinds of connections exist among the people and the things

<table>
<thead>
<tr>
<th>People</th>
<th>Thing</th>
<th>Type of connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Developer</td>
<td>□ Forest Resource</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Contractor</td>
<td>□ Facility</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Government Officer</td>
<td>□ Land</td>
<td>____________________</td>
</tr>
<tr>
<td>□ NGOs</td>
<td>□ Technology</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Consultant</td>
<td>□ Transportation network</td>
<td>____________________</td>
</tr>
<tr>
<td>□ People Affected</td>
<td>□ Other (please specify)</td>
<td>____________________</td>
</tr>
<tr>
<td>□ Other (please specify)</td>
<td></td>
<td>____________________</td>
</tr>
</tbody>
</table>
Step 2: Capital Stocks of Actors (Potential capital stocks related to change agent)

1. Do you think that individual, social or biophysical capital stocks tend to affect social change in responding to rural economic development in the area?
   1(a) Individual capital
      □ Yes □ No
      Why: _____________________________________________________________
   1(b) Social capital
      □ Yes □ No
      Why: _____________________________________________________________
   1(c) Biophysical capital
      □ Yes □ No
      Why: _____________________________________________________________

2. What are the elements of individual capital that you referring to?
   □ Education □ Occupation □ Skill □ Attitude/Behaviour □ Experience □ Demographic (age and gender) □ Other (please specify): _________________________________

3. What are the elements of social capital that you referring to?
   □ Social structure □ Culture (traditional practice) □ Value (reality positive and negative judgement) □ Norm (social rules) □ Other (please specify): _________________________________

4. What are the elements of biophysical capital that you referring to?
   □ Natural resources □ Natural services □ Man-made biophysical features □ Other (please specify): _________________________________

5. Among individual, social and biophysical capital stocks, which one do you think contributing more towards social change of development in the area?
   ________________________________________________________________

6. If you are given scale 1 (Very weak) to 10 (Very strong), what scale does each of these capital stocks contribute to the social change of development in the area?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Scale</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual capital stocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social capital stocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biophysical capital stocks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Step 3: Change agents for actions that link capital stocks and development activities

Section A: Change Agents deal with Individual Capital

Part 1: Education Status

1. Do the children attend kindergarten/ primary school/ secondary school? Which one (if relevant)?
   __________________________________________________________________________
   __________________________________________________________________________

2. How many of the people here have secondary or higher education background? Where are they right now? Are they still staying in the village? What are the jobs done by them currently?
   __________________________________________________________________________

Part 2: Occupation Pattern

1. What are the major types of occupation in the area? Is self-employment or wage-earning occupation?
   __________________________________________________________________________
   __________________________________________________________________________

2. What are the odd jobs done by people? Are they working as labourer, handicraft maker, carpenter, none or others? Please specify.
   __________________________________________________________________________

3. Average income and expenses per household per month?
   __________________________________________________________________________
   __________________________________________________________________________

Part 3: Economic Activities

1. Are the people involved in agricultural activities? If yes, most of them involved in the agricultural activities as full time or part time?
   __________________________________________________________________________
   __________________________________________________________________________

2. What are the main types of crops planted (e.g. paddy, fruit trees, vegetables, etc.)? Besides crops, are there any persons involved in livestock farming (e.g. raise chicken, goat, cow, etc.)? Are there any persons involved in aquaculture farming (e.g. has pond for culture fish, prawn, shellfish, etc.)?
   __________________________________________________________________________
   __________________________________________________________________________

   203
3. Are people involved in fishing activities? If yes, are most of them involved in the fishing activities as full time or part time? Where is the location of common fishing grounds (inland lake, river, etc.)?

________________________________________________________________________
________________________________________________________________________

4. What are the common fishing methods used? E.g. fishing rod, fishing net, fishing trap? What is the predominant fish species caught? E.g. Tapah, Bantak, Kaloi, Baong?

________________________________________________________________________
________________________________________________________________________

5. Are people obtaining forest resources? If yes, do most of them obtain forest resources as full time or part time activity? What are the normal forest products obtained by them (e.g. wild fruits, timber, honey, herbs, etc.)?

________________________________________________________________________
________________________________________________________________________

6. Besides involved in agricultural and fishing activities and obtaining forest products, are there any other economic activities conducted by people?

________________________________________________________________________
________________________________________________________________________

Part 4: Migration Pattern

1. How many of the people left the village? Where did they mostly go?

________________________________________________________________________
________________________________________________________________________

2. What are the reasons of migration? Which one is the main reason? Are there any other comments on this issue?

________________________________________________________________________
________________________________________________________________________

Section B: Change Agents deal with Social Capital

1. Are there any social institutions in the village? If yes, what are the social organizations found in the village? Prompt: Are they a religious society, women society, farmer association or others? Please specify.

________________________________________________________________________

2. What are the activities carried out by these social organizations? Are there any training courses, society or development projects organized by these organizations? Please state the relevant details.

________________________________________________________________________
3. What kind of relationship exists within the people in the social organizations? Are there any specific rules or regulations or same cultures practiced by those in the organizations?
________________________________________________________________________
________________________________________________________________________

4. How many of the villagers have relatives staying in other places? How frequently do they visit their relatives? Or how frequent do their relatives come back visit them? When? For what reasons?
________________________________________________________________________
________________________________________________________________________

5. What are the social relations or things practice by the community in your village that you believe will affect social change due to rural economic development in the area?
________________________________________________________________________
________________________________________________________________________

Section C: Change Agents deal with Natural Biophysical Capital

1. What are the natural features exist in your village that will affect social change of rural economic development in the area?
________________________________________________________________________
________________________________________________________________________

2. What are the common uses of rivers? Are they for providing food source, water source, transportation or other uses?
________________________________________________________________________
________________________________________________________________________

3. What are the common uses of land? Prompt: Are they meant for building houses, farming, burial grounds or others?
________________________________________________________________________
________________________________________________________________________

4. Do the people own land in the area? Do they have any land title or official record with the headman or relevant authorities (Land and Survey Department)?
________________________________________________________________________
________________________________________________________________________

5. Where are the common local markets visited by people? What are the main purposes for visiting the market? Prompt: To buy or sell goods? What goods are commonly (a) bought; (b) sold, in the market? How frequently do the people go to market?
________________________________________________________________________
________________________________________________________________________
6. Are there any tourism spots in the area? Prompt: E.g. caves, waterfall, etc. If yes, please state the details. What are the special features of the area?

________________________________________________________________________
________________________________________________________________________

Section D: Change Agents deal with Man-Made Biophysical Capital

Part 1: Transportation Network

1. What are the common types of transportation mode found in the area (by land/ river/ both)?

________________________________________________________________________
________________________________________________________________________

2. Are there any local transportation services provided? If yes, what kind of transportation services are provided (none, van, boat express, bus, 4-wheel car, etc.)? Which one(s) is/are normally taken by people? What are the charges?

________________________________________________________________________
________________________________________________________________________

3. If local public transportation is provided, is this by a private company or an individual? What is the schedule? Prompt: how frequent? / is there a timetable?

________________________________________________________________________
________________________________________________________________________

4. How many people/parties are involved in local transportation services? How many local/ outsiders involved?

________________________________________________________________________
________________________________________________________________________

5. Do you have any other comments on the current public transportation service available in the area (good, moderate or bad)?

________________________________________________________________________
________________________________________________________________________

Part 2: Water Supply in the Village

1. Where do people get their water sources (rainwater, river water, pipe water, gravity feed water, etc.)? For those who rely on piped water, the source is from JKR or LAKU? For those rely on gravity feed water, where is the source of the water? (Are there any specific namea of hilla or rivera?)

________________________________________________________________________
________________________________________________________________________
2. How is the quality (very clean, clean, not clean or polluted) and quantity (sufficient or not sufficient) of the water? Please give the reason for your answer.

________________________________________________________________________
________________________________________________________________________

3. How do people collect and store the water? (If relevant – by what: HDPE water tank, zinc water tank, drum or etc.)? Are there any subsidies for the water tank and who provides them?

________________________________________________________________________
________________________________________________________________________

4. Are there any problems with the water supply in the area?

________________________________________________________________________

Part 3: Electricity Supply in the Village

1. Where do people get the electricity sources for the village (SESCo, generator (individual), generator (communal), solar system, mini-hydro station, gasoline lamp, etc.)?

________________________________________________________________________

2. For those who rely on generator sets, where do they get the generator set? From government subsidy/ self-generator or other sources? Normally, how many gallons of diesel are used in one week (if relevant)?

________________________________________________________________________

3. Where do people buy the fuel (diesel or gasoline) for the generator/gasoline lamp (if relevant)?

________________________________________________________________________

4. Are there any problems with the current electricity supply?

________________________________________________________________________

Part 4: Telecommunication Systems in the Village

1. What type of telecommunication services is available in the area? Prompt: None, fixed line or mobile line? For fixed line, is a public phone or individual phone service? For mobile line, which network has coverage in the area (e.g. 012/019)?

________________________________________________________________________
2. How good is the network coverage in the area (easy or bad signal)? How is the connection to other places: clear or not clear?
________________________________________________________________________

3. Are there any problems with the current telecommunication service?
________________________________________________________________________

Part 5: Health Status in the Village

1. What are the types of medical facilities in the area (none, flying doctor, medical team, mobile clinic, local health clinic)? If none, where do people go for medication?
________________________________________________________________________

2. If your area has a flying doctor or medical team/mobile clinic, how frequently do they visit the area? In the case of local health clinics, which one(s) do people normally visit?
________________________________________________________________________

3. What kinds of common disease found in the area? Prompt: E.g. dengue, malaria, cholera, tuberculosis (TB), skin disease, etc.? Do villagers suffer from any sickness like diabetes, high blood pressure, heart disease or other that need treatment?
________________________________________________________________________

4. Are there any problems with the current medical service?
________________________________________________________________________

Part 6: Sanitation in the Village

1. What is the type of latrine/toilet? Prompt: Modern toilet with septic tank/ hanging toilet at the riverbank/ open shallow pit/ open defecation practice, etc.?
________________________________________________________________________

2. What is the type of toilet facility (pull-flush system/ pour-flush system/ none)? Are there any other problems faced with the current sanitation in the area?
________________________________________________________________________
Part 7: Burial Grounds/ Other Cultural Sensitive Areas

1. Are there any areas of cultural significance or sensitivity in or around the village? If yes, where is the location? What are these places used as? Prompt: burial grounds, ritual grounds, archaeological sites, etc.)?
________________________________________________________________________
________________________________________________________________________

2. Do they share these places with other village in the area? With whom (if relevant)?
________________________________________________________________________
________________________________________________________________________

3. Are there any other comments on this issue?
________________________________________________________________________
________________________________________________________________________

Part 8: Others

1. Are there physical facilities/infrastructures in the area that need improvement/changes? What are they? Why do they need improvement/change?
________________________________________________________________________
________________________________________________________________________

2. Are there natural environments in the area that need improvement/changes? What are they? Why do they need improvement/change?
________________________________________________________________________
________________________________________________________________________

Step 4: Effects of social actions (matters of fact and concern)

1. What is the overall evidence of change that can be seen in individual and the community in the area?
________________________________________________________________________
________________________________________________________________________

2. On a scale of 1 to 10, from 1 (No change) to 10 (Very major change) which number conveys the way people in the area have changed over time due to development? Why do you give this answer?
________________________________________________________________________
________________________________________________________________________

3. What is the environment change evidence (man-made and nature) from rural economic development that can be seen at their surrounding area?
________________________________________________________________________
________________________________________________________________________
4. Similarly, if you are given the scale of 1 to 10, which number do you think conveys the amount of change to the environment (man-made and nature) in the area due to development? Why do you give this answer?

________________________________________________________________________

________________________________________________________________________

Step 5: Impacts of changes on individuals and communities

1. What aspects of social impacts of rural economic development in the area do the people concerned most? On a value of 1 (Most important) to 9 (Less important), please rank the important of these issues to the people.

☐ Lifestyle pattern ☐ Environment
☐ Culture system ☐ Health and well-being
☐ Community structure ☐ Personal and property rights
☐ Political system ☐ Fears and aspirations
☐ Other (please specify):

________________________________________________________________________

2. What kind of social impacts faced by individual or community due to rural economic development in the area?

________________________________________________________________________

________________________________________________________________________

3. If you are given the scale of 1 to 10, which number corresponds to the extent to which the people in the village have been affected by social impacts over time due to development? Why do you give this answer?

________________________________________________________________________

________________________________________________________________________

4. Normally, who would the villagers discuss with about social impacts happening in the village?

☐ Family member ☐ Government officer/ relevant authority
☐ Friend ☐ Neighbour
☐ Headman ☐ Developer
☐ Other (please specify): __________________________________________________

________________________________________________________________________

5. Do you think local people’s decisions or actions affect significantly to social impacts on people found in the area?

________________________________________________________________________
6. Do you think the availability of local conditions and environments contribute significantly to the pattern of social impacts on people in the area? Prompt: timber, land, labour force, etc.

________________________________________________________________________

________________________________________________________________________

7. Do you think outsiders contribute to the social impact on individual in the area?

________________________________________________________________________

________________________________________________________________________

8. Do you think resources or services transferred from outside tend to reduce or modify social impacts of rural economic development in the area?

________________________________________________________________________

________________________________________________________________________

9. Are there any representatives in the village that deal with this kind of social impact problem? Who are they? What is their main role in this issue? What are the normal things carried out by these people?

________________________________________________________________________

________________________________________________________________________

10. Are there any other comments on social impacts on individual in the area due to rural economic development?

________________________________________________________________________

________________________________________________________________________
Appendix E

Research Information Sheet for Questionnaire 2

Research Information Sheet for Participants – Method 2 (Semi-Structured Interview)

My name is Liew Chiew Ing. I am the researcher for this study entitled “Social impacts of rural economic development: A case study of Sarawak, Malaysia”. You are invited to participate. The study will contribute to my PhD in the Faculty of Commerce at Lincoln University, New Zealand.

I am conducting this interview session following my previous interview session on the other day with the headman and community members.

First of all, thank you very much for agreeing to be interviewed for my study on the issue of social impact on people in this village. I would also like to thank you for allowing me to tape-record our conversation during this interview session and having a field assistant present at the same time.

Please be assured that this study has been approved by Lincoln University’s Human Ethics Committee. In accordance to the approval of the Committee, none of the findings can be linked to your personal identity.

Is there any other information you want me to explain before I go ahead?

Ok. Let us start then. I would like to discuss some questions about your personal perception of issues to do with social impacts in this village (see Appendix F).

Thank you very much for being willing to share your valuable opinion and knowledge with me during this session.

Would you like to receive a written report once it is completed?

With that, I end this interview session. Thanks.

My contact details, as the researcher for this project, are given as below:-

Name : Liew Chiew Ing
Telephone : (64) (3) 325 3859 E-mail Address : chiew.liew@lincolnuni.ac.nz

I will be pleased to discuss any concerns you have about participation in the project.

My supervisors’ contact details are shown as below:-

Name : Assoc. Prof. Hugh Bigsby
Telephone : (64) (3) 321 8193 E-mail Address : hugh.bigsby@lincoln.ac.nz

Name : Bob Gidlow
Telephone : (64) (3) 325 3820 E-mail Address : robert.gidlow@lincoln.ac.nz
Appendix F
Questionnaire 2 (Semi-Structured Interview)

Method 2 - Questions for Semi-Structured Interview with Individuals

Indicative Questions

1. Could I know some basic demographic background of you? Your age, education background, occupation, years living in this village, income and expenses.
2. Are you involved in any social organization found in the village or outside?
3. What are the main social impact issues concerned by you? Why? When do these impacts happen?
4. With respect to the social impact issues mentioned by you just now, have you ever talked to others about them? Who are you talked to?
5. Have you attended any meetings to discuss about social impacts facing in the village?
6. Do you face similar impacts before? If yes, what happened to you? When was it? How did you overcome it?
7. In your opinion, what causes all these social impacts happen?
8. Who are responsible causing the impacts? Or what are the things/issues that contribute to these impacts?
9. How these impacts happened in the area?
10. What are the effects of these current impacts to you this time? If you got previous experience on similar impacts, are you dealing with the issue in a similar or different way?
11. Do you think these impacts created small, moderate or big changes to your life?
12. What are the positive or negative changes created to you by these impacts?
13. Do you think your own capabilities will affect the way of these impacts changing you or your life? For instance, your knowledge or experience will change your reactions towards these impacts? Or, if you know more about the causes of these impacts, will you face the impacts in the same way?
14. Do you think the culture/norms/values of your community affect the way of social impacts change you or your life? Prompt: E.g. if all the villagers agreed with a particular development project suggested, the positive impacts created by this project will be better off than negative impacts.

15. Do you think social relationships or connections within the people in the village affect impacts created on the people? Prompt: friendship, leadership, trust, cooperation, etc.

16. Do you think the local resources/conditions of the village affect the kind of social impacts created by rural economic development project? E.g. if no timber in the area, no development will take place in the area?

17. Among individual capabilities, community strength and local environment resources like timber, land and facilities, which one do you think have greater influence on the issue of social impacts created by development?

18. Do you think local people or outsider play a more important role in making decisions related to the rural economic development in the area?
Appendix G

Research Introduction Sheet/Questionnaire 3
(Structured Interview)

Research Introduction Sheet for Participants – Method 3 (Unstructured Interview: Focus Groups)

My name is Liew Chiew Ing. I am the researcher for this study on the social impacts of rural economic development. The research will contribute to my PhD studies at Lincoln University, New Zealand. I am conducting this focus group session following prior arrangement with the headman few days ago regarding this women/pensioner/etc focus group interview session.

Did you receive advice from the headman, asking to meet and talk with women in this village about the issue of social impact? Are you willing to take part in a focus group with me? Is there any other information of this study you want me to explain in more detail before I go ahead? Please be assured that this study has been approved by Lincoln University’s Human Ethics Committee.

First of all, thank you very much for agreeing to be interviewed for my study on the issue of social impact on people in this village. I would also like to thank you for allowing me to tape-record our conversation during this interview session and having a field assistant present at the same time.

Ok, let us start then. I would like everyone to know that this session is conducted to obtain your perception as women [five different groups will be involved in focus group discussions] towards the issue of social impact on people in this village in connection with rural economic development.

In the last few days, I carried out a big group interview with the headman and other villagers regarding the common issues of the social impacts faced by people in this village, and also discussed about local conditions and daily lifestyle of the people here.

For this session, I want to hear your opinion about the issues of social impact that concern by women/pensioner/etc here.

For instance, ‘What are the actual social impacts faced by you as women/pensioner/etc?’; ‘How do you justify the cause, effect and scale of these impacts?’; ‘What are the elements of social impacts that lead to social change of women in this village?’

Thank you very much for willing to share your valuable opinion and knowledge with me during this session.

Would you like to receive a written report once it is completed?

With that, I ended this interview session. Thanks.

Liew Chiew Ing.
Appendix H
Survey Guide

Survey Guide Sheet for Interviewers

Preparation for the Survey

1. Identify all the relevant legal and ethical procedures that require for conducting the survey in the study area.

2. Fulfil all the legal or ethical requirements before start any survey works.

3. Familiar with the background settings of the study area.

4. Identify the relevant data sources for the study.

Snowball Technique for Selecting Respondents

1. A mixture of “assessed by Headman (a village’s leader) and other local leaders” and “a snowball technique” is used.

2. Headman or local leaders approached for the suggestion of respondents need to have a good local knowledge of the ‘range’ of villagers.

5. Headman or local leaders are the key sources for suggesting certain villagers as new respondents at the beginning of my survey.

6. The first batch of the respondents selected are turn be asked to nominate other suitable villagers.

7. Sufficient respondents are collected once new respondents are given the same answers regarding the same issues.

Language Used

1. Four languages used for the survey are Hakka, Mandarin, Malay and Iban
   - Hakka and Mandarin: Chinese respondents
   - Malay: All the Malay respondent; Iban respondents whenever possible
   - Iban: Iban respondents
2. Professional interpreter – Iban language
   - Has interview experience in conducting social survey
   - Familiar with the survey method
   - Understand the survey questions
   - Understand the local culture

Reference for Certain Word/Phrase

1. “Actor of social change” refers to
   - Human and non-human actors/elements those are able to affect changes in human life.
   - Sources of actors: individual, society and environment
   - 4 types of actors: individuals, social organisations, natural features and man-made features

Examples of individual actors
- Young/old, male/female, government servants/public workers/self-employed

Examples of social organisation actors
- JKKK, religion association or farmer association

Examples of natural features/services actors
- River, forest, rainwater supply, river system

Examples of man-made features/services actors
- Facilities and infrastructure (e.g. road, drain and vehicles), houses, farms transportation services, farming technologies (e.g. fertilisers and water pumps)

2. “Capital stocks” refers to
   - Education, occupation, skill, attitude, behaviour, experience, demographic (age and gender)

3. “Individual Capital” refers to
   - Education, occupation, skill, attitude, behaviour, experience, demographic (age and gender)

4. “Social Capital” refers to
   - Social structure, culture (traditional practice), value (reality positive and negative judgement), norm (social rules)

5. “Biophysical Capital” refers to
   - Natural resources, natural services and man-made biophysical features

Examples of Natural resources
- Timber, honey, wild vegetable, wildlife (e.g. fish, crab, deer, bird and monkey)
Examples of Natural services
- River or tide cycle (transportation activities), land (farming activities)

Examples of Man-made biophysical features
- Vehicles (e.g. motorcycles, cars and boats), equipment/tools for farming or living, roads, bridges, drains and buildings

6. “Social change” refers to
- Changes seen on individuals or communities which made an individual or a group of people think or act differently

7. “Change agent” refers to
- Potential opportunities or limitations created by interactions between the relevant actors and development activities, which might affect actors to take certain actions

8. “Evidence of change” refers to
- Actions, behaviours, things or environment features are not the same again as before.

An example of change in term of action
- Villagers started to use high technology farming equipment or machineries, which they did all the farming works manually in the past.

An example of change in term of behaviour
- Unlike young people in the past, young people nowadays do not want to work in the farm or stay in the rural area.

An example of change in term of things
- Many abandoned farms nowadays; previously, many healthy and producing big coconut farms.

An example of change in term of environment features
- Have a better infrastructure and facilities compared to the olden days.