

# **Effectiveness of Health Impact Assessment (HIA) in Thailand:**

a case study of a Potash mine HIA  
in Udon Thani, Thailand

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## **Effectiveness of Health Impact Assessment (HIA) in Thailand: a case study of a Potash mine HIA in Udon Thani, Thailand**

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### **ABSTRACT**

While health impact assessment (HIA) theory and practice has emerged worldwide to consider ‘human health’ as a core component of sustainable development, the benefits gained from HIA have been questioned. The ways people perceive HIA seem to be context specific and, therefore, this research aims at reviewing the aspects of HIA theory, practice, roles, and its contributions to the development of policymaking and projects/programmes in the Thai context.

Procedural, substantive, transactive, and normative effectiveness were conceptualised using a criteria-based framework for HIA in this study. The framework was applied to measure the effectiveness of a community HIA case study, previously conducted for Potash mine development in Udon Thani, Thailand. Documentary analysis and both semi-structured and unstructured interviews (30 cases) were conducted.

Procedural and substantive categories, driven by legal regulations, were found to be critical in influencing the application of HIA in decision-making. Levels of involvement in the HIA process were critical determinants of the interviewees’ ability to share their perspectives on transactive and normative effectiveness. Human resource and capacity building were also found to be crucial components influencing the effectiveness of HIA. The four effectiveness categories tend to have connections between one another. These connections were shaped by the components within the context: public demand for HIA; knowledge and financial supply; voluntary cooperation of the practitioners; and political context.

In conclusion, HIA is expected to contribute multiple roles in Thai society. Key elements to consider for the improvement of the effectiveness of HIA in Thailand are the provision of policy and a regulatory framework for HIA implementation, capacity building and knowledge production at all levels and providing human resources for HIA practice and development.

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## ABBREVIATIONS

A.D.	Anno Domini
ANPED	The Northern Alliance for Sustainability
ASEAN	The Association of Southeast Asian Nations
B.E.	Buddhist Era
BMA	British Medical Association
CDC	Centre for the Disease Control
CEE	Central and Eastern Europe
CEHA	Centre for Environmental Health Activities
CEHAPE	The Children's Environment and Health Action Plan for Europe
CEHAPs	National Children's Environment and Health Action Plans
CEHI	Children's Environmental Health Indicators
CEP	Committee on Environmental Policy
DPIM	Department of Primary Industries and Mines
EAP	Environmental Action Programme for Central and Eastern Europe
EEN	European Public Health Alliance Environment Network
EfE	Environment for Europe
EHAPE	Environment and Health Action Plan for Europe
EHIA	Environmental Health Impact Assessment
EIA	Environmental Impact Assessment
EMR	Eastern Mediterranean
EPHA	European Public Health Alliance
EU	European Union
GBP	The pound sterling, the British currency
HELI	The Health and Environment Linkages Initiative
HIA	Health Impact Assessment
HIA Co-Unit	Health Impact Assessment Coordinating Unit
HPP	Healthy Public Policy
HPPF	Healthy Public Policy Foundation
HPP-HIA Programme	The Research and development Programme on Healthy Public policy and Health Impact Assessment
HSRC	The National Health System Reform Commission
HSRI	The Health System Research Institute
HSRO	The National Health System Reform Office
IAIA	The International Association for Impact Assessment
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association
IFC	International Finance Corporation
IGOs	Intergovernmental Organisations
KPI	King Prajadhipok's Institute
N. Ireland	The Northern Ireland
NEAPs	National Environmental Action Programmed
NEHAPs	National Environmental Health Action Plan for Europe

NEQA	National Environmental Quality Act (in Thailand)
NESAC	National Economic and Social Advisory Council
NGOs	Non-government Organisations
NHC	National Health Commission
NHCO	The National Health Commission Office
ONEP	The Office of Natural Resources and Environmental Policy and Planning
PATH	People Assessing Their Health
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
TEI	Thailand Environmental Institute
THB	The Baht, the Thailand currency
U.S.	The United States of America
UK	The United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNECA	United Nations Economic Commission for Africa
UNECE	United Nations Economic Commission for Europe
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNSCWA	United Nations Economic and Social Commission for Western Asia
WHO	World Health Organization

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# CHAPTER 1

## INTRODUCTION

### 1.1 MATTERS OF THE EFFECTIVENESS OF HEALTH IMPACT ASSESSMENT

Regarding the ‘Health for All’ strategy initiated in the Ottawa charter, Health Impact Assessment (HIA) has been urged to be implemented in any kind of development globally. This is because there is global agreement, on behalf of the United Nations (1993), that human health is at the core of sustainable development. In decision making for any development, cause and effect links between development, the environment, and health are key elements that should be considered. In addition, solutions to adverse health impacts from ‘*economic crises, unhealthy environment, and risky behaviour*’ is one of challenges to maintain the world’s health security in the twenty-first century (Brundtland, 2002).

As HIA aims to help in the achievement of sustainable development, it is important to consider how we move forward to achieve the least unexpected consequences. This means impacts on human health should be assessed and the results should be appraised to build knowledge on HIA practice, application and its effectiveness. HIA lessons from diverse experiences across the world could act as the driving mechanisms for HIA practice in other countries.

While tools for impact assessment have been created and developed, HIA as a means of providing evidence of health impacts is expected to help decision-makers justify their decisions, based on knowledge and true understanding, which leads to health security among the population (Lock, 2000, Kemm and Parry, 2004b). However, in order to be effective, HIA values are a key point to be considered so that the unique goal of sustainable development can be realistic.

To clarify HIA values, its effectiveness should be evaluated when HIA has been applied in the decision-making process, or used as a database and knowledge source for impact mitigation and protection. This action could help relevant sectors to judge the degree of success in HIA implementation (Wismar et al., 2008). It could also demonstrate if health inequality problems have been addressed and reduced, plus it could move the HIA evidence base in a forward direction, and advance HIA practice based on the evidence experience (Quigley and Taylor, 2003). However, research attention on measuring the effectiveness of HIA is rare, while HIA is still questioned as to its worth in the decision-making process (Quigley and Taylor, 2004). In addition, although there is considerable research into the consideration of health aspects in other forms of impact assessment, e.g., strategic environmental assessment (SEA) and environmental impact assessment (EIA), it seems that more knowledge about the merits of HIA is still required. This is because Dora (2004) argued that health impact assessment in both SEA and EIA in the past is inadequate in that little knowledge on applying HIA at policymaking level has been addressed, and he questions how HIA will work when health is included in the SEA Protocol (see **Table 2.2**, Chapter 2). Hence, knowledge production on effectiveness of HIA is essential. As such, it is necessary to provide appropriate assessment for the value of HIA and this could be achieved by considering the evaluation (Parry and Kemm, 2005).

Therefore, this study has examined the effectiveness of HIA, based on an effectiveness criteria framework (in procedural, substantive, transactive and normative categories) created in this research applied to a case study where the HIA case was conducted. A HIA case study in Thailand was evaluated with an expectation that the findings could contribute to other cases or countries, with similar contexts, in improving HIA effectiveness so that it can be an effective supporting instrument such that decision-makers would like to consider using it.

## **1.2 RESEARCH QUESTIONS**

Based on the literature reviews of HIA and effectiveness contexts of impact assessment processes, the research questions for this study are as follow

- In what ways (how) do people use HIA and why do they use it?
- How do we define the effectiveness of HIA and how can we measure it?
- How did HIA of Potash Mining in Udon Thani perform based on the effectiveness criteria developed in this research?
- How did the effectiveness conceptual framework work when applied to the case?
- What are the major factors influencing the effectiveness of HIA implementation referring to the case study, and why?
- How can we improve the effectiveness of HIA in the Thai context?

## **1.3 RESEARCH AIMS AND OBJECTIVES**

This study aims to develop a conceptual framework for measuring HIA effectiveness as well as providing recommendations for the improvement of effectiveness. This research was conducted with the following objectives

- To review perspectives on HIA theory, its practice, its role, and its contribution to policymaking and project/ programme development that lead to HIA application in the Thai context
- To study the effectiveness context of impact assessment and set the conceptual framework for measuring the effectiveness of HIA
- To apply the effectiveness conceptual framework to a HIA case study in Thailand: Potash Mine HIA in Udon Thani province, Thailand

- To use the findings from this study to advance HIA theory in terms of effectiveness perspectives
- To provide recommendations for the improvement of effectiveness

## **1.4 THESIS STRUCTURE**

This chapter (**Chapter 1**) introduces research context for the whole thesis in terms of its rationales about the significance of health in sustainable development, implementation of HIA in the development globally, and concerns on effectiveness of HIA. This led to the research questions raised regarding the gaps found based on the literature. The goal and objectives of this study are outlined prior to the components of each chapter in this thesis.

**Chapter 2** introduces relationships between global development, environmental change, and human health, which lead to the need to consider health as the central pillar of sustainable development. Policy drivers at the global, regional, and national level are considered to demonstrate the significance of population health, in the changing world, in term of the necessity for health impact determination through HIA prior to the introduction of HIA to Thailand.

**Chapter 3** reviews the literature focusing on HIA theory and how it is practiced worldwide and in Thailand. HIA development based on its definitions, purposes, methodology, and practice are set as the fundamental basis for the consideration. The goals of HIA implementation are analysed related to decision-makers roles so that it can set the background for conceptualising a criteria framework to measure its effectiveness and considering a case to study.

**Chapter 4** draws out the theories related to the effectiveness and the effectiveness of impact assessment processes as a basis to conceptualise the

idea about effectiveness. The effectiveness concept is categorised into four categories: procedural; substantive; transactive and normative. Factors contributing to effective implementation of impact assessment are reviewed fundamentally to conceptualise and develop criteria framework for assessing the effectiveness. This framework is applied later on to consider the effectiveness of HIA case used in this study.

The research methodology is described in **Chapter 5**, which includes an overview of the research paradigms and a decision that the constructivism paradigm is considered appropriate for this research regarding the nature of the knowledge and the research questions raised for this study. A case study approach is justified to be used in exploring the knowledge from the real world based on qualitative research design and methods, including ethical consideration.

**Chapter 6** presents the analysis and discussion of the findings. Characteristics of the stakeholders that were key informants in this study are justified based on their roles in this HIA process along with the context of the selected case. Different perspectives of individuals towards the HIA case based on the conceptualised framework of the effectiveness criteria are presented and discussed. The practicality of the criteria set is investigated based on the findings as well as the interconnections found between the criteria set.

**Chapter 7** concludes on the overall findings and aspects achieved in this study based on the research questions. The findings reflect the implications in terms of HIA theory, its roles, and its contributions in the Thai context. Regarding the criteria framework application to the case, the conceptual framework and methodological approach are justified based on the findings and field research experience. Recommendations for improving HIA effectiveness in the Thai context are suggested prior to the opportunity for

future research related to the criteria framework application. Finally, the contribution of this study based on the knowledge gained is summarised.



## **CHAPTER 2**

### **GLOBAL DEVELOPMENT AND POLICY DRIVERS ON HEALTH**

#### **2.1 INTRODUCTION**

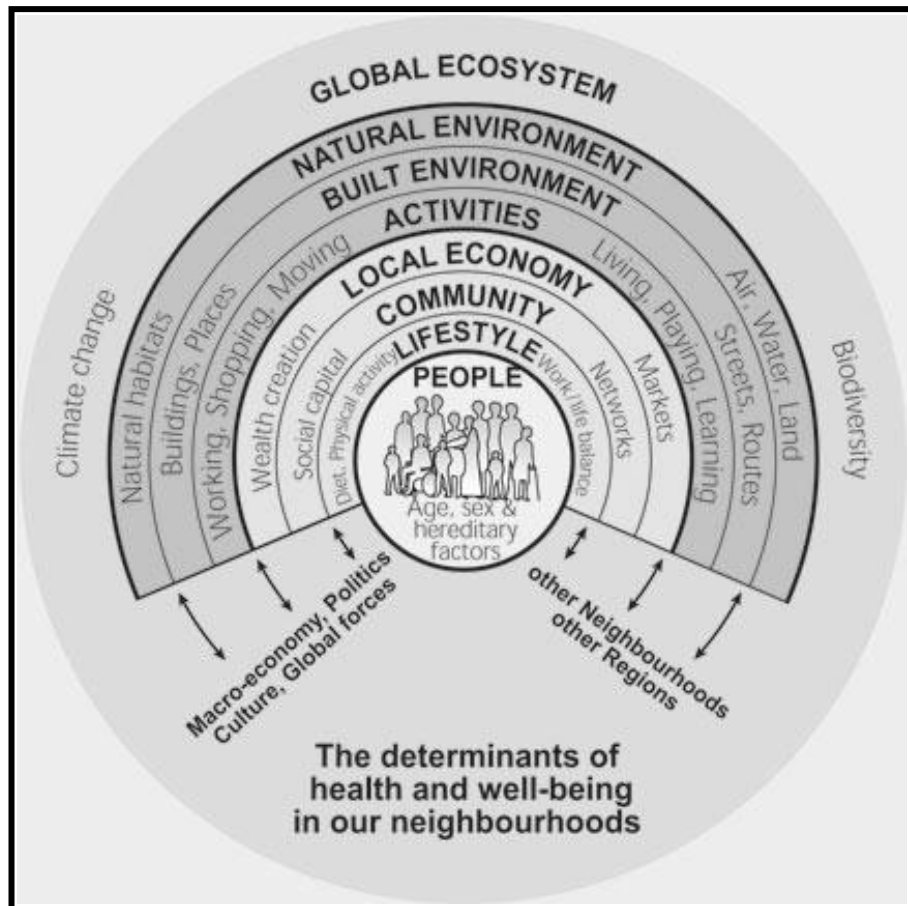
This chapter maps out the pathway of global development and its consequences on the environment and health. Relationships between human activities, development and advancing technology, and changes from these actions are demonstrated. Changes can be seen to the physical environment, biological environment, and social environment that affects human health and well being. This has led to the analysis of human health determinants from micro to macro scale. These changes have had both positive and negative impacts on people leading to a concern that development should be more balanced. People learn to find ways to make the development more sustainable to protect their health and their environment.

Considering health in policy making as a key concern seems to be one good way to support sustainable development. Regarding this, policy drivers for considering health in decision-making are reviewed including policy drivers on health initiating from global to regional and national levels.

#### **2.2 GLOBAL DEVELOPMENT, ENVIRONMENTAL CHANGE, AND HUMAN HEALTH**

Global development based on wider scales of human activities has led to environmental change and human health impacts (World Health Organization, 1992, p.2, 8). This is because development always necessitates shifts in population health because of changes to the environmental determinants of health. This influences population health status directly and indirectly, affected by development activities (Phillips and Verhasselt, 1994b). The environmental determinants of health are identified in a health map shown in **Figure 2.1**, which indicates that well-

being is dependent on lifestyle, community, local economy, activities, built environment, natural environment, and the global ecosystem (Barton and Grant, 2006).



**Figure 2.1** Health map for the local human habitat

Sources: Barton and Grant (2006) adapted based on Dahlgren and Whitehead (1991)

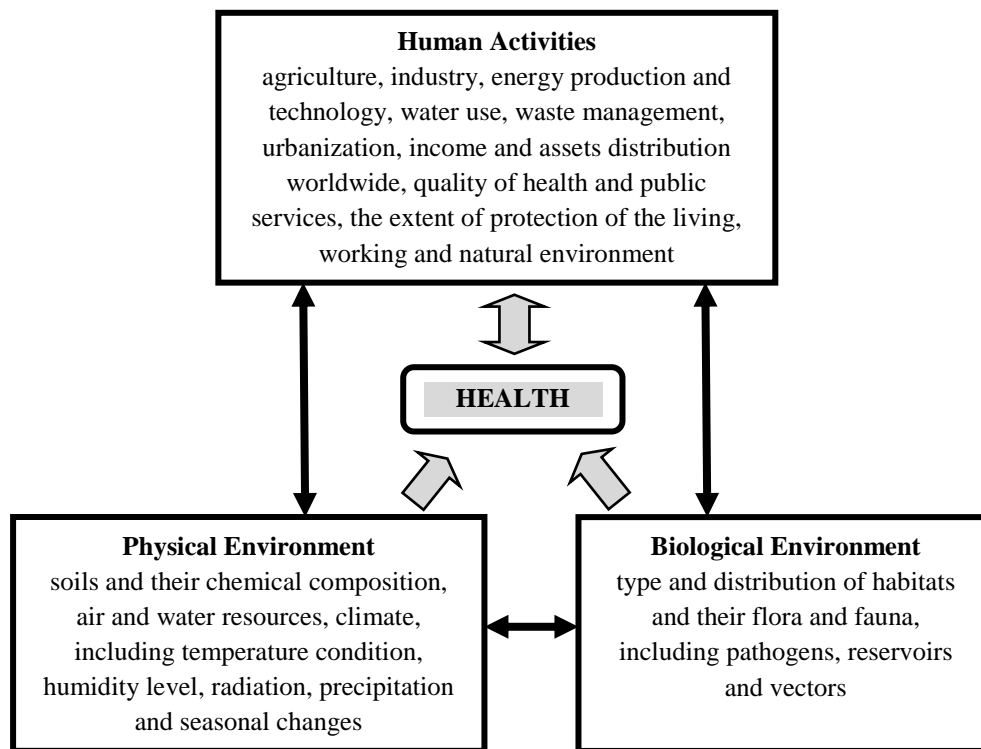
Human activities and development could bring about new technology, urbanization, and modernization, which rapidly enhance productivity and consumption behaviour among the worldwide population, often with environmental change as an explicit consequence. In addition, other changes affect poverty and equity, political and economic systems, and last but not least, cultural values (McMichael and Woodward, 2002, Landon, 2006, World Health Organization, 1992). These changing activities as well as

consumption behaviour, waste generation, and population numbers become the driving forces of environmental change bringing about consequent impacts on human and natural resources (McMichael and Woodward, 2002, Landon, 2006).

Barton and Grant (2006) suggested that the health map (**Figure 2.1**) could be a tool to assist practitioners from different areas to work together across their disciplines to consider health and well-being as a focus of development activities.

In addition, **Figure 2.2** illustrates the connection between human activities that lead to environmental change, both physical and biological, which could affect human health.

A changing environment could disrupt the ecological balance in terms of atmospheric change due to increasing volume of polluted emissions, land degradation problems due to overuse of land and natural resources, and biodiversity damage (McMichael, 1993). The scales of these environmental changes and impacts could vary from micro-scale (local or regional level) to macro-scale (global level) (Phillips and Verhasselt, 1994b). At the micro-scale, pollutant emissions could be discharged from various sources into the environment, such as domestic wastewater, industrial wastes, and polluted air emissions (Briggs, 2003). When the pollutants contaminate the environment (such as water, soils, and air), humans and other living things could be at risk through exposure to these contaminants. This is because the contaminants could become environmental hazards and affect the well-being of humans and other living things (British Medical Association, 1998). For example, asbestos, oil vapours, and inorganic arsenic found in ambient air, indoor air, and drinking water are carcinogens which could cause a cancer risk in humans (Boffetta and Nyberg, 2003). This means potential impact on human health should be assessed and appraised at a range of scales (British Medical Association, 1998).



**Figure 2.2** Interaction between human activities and the physical and biological environment Source: Adapted based on WHO (1992)

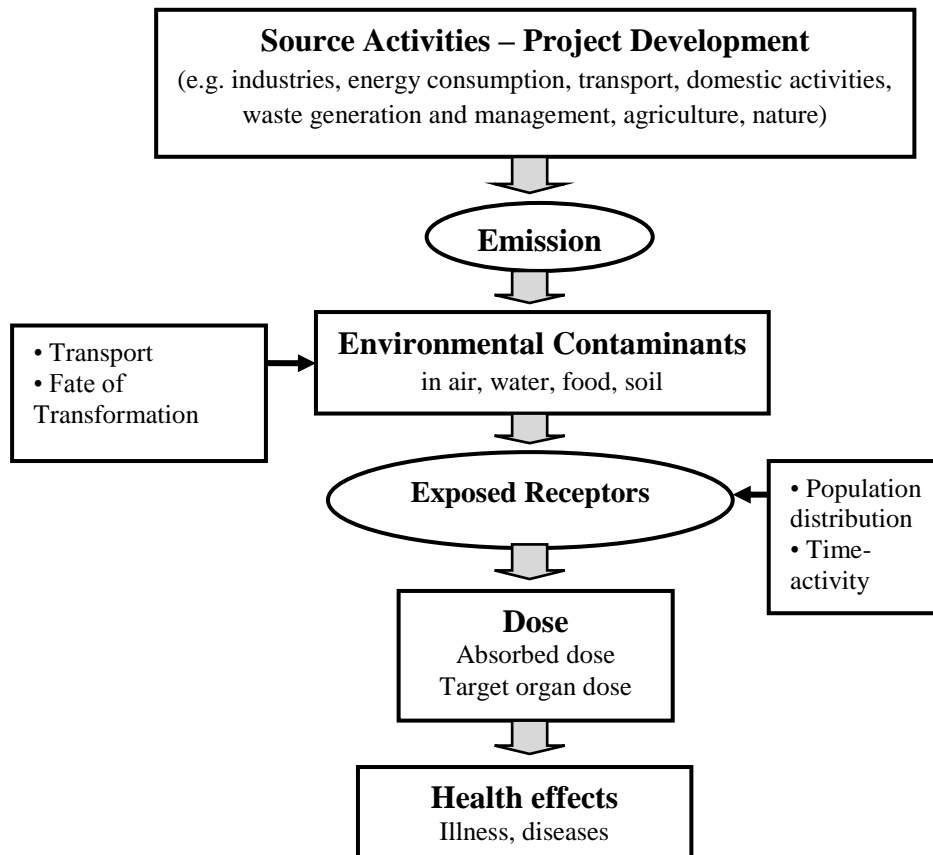
Furthermore, pollutants emitted from point sources or non-point sources would transport through the environment, and could be concentrated in local sinks or in receptor organisms of living things or humans (Briggs, 2003). On the other hand, at the macro-scale or global level of environmental change, the global problems caused by climate change could lead to human health impacts in various circumstances (Haines and Patz, 2004, Bentham, 1994). For example, temperature extremes such as heat waves and cold spells could cause thermal stress in populations, floods and droughts could cause infectious disease outbreaks, ozone depletion could bring about skin cancer risks while natural disasters could increase health impacts in terms of vector-borne diseases, communicable diseases, respiratory diseases, and human wellbeing (Hales et al., 2003, McMichael et al., 2003). The global environmental changes also initiate risks to human health in indirect ways,

such as through ecological imbalance, in addition to direct ways like measurable environmental pollutants (McMichael, 1993). These environmental changes at both the micro-scale and macro-scale lead to human health risks, problems, and impacts at the regional level and worldwide (McMichael et al., 1999, McMichael et al., 1998).

Environmental quality is identified as one of the key health determinants, direct and indirect, as it influences the occurrence of infectious diseases in marginalised, impoverished populations, while chronic diseases show a trend of affecting more affluent sections of the community (Smith et al., 1999). **Figure 2.3**, referring to Briggs (2003), demonstrates links in the source-effect chain of environmental pollutants, generated from human activities or project development, together with health effects that might occur. When pollutant emissions become contaminated in air, water, or soil, they will transport and transform via the pathways depending on their environmental fate, which could chemically, physically, or biologically, induce reactions and transform the emissions in the environment and disperse them to receptors. Population or organism receptors could be exposed to the pollutants by dermal contact, inhalation, or ingestion. The exposure level could be varied based on pollutant distribution, human activities, and their time exposure to the environment (Briggs, 2003).

A further complication is that interactions among these components tend to be composite and depend on other factors such as population health status, characteristics of economic and social dynamics, as well as policy development (Phillips and Verhasselt, 1994b). For example, various policies are developed to stimulate economic conditions (Phillips and Verhasselt, 1994b) whereas continuing economic growth could lead to higher energy consumption (Roemer and Roemer, 1990) and consequent health impacts could potentially occur (Phillips and Verhasselt, 1994b). On the other hand, Roemer and Roemer (1990) indicated that the social and economic development dynamic is one of the determinants to improve health

conditions. This implies that policy development could possibly bring about both positive and negative impacts, directly and indirectly (Phillips and Verhasselt, 1994a).



**Figure 2.3** Source-effect chain of emissions and health effects

Source: Adapted from Briggs (2003, p.4)

Therefore, when considering issues, for examples, global development, environmental change, and human health impact, it is necessary to consider any relationship between them carefully, because all activities could cause serious impacts on the environment and human health. Development should be considered based on the best possible understanding of these cause and effect links, relating to actual health context (Smith et al., 1999) so that adverse impacts on environment and health could be effectively mitigated. Furthermore, the United Nations specified that human health is at the core

of sustainable development, as emphasized in Agenda 21 (United Nations, 1993). This emphasises that human health is a key concern in the changing environment.

## **2.3 POLICY DRIVERS ON HEALTH IN DECISION-MAKING**

Policy drivers on health in relation to the environment and sustainable development have emerged at intergovernmental level since 1972 (United Nations, 2009a). Intergovernmental Organisations (IGOs) have an influential stake in relation to collaboration at the global level, having significant influence on world politics, due to their structures, or individuals/ groups, from different countries (Duncan et al., 2006). For example, charters adopted in conferences organised by the United Nations (UN) could be used as a direction for policy making in its member states (Weiss et al., 2007). The commitment among member states will be implemented at their government levels, which leads to policy formulation prior to actions.

This section will chronologically outline policy drivers from the global level to the regional level, which could lead to HIA becoming an effective tool in the decision-making process for the development of projects, programmes, and healthy public policy at the national level.

### **2.3.1 Global Level**

Ritsatakis (2004) identified that Intergovernmental Organisations; like the World Health Organization (WHO), European Community, the World Bank, and related UN agencies; have influence over international policy-making for HIA. **Table 2.1** outlines the development of health concerns/ actions as policy drivers generated by intergovernmental organisations at the global level. The United Nations Conference on the Human Environment held in Stockholm in 1972 was the first global conference concerning

human health, environment and sustainable development (United Nations, 2009a). In this conference, the declaration of the United Nations Conference on the Human Environment called on the world to contribute vigorous cooperation on the conservation of human environment to bring advantage to the people and their future generations (United Nations, 1972). Later on, in 1977, the WHO on behalf of the World Health Assembly adopted the 'Health for All (HFA)' concept to be a basic goal that the world should be a place where people, as a basic human right, can live healthily (Dickinson, 1992). This recalls the observation by Ritsatakis (2004) through the Lalonde report written in 1974 that public policies could bring about consequences for human health. Furthermore, the Ottawa Charter approved in 1986 at the First International Conference on Health Promotion stated that building healthy public policy is one of the health promotion actions that decision-makers with responsibilities for health, can achieve when health issues are considered in the policy making process (World Health Organization, 1986).



**Table 2.1** Key movements for concern on health and environment at the global level

<b>Year</b>	<b>Issue</b>	<b>Conference/ Organisation</b>
1972	Declaration of the United Nations Conference on the human environment	United Nations Conference on the Human Environment, Stockholm, Sweden
1974	Public policies can bring about potential influences on health	Canadian <i>Lalonde Report</i>
1977	Announcement of 'Health for all' as a primary goal for world health	World Health Assembly
1986	Ottawa charter for health promotion was adopted with the main concept of its action, in building healthy public policy that " <i>health promotion goes beyond health care. It puts health on the agenda of policy makers in all sectors and at all levels</i> " (World Health Organization, 1986, p.2)	The First International Conference on Health Promotion (WHO), Canada
1988	Reaffirmation of Ottawa Charter	The Second International Conference on Health Promotion (WHO), Adelaide, Australia
1990	The Milan Declaration on Healthy Cities stating cities' role in promoting health and action for healthy cities	Healthy cities conference (WHO), Milan, Italy
1991	The Sundsvall Statement on Supportive Environments for Health	The Third International Conference on Health Promotion (WHO), Sundsvall, Sweden
1992	WHO Commission on Health and the Environment	WHO
1992	Rio Declaration on environment and Health with Principle 1 stating, " <i>Human beings are the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature</i> " (UNCED, 1992b, p.1)	The Earth Summit: United Nations Conference on Environment and Development
1997	Jakarta Declaration on Leading Health Promotion into the 21 <sup>st</sup> Century	The Fourth International Conference on Health Promotion: New Players for a New Era- Leading Health Promotion into the 21 <sup>st</sup> Century (WHO), Jakarta, Indonesia
1998	World Health Declaration states that " <i>Health-for-all Policy for the 21<sup>st</sup> century</i> " requires support force " <i>through relevant regional and national policies and strategies</i> " (WHO, 1998b, p.4)	WHO, the 51 <sup>st</sup> World Health Assembly, Geneva, Switzerland
2000	Mexico Ministerial Statement for the Promotion of Health	The Fifth Global Conference on Health Promotion: Bridging the Equity Gap (WHO), Mexico City, Mexico.
2005	The Bangkok Charter for Health Promotion in a Globalized World	The Sixth Global Conference on Health Promotion (WHO), Bangkok, Thailand
2006	International Finance Corporation's Performance Standards on Social & Environmental Sustainability	International Finance Corporation, World Bank Group
2009	Report on the First Three Years of Application: IFC's policy and performance standards on social and environmental sustainability and policy on disclosure of information	International Finance Corporation, World Bank Group
2009	Declaration of the Nairobi call to action for closing the implementation gap in health promotion	The Seventh Global Conference on Health Promotion (WHO), Nairobi, Kenya

Following the Ottawa Charter in 1986, a series of health promotion conferences were organised in Adelaide (1988), Sundsvall (1991), Jakarta (1997), Mexico-City (2000), and Bangkok (2005), respectively (World Health Organization, 2005a). Implementation of healthy public policy based on a supportive environment leading to healthy lives of people was recommended in the Adelaide Recommendations on Healthy Public Policy, as well as considering health in the policy agenda and the development of health alliances at the global level (World Health Organization, 1988). In addition, the concept supporting healthy public policy was emphasized again in the Milan Declaration on Healthy cities in 1990. The declaration committed signatories to consider a health for all policy based on public participation and decentralized decision-making as well as the consideration of sustainability, equity, accountability, and international dimensions that bring about good health for all (WHO, 1990).

The Sundsvall Statement on Supportive Environments for Health called for cooperative action, among intergovernmental organisations and people at all levels of government, to participate in the creation of a supportive environment for health (World Health Organization, 1991). This statement encouraged WHO and UNEP to establish guidelines based on the sustainable development concept that all Member States could apply nationally. Furthermore, funding agencies, such as the World Bank, are also encouraged to consider financing based on these guidelines. This led to the establishment of Performance Standards on Social and Environmental Sustainability (International Finance Corporation (IFC), 2006). The projects financed by IFC should be carried out based on the guidance in these performance standards. After applying these standards for three years, a review found that the standards framework tends to be effective in that the IFC's role on environmental and social matters was appreciated by clients, and that their implementation improved transparency and addressed the concerns of stakeholders (International Finance Corporation (IFC), 2009).

As the three main global objectives, stated by the WHO commission on health and environment, emphasize health for all, a good environment, and awareness of responsibilities for health and environment among individuals and organisations, international organisations and all governments should take priority for their national health into account (World Health Organisation, 1992). This brought about the announcement of the Rio Declaration on environment and health at the Earth Summit that the core of sustainable development is that human beings are entitled to have good health and live in ‘*harmony with nature*’ (UNCED, 1992b). Accordingly, Agenda 21 was established as one of the policy drivers that countries could implement to incorporate sustainability into their national policy as per the following explanation in the preamble

*“Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century. It reflects a global consensus and political commitment at the highest level on development and environment cooperation. Its successful implementation is first and foremost the responsibility of Governments. National strategies, plans, policies and processes are crucial in achieving this. International cooperation should support and supplement such national efforts. In this context, the United Nations system has a key role to play. Other international, regional and subregional organisations are also called upon to contribute to this effort. The broadest public participation and the active involvement of the non-governmental organisations and other groups should also be encouraged”* (UNCED, 1992a, paragraph 1.3).

In the Jakarta Declaration on leading health promotion into the 21<sup>st</sup> century, promoting social responsibility for health was the first priority that the decision-makers must consider. Based on cooperation between public and private sectors, the declaration asks that HIA focusing on equity shall be

included as a part of policy development (World Health Organization, 1997). As the Adelaide Recommendations on Healthy Public Policy asked for health alliances to be developed (World Health Organization, 1988), the formation of a 'global health promotion alliance' was approved in this conference. This alliance has a key role to prioritize action on health promotion, in terms of '*..raising awareness of changing determinants of health, supporting the development of collaboration and networks for health development, mobilizing resources for health promotion, accumulating knowledge on best practice, enabling shared learning, promoting solidarity in action, fostering transparency and public accountability in health promotion*' (World Health Organization, 1997, p.6). Since this conference, it is clear that considering HIA as a decision support tool for public policies or programme formulation has been encouraged by the World Health Organization (Mahoney, 2001). In addition, the World Health Declaration, adopted by the world's health community at the 51<sup>st</sup> World Health Assembly, emphasized the fundamental rights of human beings to enjoy good health based on equity and equality in accessing health systems, and the "*Health-for-all Policy for the 21<sup>st</sup> century*" would require support "*through relevant regional and national policies and strategies*"(WHO, 1998b, p.4).

The Mexico Ministerial Statement on Health promotion, signed by 87 countries, in the Fifth Global Conference on Health Promotion, declared actions to put health promotion in the centre of policies and programmes at all levels while UN agencies were recommended to consider health impacts in the development of their agendas (World Health Organization, 2000b). In this conference, the health promotion term was restated as: "*health promotion will include actions directed at both the determinants of health which are outside the immediate control of individuals, including social, economic and environmental conditions, and the determinants within the more immediate control of individuals, including individual health behaviours*" (World Health Organization, 2000a, p.17). The determinants of

health were also considered in the conference based on the fact that the linkages between “*social and economic conditions, structural changes, the physical environment, individual lifestyles and health*” are the key to understanding health (World Health Organization, 2000a, p.17).

Since the affirmation in the first WHO Global Conference on Health Promotion, the Ottawa charter was strengthened in the following series of conferences held in Adelaide, Sundsvall, Jakarta, and Mexico City, so that the Health for All agenda has become clearer in terms of scoping health determinants (Tang et al., 2005). Later on, in 2005, the Bangkok Charter for Health Promotion in a Globalized World was adopted in the Sixth Global Conference on Health Promotion held in Bangkok, Thailand. HIA focusing on equity was, again, recommended to be a tool to make sure that adverse health consequences would not occur due to the adoption of policies and legislation (World Health Organization, 2005b). In addition, countries were asked to close the gaps in actions supporting health promotion implemented at the national and global levels, in this conference, in order that policies and partnerships can be developed. These gaps were addressed and considered again in the 7<sup>th</sup> Global Conference on Health promotion which was held during 26-30 October 2009 in Nairobi, Kenya (World Health Organization, 2009c). The conference focused on five themes: community empowerment; health literacy and health behaviour; strengthening health systems; partnerships and intersectoral action and building capacity for health promotion (World Health Organization, 2009a).

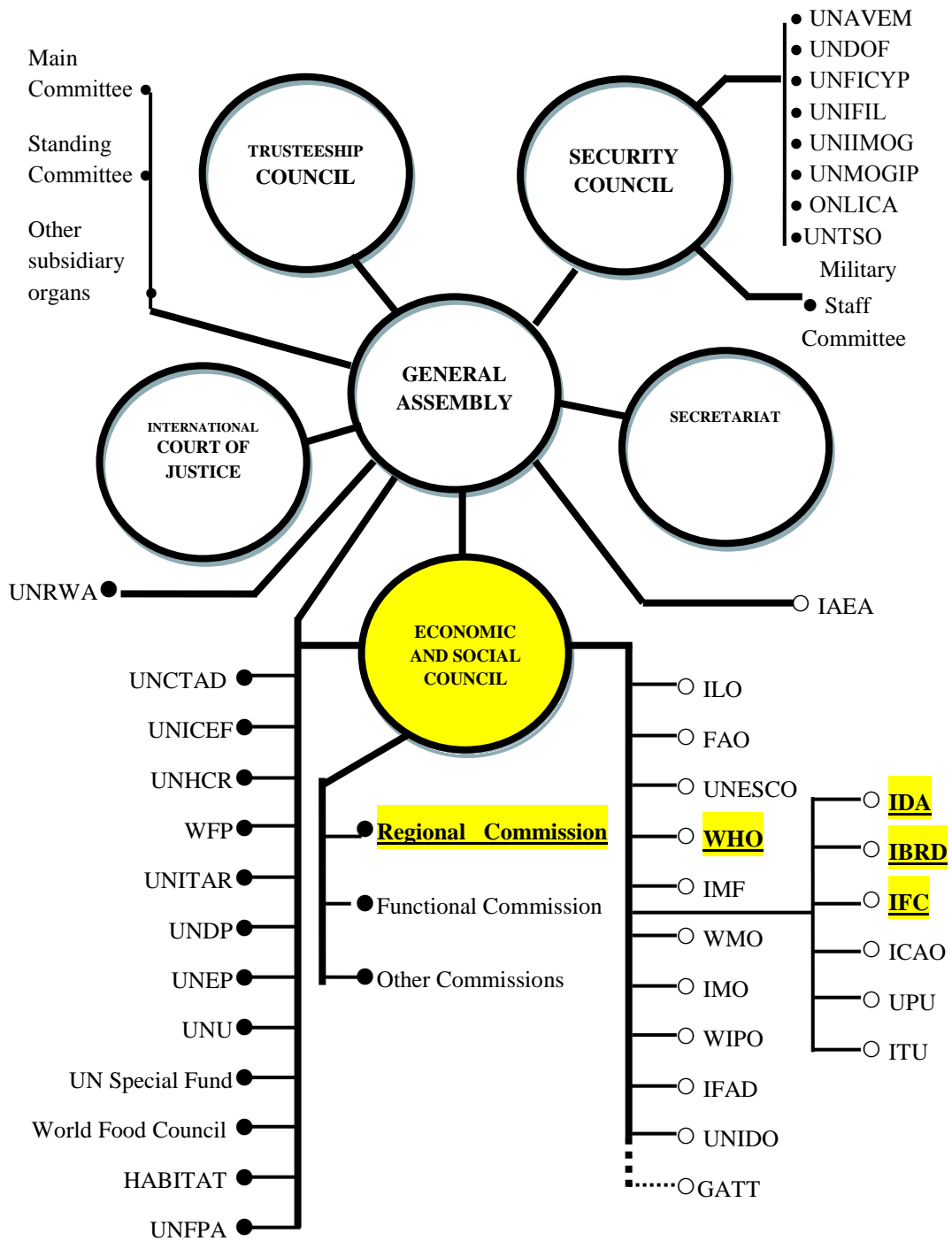
The declaration on the Nairobi call to action for closing the implementation gap in health promotion was adopted in the 7<sup>th</sup> Global conference on Health Promotion where participants represented a variety of sectors from 100 countries, for example, health experts; policy makers; public sectors and academic sectors (World Health Organization, 2009b). This call to action targeted the partnerships of WHO and UN, international organisations, governments and their policy makers, public sectors, non-governmental




organisations, all sectors and individuals to pay attention on integrating health promotion in policy making and any developments with their supportive capacity and potential (World Health Organization, 2009a, World Health Organization, 2009b). The call stated commitments and provided strategies and actions for all sectors to follow by that international governments should take urgent action on *'strengthening leadership and workforces, mainstreaming health promotion, empowering communities and individuals, enhancing participation process, and building and applying knowledge'* (World Health Organization, 2009b, p.2,8). It was believed that taking this call into account could lead bridge the gap between the equity and inequity of health in strengthening health promotion (Fawcett et al., 2010).

According to the actions involved, the WHO, an agency under the United Nations, is an intergovernmental organisation playing a key role on *'health in development and the impacts of socioeconomic development on health'* at the global level (Ritsatakis, 2004, p.153). However, other intergovernmental organisations are required to cooperate in taking relevant actions to achieve the "Health for All" goal. In addition, actions from regional and national levels are fundamental mechanisms as policy drivers of health in decision-making.

### **2.3.2 Regional Level**

The United Nations (**Figure 2.4**) and the World Health Organisation have divided the global regions based on the continents, the organisational structure and their specialisations. The UN is an IGO which takes a key role in protecting the world's environment, based on good cooperation among countries, and through developing international law to improve economic, environment, and social conditions (Urquhart and Childers, 1996).



 Principal organs of the United Nations     
  Other United Nations organs  
 Specialised agencies and other autonomous organisations within the system

**Figure 2.4** The United Nations System  
 Source: Luard (1994, p. x)

Referring to **Figure 2.4**, the Economic and Social Council (highlighted) is one of the principal organs of the United Nations, which includes the WHO and World Bank Group; International Bank for Reconstruction and Development (IBRD-World Bank) (underlined and highlighted); International Development Association (IDA) (underlined and highlighted); and International Finance Cooperation (IFC) (underlined and highlighted); in this category as specialised agencies (Whittaker, 1997, Urquhart and Childers, 1996, Luard and Heater, 1994). The regional commissions of the Economic and Social Council comprises of the Economic Commission for Africa (UNECA, 55 countries), Economic Commission for Europe (UNECE, 56 countries), Economic Commission for Latin America and the Caribbean (UNECLAC, 44 countries), Economic Commission for Asia and the Pacific (UNESCAP, 62 countries), and Economic Commission for Western Asia (UNSCWA, 14 countries), respectively (Urquhart and Childers, 1996, United Nations, 2009b). However, WHO itself, although it is a part of the United Nation, has divided the regions, slightly differently to the commissions, into six WHO regions in total; WHO European region (53 countries); WHO African region (46 countries); WHO the Americas (35 countries); WHO Western Pacific Region (27 countries); WHO Eastern Mediterranean (21 countries); and WHO South-East Asia Region (11 countries) (WHO, 2009). The driving force on activities at the global level could influence actions at regional levels; nevertheless, the intensity of the actions is varied and different among the regions (Urquhart and Childers, 1996).

Considering HIA as a tool in decision-making for achieving fewer adverse effects and more beneficial impacts on health is evolving in Europe, Africa, North America, Asia, Australia, and New Zealand (Vohra, 2007).

In Europe, the WHO European Region is vigorously taking action on HIA activities as well as considering health in policy making among the member



states (Ritsatakis, 2004). This is because HIA was voluntarily and formally supported by international and national governments (Kemmm and Parry, 2004a). Agendas on health inequalities, sustainability, and climate change were key issues driving HIA into force (Vohra, 2007). Key drivers on health and environment concerns are summarised in **Table 2.2**

Regarding the WHO health for all strategy and Ottawa charter approval in 1986, concerns on the relationship between human health and environmental factors initiated in Europe, and then led to the first ministerial conference on environment and health in Frankfurt-am-Main in December 1989. At this conference, the European Charter on Environment and Health was created to express the shared goal on environment and health protection among the member countries. Governments and public authorities can consider important issues of environment and health hazards for providing appropriate action through healthy public policy, based on sustainable development and environmental and health management strategy (World Health Organization, 1989).

In 1991, the Convention on Environmental Impact Assessment (EIA) in a transboundary context (Espoo Convention) was adopted. The parties to this convention should attempt to apply EIA in their policies, plans, and programmes for any development which may have effects across international boundaries (UNECE, 1991b). In addition, the Stockholm declaration, which considered the human health environment, was restated again in the first ministerial conference on 'Environment for Europe' in 1991 (UNECE, 1991a). The conference called for an explicit description of the state of the environment in Europe and issued a Pan-European cooperation strategy, and associated basic guidelines, to improve the environment situation. The strategy suggested the consideration of

**Table 2.2** Key movements for the consideration of health and environment in Europe

<b>Year</b>	<b>Situation/ Trends/ Issues/ Agreement</b>	<b>Organisation/ Author/ Conference</b>
1989	European Charter on Environment and Health expressed the shared goal on environment and health protection by emphasising healthy public policy	The First Ministerial Conference on Environment and Health in Frankfurt organised by WHO
1991	Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) was adopted (Feb,5 <sup>th</sup> )	United Nations Economic Commission for Europe (UNECE)
1991	Calling for a report on the state of the environment in Europe and a pan-European cooperation strategy to protect and improve the environment	The first “Environment for Europe” ministerial conference; The Dobris Conference (UNECE)
1993	Political dimension of Environment for Europe (EfE) process was set out.	The second “Environment for Europe” ministerial conference; The Lucerne Conference (UNECE)
1994	Declaration on Action for Environment and Health in Europe (Helsinki Declaration) and Environmental Health Action Plan for Europe (EHAPE) were endorsed as a framework for developing National Environmental Health Action Plan for Europe (NEHAPs)	The Second European Conference on Environment and Health, Helsinki, Finland
1994	Europe’s Environment: The Dobris Assessment was reported	Presented to the European Environment Agency
1994	The Copenhagen Declaration on Health Policy	European Health Policy Conference: Opportunities for the future (WHO)
1995	The implementation of the Environmental Action Programme for Central and Eastern Europe (EAP) was reviewed	The third “Environment for Europe” ministerial conference; The Sofia Conference (UNECE)
1998	Athens Declaration for Healthy Cities was adopted.	WHO Regional Office for Europe
1998	The Convention on Public Participation in Environmental Decision-making (“the Aarhus Convention”) was signed	The fourth “Environment for Europe” ministerial conference; The Aarhus Conference (UNECE)
1998	Health 21 An introduction to the health for all policy framework for the WHO European Region	WHO Regional Office for Europe
1999	London Declaration on Action in Partnership - Adoption of Charter on Transport, Environment and Health - Adoption of Protocol on water and health to the 1992 convention on the protection and use of transboundary watercourses and international lakes	The Third European Conference on Environment and Health, London (WHO Regional Office for Europe)

**Table 2.2** Key movements for the consideration of health and environment in Europe (**Continued**)

Year	Situation/ Trends/ Issues/ Agreement	Organisation/ Author/ Conference
1999	Gothenburg consensus paper: Health Impact Assessment Main concepts and suggested approach Health impact was defined as “ <i>the overall effects, direct or indirect, of a policy, strategy, programme or project on the health of a population</i> ” (European Centre for Health Policy, p.4).	WHO European Centre for Health Policy
2001	Guideline on performing HIA as part of Strategic Environmental Assessment (SEA)	WHO European Centre for Environment and Health
2001	ECHP Health Impact Assessment Discussion papers No. 1 Strategies for institutionalizing HIA	European Centre for Health Policy WHO Europe
2001	Strategic Environmental Assessment (SEA) Directive was adopted	European Union
2003	SEA Protocol was adopted based on the conference agreement	The Fifth “Environment for Europe” ministerial conference; The Kiev Conference (UNECE)
2004 (June)	Implementing London Declaration commitment brought up to the conference theme as “the future for our children” - Adoption and signing of the conference Declaration and The Children’s Environment and Health Action Plan for Europe (CEHAPE) - Youth Declaration was presented and signed by an Irish youth delegate to the conference	The Fourth European Conference on Environment and Health, Budapest, Hungary, WHO EUROPE
2004	Strategic Environmental Assessment (SEA) Directive came into force on July 21 <sup>st</sup> 2004	European Union
2007	Declaration “ <i>Building Bridges to the Future</i> ”	The Sixth “Environment for Europe” ministerial conference; The 2007 Belgrade Conference (UNECE)
2008	The Tallinn Charter: Health Systems for Health and Wealth - Good performance of health system is required so that human health can be improved. The purpose of this charter is ‘...to commit members states of the WHO in the European Region to improving people’s health by strengthening health systems, while acknowledging social, cultural and economic diversity across the Region’ (WHO Regional Office for Europe, 2008, p.1)	WHO European Ministerial Conference on Health Systems “Health Systems, Health and Wealth”, Tallinn, Estonia
2010	Adoption of Parma Declaration on Environment and Health with the emphasis of ‘Protecting children’s health in a changing environment’ by taking action on the key commitment	The Fifth European Conference on Environment and Health, Parma, Italy, WHO EUROPE

environmental promotion based on financial aid, and improvement of environmental-related health conditions that should take responsibility for global environmental problems (ANPED Northern Alliance for

Sustainability, 2009, The Swiss Federal Office for the Environment, 2008). The Dobris Assessment which reported on Europe's environment was released in 1994 and included a description of the environmental conditions and human health under the context of environmental changes and human development (Clarke, 1994).

The declaration in the second 'Environment for Europe' ministerial conference set out the political dimension for the process of "Environment for Europe". In this commitment, the mitigation of adverse effects from environmental problems towards human health was emphasized to take action based on cooperation at both regional and subregional levels with environmental quality integrated policies (UNECE, 1993).

Later on, in the second European Conference on Environment and Health, there was a commitment to provide national environmental health action plans (NEHAPs) among European member states based on the environmental health action plan for Europe (EHAPE), which was adopted in this conference (World Health Organization, 1994a). A policy on environment and health is one of the key targets that member states undertook to implement in their countries by the year 2000 (World Health Organization, 1994b). The planning process advised by the NEHAPs Task Force comprises of seven-steps: government commitment; environmental health assessment; public consultation; strategy implementation; framework plan construction; government position on priority actions; and finalizing and implementing an action plan, which was used in developing NEHAPs among the majority of member states and showed that the NEHAPs could achieve their political aims (World Health Organization, 1999c). In addition, the Copenhagen Declaration on Health Policy expressed awareness and a vision that European member states should commit to adopt a Health For All (HFA) policy in their countries so that human health can be protected from risk factors and promoted for healthy lifestyles in healthy environments based on health determinants (WHO, 1994).

The application of the Environmental Action Programme (EAP) for Central and Eastern Europe (CEE) was reviewed in the Third “environment for Europe” ministerial conference held in 1995 (The Swiss Federal Office for the Environment, 2008). The declaration adopted in this conference demonstrated that positive results were achieved in the National Environmental Action Programmes (NEAPs) implementation, and it was suggested that it should be coordinated with implementing National Environmental Health Action Plans (NEHAPs) (UNECE, 1995). The conference also emphasised that the structure of the environment for Europe process should allow all countries to take part equally in activities related to environment and health protection (ANPED Northern Alliance for Sustainability, 2009).

Actions aimed at health for sustainable development were strengthened for the commitment in the International Healthy Cities Conference, held in 1998 in Athens, that national governments shall have key roles to improve policies relevant to the health for all strategy (WHO, 1998a). This conference emphasized that key principles for health and sustainable development are equity, sustainability, intersectoral cooperation, and solidarity.

In the Fourth “Environment for Europe” conference, the declaration restated that considering environmental conditions in policy making was crucial in improving the environment for sustainable development (UNECE, 1998b). In addition, to ensure that individual rights are protected in the living environment with *‘his or her health and well-being’*, the “Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters” was agreed in this conference (UNECE, 1998a). This convention is a tool to specify the rights of individuals at all levels to get involved and influence the environmental

decision-making process (The Swiss Federal Office for the Environment, 2008).

In addition, “Health 21: An introduction to the health for all policy framework for the WHO European region” was established aiming to integrate with developing policies related to health in member countries (WHO, 1998b). Measures on health and the environment became more focused and structured through the setting of a “European Health 21 target” at the Third European Conference on Environment held in London in 1999. This was focussed on accumulated problems, for example, climate change, air pollutants, insufficient safe water for consumption, and appropriate consumption, based on sustainability and the challenge of environment and health. Implementing NEHAPs in association with the member countries was recognised as essential in the commitment to action so that national policies and plans can be supported based on environment and health concerns (World Health Organization, 1999b). The “Protocol on water and health to the 1992 convention on the protection and use of transboundary watercourses and international lakes” was adopted in this conference in order that water management at all levels can be improved based on sustainable development principles (UNECE & WHO Europe, 1999). In addition, directions for policy making on sustainable transport such that health and environment can be protected were provided in the “Charter on transport, environment and health” which was adopted at this conference (World Health Organization, 1999a).

Consequently, guidelines for monitoring health impacts resulting from policy and project development were published by WHO in 1999 as “Health Impact Assessment: main concepts and suggested approach”. This guideline was influenced by Article 152 titled Public Health in the Amsterdam Treaty of the European Community, which specified that human health should be protected when implementing community policies and activities (WHO European Centre for Health Policy, 1999, European Community, 2002).

Furthermore, guidance on implementing HIA as part of SEA was provided so that policy makers or governments can consider health in the decision-making process (WHO Regional Office for Europe, 2001). However, it has been suggested that establishing legal frameworks is a key requirement for the institutionalization of HIA as a tool for considering health-values within decision-making institutions (Banken, 2001).

In 2003, countries in the UNECE region (56 countries) committed to strengthening the measures on environment and health protection based on sustainable development at all levels (United Nations Economic Commission for Europe (UNECE), 2003). The SEA Protocol was adopted at the Fifth “Environment for Europe” ministerial conference to provide the framework for environment and health protection in terms of considering environment and health at the policy-making level with appropriate public participation and measures based on sustainable development (UNECE, 2003). Earlier, the SEA directive (European Parliament and the Council of the European Union, 2001) which came into force in 2004, facilitated the consideration of human health in policy-making based on the legal frameworks of the 27 countries in the European Union that have since implemented the obligations of this directive (Bond and Cave, 2005).

To raise the level of action concerning environment and health protection and to enhance the implementation of the 1999 London Declaration, children’s health became the main issue being considered in the Fourth European Conference on Environment and Health held in Budapest in 2004 (World Health Organization, 2004b). National children’s environment and health action plans (CEHAPs) were planned to be developed based on available programmes at that time such as national environment and health action plans (NEHAPs) (World Health Organization, 2004a). The Youth declaration established at this conference showed that young people are concerned about living in healthy environments. They presented their voice and demands to see the achievements of CEHAPs with clear goals for the

next conference, more implementation of international agreements on environment and health at the national level, and the consideration of environmental and health impact assessment in policy development at the national and international levels (WHO Europe & The future for our children, 2004). However, a response from EPHA Environment Network (EEN), an NGO, to the European Environment and Health Action Plan 2004-2010 restated that legislative action/ review should be coordinated among those organisations with responsibility for implementing the action plan in individual countries (European Public Health Alliance Environment Network (EEN), 2004). Issues related to protecting children's health in a changing environment were considered in the fifth European conference on Environment and Health held in 2010 (WHO Europe, 2009).

In 2010, the Parma Declaration on Environment and Health was adopted in the Fifth Ministerial Conference on Environment and Health (WHO Europe, 2010, European Commission, 2010). This declaration reemphasised the concerns on children's health raised in the London Declaration in 1999. The commitment focused on vital challenges on health and environment that could protect children's health, protect health and environmental impact from climate change, facilitate youth participation in protecting their health and environment, and strengthen knowledge for policy making as well as its implementation (WHO Europe, 2010). On this occasion, the Parma Youth Declaration 2010 was adopted stating that young people will collaborate with their governments to provide good policies for their societies/ countries at all levels (WHO CEHAPE, 2010). To review the outcomes of these commitments, the participants agreed to meet again in 2016 in the Sixth European Ministerial Conference on Environment and Health (WHO Europe, 2010).

Looking back to 2007, a strong commitment to improve the environment with cooperation between UNECE countries was reaffirmed again in the Sixth "Environment for Europe" ministerial conference (UNECE, 2007b).



The discussion concluded that the driving forces of “Environment for Europe” comprised of involvement and cooperation among countries and international organisations on improving the environment at the political level as well as through the ministerial conferences which had been organised (UNECE, 2007a). This led to the agreement to continue the “Environment for Europe” process, and that ‘mid-term reviews’ reported to the ‘Committee on Environmental Policy (CEP)’ might help in balancing political driving forces between the conferences and ensure the process meets its aims.

In addition, to improve people’s health, ‘*strengthening health systems*’ was called for as part of the commitment in the Tallinn charter: Health Systems for Health and Wealth. In this context, health systems include public health services, coupled with “*activities to influence the policies and actions of other sectors to address the social, environmental and economic determinants of health*” (WHO Regional Office for Europe, 2008, p.1). This is another policy statement that has a key role to shape the direction of policy drivers on environment and health actions in the European region. Accordingly, Health Impact Assessment (HIA) is supposed to be a supportive tool in policy-making that prevents adverse health impacts (Ritsatakis, 2004).

In Canada, health has been identified as a relevant concept in policy-making for well-being as mentioned in the Lalonde Report (Lalonde, 1974). Canada has a long history of getting involved with HIA development since the 1980s as well as providing experience on implementing HIA at the policy level (Banken, 2004). As the country needs to sustain its resources for secured development, environmental impact assessment (EIA) of project development was changed from being an administrative requirement to a mandatory process in Canada (Kwiatkowski, 2004). Later on, HIA was integrated with environmental impact assessment and, thus, became compulsory for new development projects in Canada (McCaig, 2005). The

driving force to implement HIA in Canada is their '*understanding of the complex interactions between humans and environment*' (Kwiatkowski, 2004).

In the U.S., the HIA field started to grow after the October 2004 workshop organised by the Robert Wood Johnson Foundation and Centre for the Disease Control (CDC), with the concern that health promotion should be taken into account when decision-making processes are performed and HIA could be a practical tool in this process (Dannenberg et al., 2006). Many case studies were conducted domestically so that the HIA setting in the U.S. could be established as well as raising awareness on implementing HIA (Dannenberg et al., 2008). In these cases, conducting HIAs was found to have positive outcomes.

In Australia, the governments of the states and the Commonwealth have considered HIA combined with environmental impact assessment (EIA) (Wright, 2004). HIA tends to be developed based on cooperation among intersectoral organisations. It's also likely to develop decision-making routes within the government, which have key roles on health, and its workforce development programmes (Mahoney, 2005).

New Zealand has its own legal Act, the New Zealand Resource Management Act 1991, to consider health impact from any development (Langford, 2005). However, a key organisation with expertise on HIA, the HIA Support Unit within the Ministry of Health, was established in 2007 to provide and generate capacity building in HIA at all levels of decision making in the country (Soeberg and Hawley-Evans, 2008). Thereupon, this unit has made progress on developing HIA in various areas; legislation, cabinet office guidance, Ministry of Health, policy development process, other forms of impact assessment, and local government. Health equity and notions of relationships between health and environment are the drivers for HIA in both Australia and New Zealand (Vohra, 2007).

In other WHO regions, the regional offices have considered and developed specific strategies in cooperation with the member countries as a policy driving force (Ozolins and Stober, 1994). However, the progress of the activities is different among these regions.

In the Eastern Mediterranean region, guidelines for environmental health impact assessment (EHIA) of project development was put out for consultation in preparation to member countries (WHO Regional Office for the Eastern Mediterranean and Centre for Environmental Health Activities (CEHA), 1994). The draft of the guideline was presented in the workshop on EHIA organised in 1999 (WHO Regional Office for the Eastern Mediterranean (EMR) & Regional Centre for Environmental Health Activities (CEHA), 1999). A practical guide on EHIA for the countries in this region was established in 2005 aiming to assist authorised governments to develop policies and programmes and also to be used as a framework when consultants conduct EHIA (Hassan et al., 2005). In addition, the health and environment linkages initiative (HELI) and children's environmental health indicators (CEHI) aimed at expanding implementation in the EMR countries (WHO Regional Office for the Eastern Mediterranean (EMR) & Regional Centre for Environmental Health Activities (CEHA), 2005).

In Africa, issues on health and environment have been considered and been the subject of action since 1993 (Ozolins and Stober, 1994). Mapping for environmental health hazards (Briggs, 2000) was presented in Africa with the intention that it could be used as a tool in planning problem solution. In addition, in the first interministerial conference on health and environment in Africa in August 2008, the African health and environment ministers were recommended to develop HIA capacity building processes in order that HIA can be an assisting tool in policy making in any activity development within the member countries (WHO Regional Office for

Africa & UNEP & Republic Gabonaise, 2008b). Thus, health impact assessment is rather new in African countries compared to EIA (WHO regional Office for Africa & UNEP & Republic Gabonaise, 2008a). However, it is expected that assessing health linked with the environment in multiple perspectives can help decision-makers to generate more appropriate policies based on health and environment concerns (WHO Regional Office for Africa & UNEP & Republic Gabonaise, 2008c). In Africa, infectious diseases and chronic diseases remain an unsolved problem and are critically important; thus, they have become the main driving force for HIA implementation in Africa (Vohra, 2007).

In South-East Asia, the “Declaration on Health Development in the South-East Asia Region in the 21<sup>st</sup> century” was adopted and endorsed in 1997 (WHO Regional Office for South-East Asia, 2003). The declaration announced that the member countries were committed “*to take action and responsibility to ensure health for all by mobilizing All for Health*” (WHO Regional Office for South-East Asia, 1997, p.1). Policy actions upon adoption of the declaration to promote these challenges were expected to comprise measures to reduce risk factors to human health by forging a healthy environment based on sustainable development with partnerships from all sectors and providing an institutional environment to support the roles among involved sectors (WHO Regional Office for South-East Asia, 2003).

The Western Pacific and South-East Asia Regions are called the Asia Pacific Region and have shared experiences and cooperated together (WHO Regional Office for South-East Asia and the Western Pacific, 2008). The first conference on HIA, the 007 South East Asia and Oceania HIA Conference was organised in Sydney, in 2007, to share experiences on HIA practice among 11 countries; Australia, New Zealand, Thailand, Cambodia, Vietnam, Lao PDR, Japan, India, Bhutan, Canada, and South Korea (Harris-Roxas, 2008). Momentum on HIA implementation and development in this

region was further strengthened in the HIA 2008 Asia and Pacific Regional Health Impact Assessment, held in Chiang Mai, Thailand, in April 2009, leading to the ‘Chiang Mai declaration on Health Impact Assessment for the Development of Healthy Societies in Asia Pacific Region’ being adopted (HIA 2008 Organising Committee, 2009). Accordingly, the declaration called for attention from all sectors in developing healthy public policy by using HIA as a supporting tool in the decision-making process. This could be one mechanism, which convinces policy-makers at the regional and national levels to consider health impacts in the policy-making process.

Thus, the ‘Health for All’ strategy has been promoted all over the world since the Ottawa charter, and HIA has emerged in all regions over the last two decades. This means that the potential impact on human health should be assessed and appraised at a range of scales (British Medical Association, 1998). Even though it is still evolving, Europe, Canada, Australia, and New Zealand have provided lessons on the driving mechanisms for health in decision-making and HIA implementation that other countries can learn from and bring HIA into practice. However, capacity in improving and protecting health is influenced by strengthened coordination among intersectoral actors (Ritsatakis, 2004).

#### **2.4 FROM POLICY DRIVERS ON ‘HEALTH’ INTERNATIOANLLY TO APPLYING HIA IN THAILAND**

Referring to international agreements and conventions, Thailand has been a party to the collaboration from global to regional level (WHO, 2004). It has taken part in organising the world conference on the Sixth Global Conference on Health Promotion (WHO) in Bangkok in 2005 wherein the Bangkok charter for health promotion in a globalised world was adopted (World Health Organization, 2005a). HIA was adopted in this charter to consider at the policy-making level (World Health Organization, 2005b)

which, later on, influenced policy formulation in the Ministry of Public Health in Thailand.

Regarding the Declaration on Health Development in the South-East Asia Region in the 21<sup>st</sup> Century, awareness on health impacts from risk factors was promoted, based on a sustainable development strategy, and Thailand also took part in this commitment (WHO Regional Office for South-East Asia, 2003). In addition, it participated in the first conference on HIA 007 South East Asia and Oceania HIA Conference in Sydney and volunteered to be a host for the following HIA conference (Harris-Roxas, 2008). In 2009, when Thailand hosted the HIA 2008 conference, the ‘Chiang Mai declaration on Health Impact Assessment for the Development of Healthy Societies in Asia Pacific Region’ was announced and expected to be a driving force influencing more decision-makers in relation to health at the policy-making level in Thailand (HIA 2008 Organising Committee, 2009).

Environmental and health impact assessment has been considered over the last two decades, coinciding with evidence that industrialisation was leading to negative impacts. The strategic industrialisation plan of the Thai government in the past (specifically during 1981-1984 based on the 5<sup>th</sup> National Economic and Social Development Plan) has led Thailand to become an industrialised country, and to receive higher investment from abroad, with consequences on the environmental and health impacts affecting local people (Phoolcharoen et al., 2003). The Eastern Seaboard Development Program is one example of the industrialisation, which provides lessons on environmental and health impacts for the government to learn from. For example, the bio-physical environmental change in the area has likely led to health effects of the local population in terms of increasing morbidity and mortality (Sukkumnoed and Sae Tang, 2002). This should not be ignored, instead, it indicates that decision makers should address health concerns when considering new policy making.

In addition to considering policy drivers on health globally, context factors should be considered in Thai society. Therefore, the development of HIA practice in Thailand and its surrounding context relevant to policy drivers on health in the Thai context will be described in detail in section 3.4, **Chapter 3**.

## **2.5 SUMMARY**

Regarding ongoing global development, human health, in addition to environmental change, has become a key concern related to sustainable development. This leads to the initiation of considering health as a focus in global development as we have seen from the activities among international organisations attempting to call for collaboration from intergovernmental sectors via global, regional, and national conferences on health.

The ‘Health for All’ concept emerged in 1977 and tends to be an explicit starting point reminding the world to be concerned about health impacts from policy making and development activities. Subsequently, the Ottawa Charter emphasised again in 1986 that policy makers at all levels should “*put health on the agenda*”. Likewise, as underlined by Agenda 21, “*human beings are the centre of sustainable development*”. This has led health to become a key factor in considering new development directions, variously, in the conferences at all levels; globally, regionally, and nationally.

Referring to agreements signed at conferences held at all levels, Health Impact Assessment (HIA) has been expected to be an effective tool in the decision-making process as part of policy, project, and programme development. However, experience of HIA practice is still evolving with uncertainty of its benefits. Nevertheless, lessons provided by European countries, Canada, Australia, New Zealand, and other countries that voluntarily conducted HIA as part of their policy making, including

Thailand, could be a valuable source from which policy makers can learn and apply the knowledge gained to improve HIA implementation.



## **CHAPTER 3**

### **HIA THEORY AND PRACTICE**

#### **3.1 INTRODUCTION**

This chapter provides an understanding about the consideration of health aspects within other impact assessment processes (e.g. SEA, EIA and SIA), which is fundamental to the development of HIA theory and HIA practice worldwide, and in Thailand. Health concerns have been included to varying degrees in other impact assessment processes in terms of the relationships of impacts of development on human health. However, inadequate experience, knowledge and concerns about health impacts in these impact assessment processes suggested that more understanding about health impact assessment would be required so that it can support progress towards sustainable development. Hence, fundamental knowledge of applying HIA in practice is reviewed here in terms of HIA definitions, purposes, methodology, and practice.

The meaning of HIA for this study is defined based on the literature as are its main purposes. The following sections demonstrate HIA practice worldwide based on the experiences gained by countries applying HIA in different contexts, based on their own views of the purposes of HIA. The chapter goes on to focus on HIA practice in Thailand in the context of the national development plan and national policies. HIA evolution and experience in the Thai context was reviewed based on the relevant regulatory framework, HIA practice experience through research cases/ case studies/ community-based HIA, and the attempts to implement it in public policy making, planning, and project development. The reflections on HIA functions or its purposes and its practices are expected to provide valuable principles on implementing HIA in the real world, either on its own or integrated with other impact assessment processes based on suitability for a

particular context, as well as a fundamental background for selecting a case study for this research.

### **3.2 HEALTH ASPECTS IN SEA, EIA AND SIA**

Regarding the practice of impact assessment processes in the past, health impacts have been examined, integrally, with various approaches: Strategic Environmental Assessment (SEA); Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) (Mindell and Joffe, 2003, Morrison-Saunders and Arts, 2004, Interorganizational Committee on Guidelines and Principles, 1994, Dora, 2004).

Strategic Environmental Assessment (SEA) is a formal process which considers environmental consequences of implementing policies, plans and programmes such that the findings can be reported to decisions makers accompanied by options (Therivel et al., 1992). SEA is an evidence-base supportive tool in decision-making process to achieve the making of a policy, plan, or programme (PPP) taking into account concerns on the environment and sustainability (Fischer, 2007). Dalal-Clayton and Sadler (2008) added that SEA should be conducted prior to the formal decision-making process.

SEA is expected to serve as a tool in the decision-making process at strategic level (policies; plans and programmes) while EIA is applied at the project development level. Both are proposed to prevent environmental adverse impacts and support sustainable development (Organisation for Economic co-operation and Development (OECD), 2006).

As a result of concerns over the implications of continuing human development on the environment and human health for sustainable development raised in the United Nations Conference on the Human Environment in Stockholm, Sweden, in 1972, and the 'Health for all'

agenda announced by WHO in 1977 (as reviewed in Chapter 2), health concerns were firstly taken into account at policy level in the Canadian *Lalonde Report* (Lalonde, 1974). Later on, more policy drivers for the consideration of health in decision making have arisen, and intergovernmental organisations have tried to consider health along with environmental assessment at strategic levels, for example, The Kiev Protocol (also known as the SEA Protocol) in Europe. This leads to the consideration of health aspects in SEA. With reference to this, Bond et al. (2011) argued that the delivery of more sustainable benefits, including a healthy population, might require national governments to provide relevant institutions with more significant knowledge on health aspects through the production of SEA guidelines and learning lessons from the evidence base. Meanwhile, Dora (2004) commented that including HIA in SEA at policymaking level, to achieve healthy public policies (HPPs) as stated in the Ottawa Charter (World Health Organization, 1986), could help advance these policies in practice and implementation.

At this point, it can be concluded that health aspects or health impact assessment (HIA) within SEA have been considered due to the international policy drivers on consideration of health in decision making.

Focusing at the project level, Environmental Impact Assessment (EIA) is also expected to support a decision-making process based on sustainability (Glasson et al., 2005). In the concept of sustainable development, human wellbeing is emphasised as a priority (Barrow, 1997). Nevertheless, when considering health aspects in EIA, although health issues have been considered in EIA, it seems that inadequate assessment on health impact is typically found in practice (Birley and Peralta, 1995, Dora, 2004, Erlanger et al., 2008). The reasons for this seem to be complicated, for example, people might define and expect to use EIA differently; policymakers may have different perceptions of the relevance of health aspects; changes in the biophysical environment might have been the priority rather than human

health and the social environment (Birley and Peralta, 1995, Slootweg et al., 2003, Bond, 2000).

Looking at another tool related to environmental and health impacts, Social Impact Assessment (SIA) is also regarded as a tool to promote sustainable development (Sheate, 2010). SIA can be defined as a “*process of identifying the future consequences on individuals, organisations and social macro system of a current or proposed action*” (Becker, 1997, p.212). Barrow (1997) added that SIA should be conducted before the decision-making process for any policy, programme and project development. In practice, SIA has sometimes been included in EIA to provide the aspects on socioeconomic changes from project or plan development (Slootweg et al., 2003).

In addition, it is agreed that there are relationships between health, society and the environment regarding the changes that these elements could bring about in each another (Barrow, 1997, Rattle and Kwiatkowski, 2003, Vanclay, 2004). Health aspects in SIA have also been considered based on these connections. For example, Rattle and Kwiatkowski (2003) stated that HIA and SIA could contribute more dominant roles than EIA itself in assessing the impacts that might occur in terms of ‘*quality of life and wellbeing*’ (p.98). They (Rattle and Kwiatkowski (2003)) proposed an integrated form of HIA and SIA entitled ‘Human Impact Assessment’ with a reason that it could close the gap between different expertises, on the basis of considering human health, wellbeing and quality of life. However, the integration concept might not be so simple because different scholars might propose different approaches to the integration of impact assessment processes. For example, integration of SIA and EIA was also proposed as ‘Human Impact Assessment’ by Slootweg et al. (2003) on the basis of the relationship between the natural environment, human society, and institutional setting. This could possibly lead to never-ending arguments over what should be integrated into the impact assessment process. Instead,

the particular context should be considered so that we can decide which aspects of impact assessment should be selected and whether it should be dominant or should be integrated.

In this research, the main objectives are to conceptualise a framework for measuring effectiveness of impact assessment process, and to apply it to a HIA case study in Thailand. This is because HIA is a new option for the Thai context and is associated with an expectation that it might be useful for decision-making processes in addition to the EIA process.

### **3.3 THEORY OF HEALTH IMPACT ASSESSMENT: Definitions, Purposes and Methodology of HIA**

#### ***Definitions of Health Impact Assessment (HIA)***

When considering the concept of ‘Health’ itself, one broad definition was continued within the Constitution of the World Health Organisation where it was considered to be ‘*a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*’ (WHO, 1948, p. 100). Almost four decades later, following the First International Conference on Health Promotion, the definition was updated and became “**Health** is a resource for everyday life, not the object of living. It is a positive concept emphasizing social and personal resources as well as physical capabilities” (World Health Organization, 1986, p.1).

‘Health issues’ became a concern in policy making in the 1990s following the Lalonde report (Bond et al., 2011). This led indirectly to WHO proclaiming the world health declaration in requiring ‘*Health-for-all Policies for the 21<sup>st</sup> century*’ (WHO, 1998b), ‘*health impacts*’ were subsequently defined, in the Gothenburg Consensus Paper, as “*the overall effects, direct or indirect, of a policy, strategy, programme or project on the health of a population*” (WHO European Centre for Health Policy, 1999,

p.4). Health impacts can bring about the chance of better or worse population health and well-being (Mindell et al., 2003, Birley, 1995, Birley and Peralta, 1995). These consequences on health might happen as a result of the development of a project, programme or policy (Mindell and Joffe, 2003).

Based on concerns over the lack of consensus on understanding of concept of Health Impact Assessment (HIA), the HIA was brought together for the first time in the Gothenburg Consensus Paper (WHO European Centre for Health Policy, 1999). Despite this, different perspectives on HIA continue to emerge. For example, HIA could represent an essential process, conducted based on multidisciplinary, which could provide evidence for decision making, concerning health, in projects or policies development (Lock, 2000). Perspectives on HIA and its definitions have been considered based on the contexts of methodology, process, and its function or purposes, by practitioners and organisations, as presented in **Table 3.1**.

The main concept of HIA lies in the area of impact assessment and policy appraisal for healthy public policy (Kemmer and Parry, 2004b). Birley (1995) described HIA as a process focusing on health risk assessment when implementing it in project, programme or policy development. A multidisciplinary approach could be an advantage in conducting any HIA process as knowledge from various fields, for example, public health, environmental science, and social science could lead to more rounded aspects when investigating the impacts from the development (Birley and Peralta, 1995). Assessing the health impacts can be done, at both project and policy-making level, based on a methodology which can identify, predict, and evaluate health risks and the impacts as the consequences when policies or programmes are implemented (BMA Board of Science and Education 1998, National Assembly for Wales, 1999). HIA has been considered and developed as a tool for decision-making in public policy formation, as policy could be influential to population health (Scott-Samuel, 1998).

**Table 3.1** Perspectives and Definitions of Health Impact Assessment

Perspectives	Definitions
HIA as a process and supportive decision-making tool	<p><i>“When impacts have been identified, health risk management measures can be included in project plans and operation in order to reduce the risk and to minimise the extent of the adverse consequences”</i> (Birley, 1995,p.3). <i>“Health impact studies also form part of the ex-post project evaluation. Lessons may be learnt that can influence future planning and appraisal”</i> (Birley, 1995,p.5)</p> <p><i>“a multidisciplinary process within which a range of evidence about the health effects of a proposal is considered in a structured framework”</i> (Lock, 2000, p.1395)</p>
HIA as a methodology	<p><i>“a methodology which enables the identification, prediction and evaluation of the likely changes in health risk, positive and negative, (single or collective), of a policy, programme plan or development action on a defined population. These changes may be direct and immediate or indirect and delayed”</i> (BMA Board of Science and Education 1998, p.39).</p>
HIA as a methodology and supportive decision-making tool	<p><i>“a method of evaluating the likely effects of policies, initiatives and activities on health at a population level and helping to develop recommendations to maximize health gain and minimize health risks. It offers a framework within which to consider, and influence the broad determinants of health”</i> (Scottish Office, 1999).</p>
HIA as a combination of process, methods and supportive decision-making tool	<p><i>“a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population”</i> (WHO European Centre for Health Policy, 1999 p.4).</p>
HIA as an evidence to support decision-making	<p><i>“a concern with the health of populations and it attempts to predict the future consequences of health decisions that have not yet been implemented”</i> (Kemmm and Parry, 2004b, p.1)</p>

The various definitions of HIA demonstrated in **Table 3.1** illustrates that population health is a key concern that should be predicted in advance in HIA, such that it could support final decision-making related to health outcomes (Kemmm and Parry, 2004b, Lock, 2000). These definitions also emphasise the links between perspectives on HIA as a process, a method and a supportive tool for decision-making.

HIA is viewed as a process to evaluate health effects from proposed plans, using an agreed structure, which is conducted using a multidisciplinary approach (Lock, 2000, p.1395). It was also suggested to be a process

identifying health impacts based on health risk assessment and actual result evaluation that could lead to better future decisions (Birley, 1995).

Furthermore, HIA has been defined as a method of assessing the consequences, from policy, towards population health, which could identify measures for enhancing health benefits based on 'determinants of health' among the population (Scottish Office, 1999, Roscam Abbing, 2004). Both quantitative and qualitative methods have been used, often complementarily, in the HIA process (Joffe and Mindell, 2002, Krieger et al., 2003, McCarthy and Utley, 2004, Veerman et al., 2005).

In connections with the ways people define HIA, it has been expected to support the ability of decision-makers to consider human health impacts from policy and programme development at all levels, that could lead to the selection of the most appropriate option (National Assembly for Wales, 1999).

Regarding these definitions and perspectives on HIA, it can be concluded that HIA has been viewed as a process, or a methodology, or a supportive tool to be used in the decision-making process for policy, plan, programme, or project development. Lock (2000) and Kemm (2001) suggested that HIA is a structured framework to assess human health effects generated from proposed projects or policies where the impacts, whether bad or good, could have the potential to affect the health of a population. Its implementation should be multidisciplinary based on cooperation between sectors, and participatory on the basis of health equality (Mindell and Joffe, 2003). Mindell et al. (2003) added, based on consistent opinions of research scholars, that '*sustainability, health promotion, public participation, democracy, equity, equality, and the ethical use of evidence*' are all essential benefits obtained when undertaking HIA (p.647).



Petticrew et al. (2004) pointed out that the meaning of HIA might vary depending on the way people look at it. For example, Mittelmark et al. (2004) suggested that HIA could be a tool for community development whereby the community can use it as evidence to influence politicians and governmental authorities during decision-making about the community.

Based on the literature, this study has considered HIA as ‘**a process, methodology and supportive tool for decision-making which could quantify and qualify health effects on populations that might be caused by the development of projects, programmes, plans or policies prior to the decision-making process when physical and mental health of the populations should be considered as minimum criteria.**’

### ***PURPOSES OF HIA***

Regarding literature on the implementation and development of HIA, five main purposes of HIA can be identified. Firstly, it is expected to assist decision-making processes as well as to support relevant organisational roles as the second purpose. Thirdly, the estimation of health effects is also expected to result from the HIA process. Fourthly, HIA is also believed to support community development. Finally, HIA is aimed at facilitating public participation in any development processes.

Firstly, in terms of assisting decision-making processes, impact assessment processes, including HIA, could deliver more knowledge and understanding to decision makers on potential impacts from policy, plan, programme, and/or project development such that they help to identify the most appropriate option for the development (WHO European Centre for Health Policy, 1999, Lehto, 2004). Kemm and Parry (2004a) commented on the purpose of HIA and indicated that it could encourage decision makers such that a commitment on health can be achieved in the decision-making process, and that it can be used as a tool when considering the most appropriate options

for policy-making. A key purpose of HIA here is to influence decision-making in project development and policy formulation at all levels, because population health should be explicitly considered when evaluating all public policies (Krieger et al., 2003, Kemm and Parry, 2004b). This means that the outcomes of the HIA process should lead to appropriate decision-making (Kemm, 2007a) and that sometimes policy might be adjusted in order to provide the most appropriate option with fewer negative impacts (Ritsatakis, 2004).

Secondly, to support organisational roles, Arden (2004) stated that HIA is aimed at supporting good practice within an organisation such that its assessment framework could measure how the population health has been considered and improved. Douglas and Muirie (2004) also emphasised that HIA should be taken into account when considering public health development at national level. However, Banken (2004) suggested that changing political context could lead to inconsistent performance in implementing HIA among institutions.

Thirdly, HIA is expected to be a tool to evaluate the health impacts of policies and projects developed in communities, to mitigate negative impacts and maintain positive effects (Dannenberg et al., 2006, Erlanger et al., 2008, Mindell and Joffe, 2003). Besides, it is also believed that HIA aims to increase health benefits and decrease losses resulting from development activities (Mindell et al., 2003). The influences that might bring about health impacts might include socioeconomic conditions and the environment such that the effects from these factors need to be measured (Scott-Samuel et al., 2001).

Fourthly, Mittletmark et al. (2004) proposed that HIA could also play a role in supporting community development when the concept of health promotion is emphasised rather than impact assessment. This could suggest that the findings from the HIA process involving the community could

allow them to share wider perspectives together. Considering this, a concept suggested by Harris-Roxas and Harris (2011) about advocacy HIAs, which emphasises the exploration of '*under-recognised health concerns*' (p. 401), could support this view that all aspects about health concerns can be reflected. This could suggest that using HIA to support community development can be one of the key HIA purposes to consider.

Finally, Kemm and Parry (2004a) indicated that facilitating public participation within the development of policies, plans, programmes, or projects has made HIA become '*purposive*'. This is because they emphasised that stakeholder involvement could strengthen decision-making transparently and democratically. Harris-Roxas and Harris (2011) also added that community-led HIAs aim at exploring public concerns on health to present to decision makers based on '*democratic and political processes*'.

Considering the literature on HIA purposes, similarly to the HIA definition perspectives, it could be said that identifying HIA purposes tends to depend on how people view at HIA and how they want to use it. For example, Harris-Roxas and Harris (2011) suggested that the purpose of HIA could depend on what type of HIA has been categorised. For example, it could be targeted to follow a regulatory framework if HIA is mandated whereas it could aim at supporting decisions in organisations and be conducted voluntarily. However, the five purposes of HIA summarised here will be considered, in parallel, with the findings in this research in Chapter 6.

### ***Methodology of HIA***

The main elements in the HIA process should rely on evidence and opinions concerning health effects from policy, plan, programme, or project development, based on democratic public participation and sustainable development, as well as the fact that decision makers should have enough understanding on health impacts, such that improved decisions can be

possible as a consequence (WHO European Centre for Health Policy, 1999). People getting involved in the HIA process could be stakeholders from different sectors, including the public from affected communities (Mindell et al., 2004a). Health impact could be determined by different kinds of approaches, qualitatively and quantitatively, bringing about evidence that could provide sufficient reliable information for the assessment process (Birley, 2002). Regarding the evidence, Joffe and Mindell (2002) commented that HIA evidence has been partially developed based on a standard risk assessment model. However, it was argued that determining health impact by these principles has been criticised among HIA advocates (Macintyre and Petticrew, 2000).

A review of HIA and the nature of evidence being used, reported that HIA implementation can be considered based on three perspectives: concerning healthy public policy; emphasising techniques of risk assessment and environmental epidemiology; and concerning health impact in project development (Birley, 2002). Kemm and Parry (2004a) suggested that understanding of causal connections could be learnt from experiences, using both epidemiological and sociological methods that could lead to appropriate prediction and determination of health impacts. To investigate causal relationships, Lehto (2004) proposed that a social science approach allows HIA practitioners or researchers to explore these relationships in a particular context such that health impacts can be assessed and 'calculable'. Bahtia and Seto (2011) suggested that estimation of the health effects should be conducted based on the balance of both quantitative and qualitative approaches. This corresponds with a comment by O'Connell and Hurley (2009) that HIA employs a quality that both quantitative and qualitative study could bring about findings as reliable evidence for decision-making processes.

The Gothenburg consensus paper suggested four main stages for undertaking HIA, namely, 'screening; scoping; appraisal of the HIA report;

and adjusting the proposed decision' (WHO European Centre for Health Policy, 1999). The paper suggested that the screening stage can be done based on existing evidence, resources and knowledge such that the relationships between policy development and its possible impacts on health can be drawn. Mindell et al. (2004) added that a criteria set should be applied when selecting the policy/project programmes to consider. Based on the consensus paper, if the policy might lead to potential health effects while more knowledge is needed, the scoping stage will identify the required information as the health impact assessment process might be conducted as a rapid HIA, or a health impact analysis, or a health impact review based on relevant literature. Scoping should be a step that frames how HIA should be conducted (Mindell et al., 2004a). Then, the HIA report is obtained and delivered to the public such that comments on the report can be reflected upon for the report improvement (WHO European Centre for Health Policy, 1999). Mindell et al. (2004) also recommended that appropriate timing of submitting the report to decision makers is necessary as well as understandable language used in the report prior to delivery to involved stakeholders. When HIA is implemented in decision-making processes, it is time for decision makers to consider the proposed options and they might adjust the policy or relevant development based on minimum adverse impacts (WHO European Centre for Health Policy, 1999). The consensus paper did not include a monitoring and evaluation process within the HIA process but suggested these as 'follow-up' stages. Mindell et al. (2004) commented that evaluating the HIA process, decision makers actions in terms of taking the HIA findings into account, and gaining 'health outcomes' should be considered in HIA monitoring and evaluation.

To conclude, while guidelines for HIA processes have been introduced, the consequences of conducting HIA based on rigid or specific techniques/methodologies can be considered negative. This is because inflexible methods cannot be applied the same way throughout the HIA process in different contexts, as different cases tend to have different experience as

well as different factors influencing the decision-making context and community needs. Lehto (2004) mentioned that more complications could be found in decision-making contexts, however, a social science approach was suggested to have potential in allowing more knowledge and understanding to be gained. In addition, Mindell et al. (2004) summarised that models of HIA could be represented based on policy analysis, EIA perspective, economic evaluation, and democracy. This could imply that the methodology for HIA practice should be designed based on good understanding of a particular context while the HIA could be implemented dominantly or integrated with other impact assessment processes.

### **3.4 HIA PRACTICE WORLDWIDE**

This section demonstrates the situation for HIA practice worldwide based on three main aspects in terms of introducing HIA practice across the world, levels of HIA practice and its application, and key features derived from the HIA experience globally.

Referring to the statement of promoting '*Healthy public policy*' in the Ottawa Charter (World Health Organization, 1986), countries in Europe and Canada have emphasised this issue in their policy goals. HIA has been introduced and it has implicitly become considered in the development of public policy at national level among these countries. It was stated that the statements from supra-national and national government in Europe, particularly in the United Kingdom, tended to be a key driver to encourage the development of HIA practice (Kemmer and Parry, 2004a).

**Figures 3.1** and **3.2** detail HIA practice across different countries based on different data sources. The data in **Figure 3.1** were obtained based on the representativeness of the HIA practice mapping across Europe during 1992-2006, presented by Blau et al. (2007) which indicated that Finland, England, Wales, and the Netherlands produced higher numbers of HIAs than others.

However, not all HIAs were reported and it is highly unlikely that these data properly represent all HIAs being conducted at that time (as recognised by the researchers). In addition, **Figure 3.2** suggests the trend and the continuity of HIA practice in Europe, the United States, Australia, and New Zealand during 2002-2011 as shown on the HIA Gateway website, which is supported by the England Department of Health to provide data and information about HIA in the UK and international countries (Association of Public Health Observatories, 2011a).

Although both **Figure 3.1** and **3.2** quantify HIA practice worldwide, they can only provide an idea of the numbers of HIAs undertaken since 1992. This is because, in reality, the studies and/ or web sites are highly unlikely to have captured all practice. The lack of consistency between the two data set indicates that this is the case. For example, the finding suggested by Blau et al. (2007) presents more cases in Europe while the HIA Gateway demonstrates more cases in the UK (Association of Public Health Observatories, 2011b). In addition, Blau et al. (2007) concluded that it was not possible to estimate the exact number of HIAs actually being conducted; this is because different definitions of HIA in different places might lead to different numbers of HIAs being counted domestically. This suggests that in different contexts, HIA could be viewed differently.

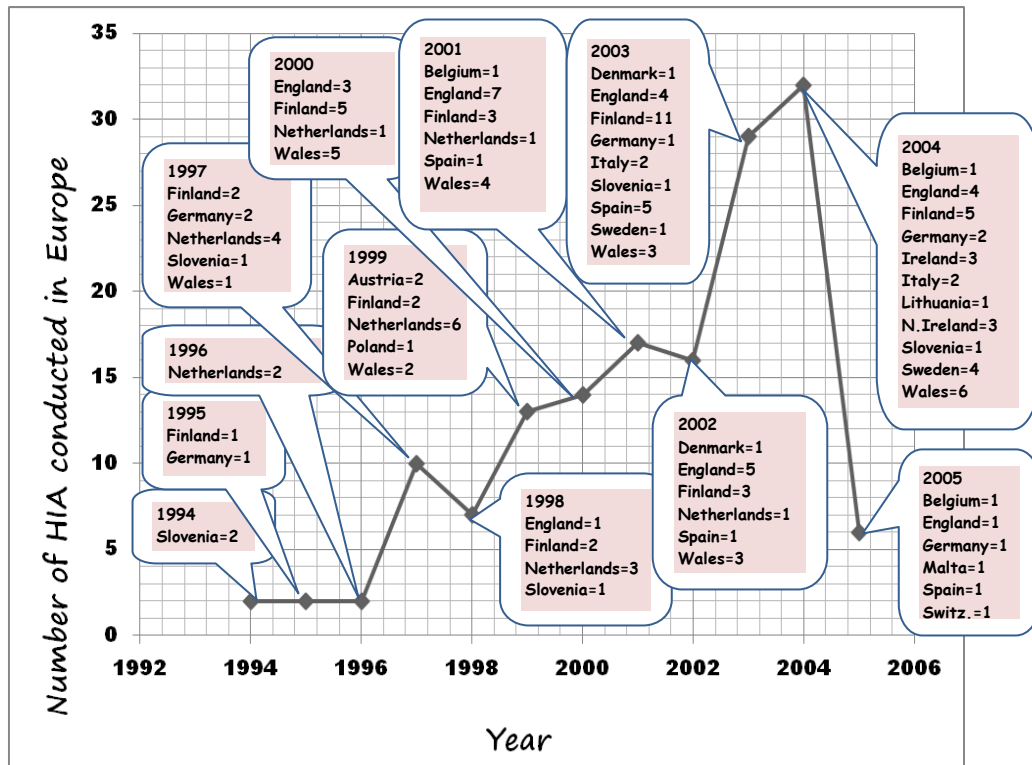


Figure 3.1 HIA practice in Europe during 1994-2005

Source: Adapted from Blau et al. (2007, p.40)

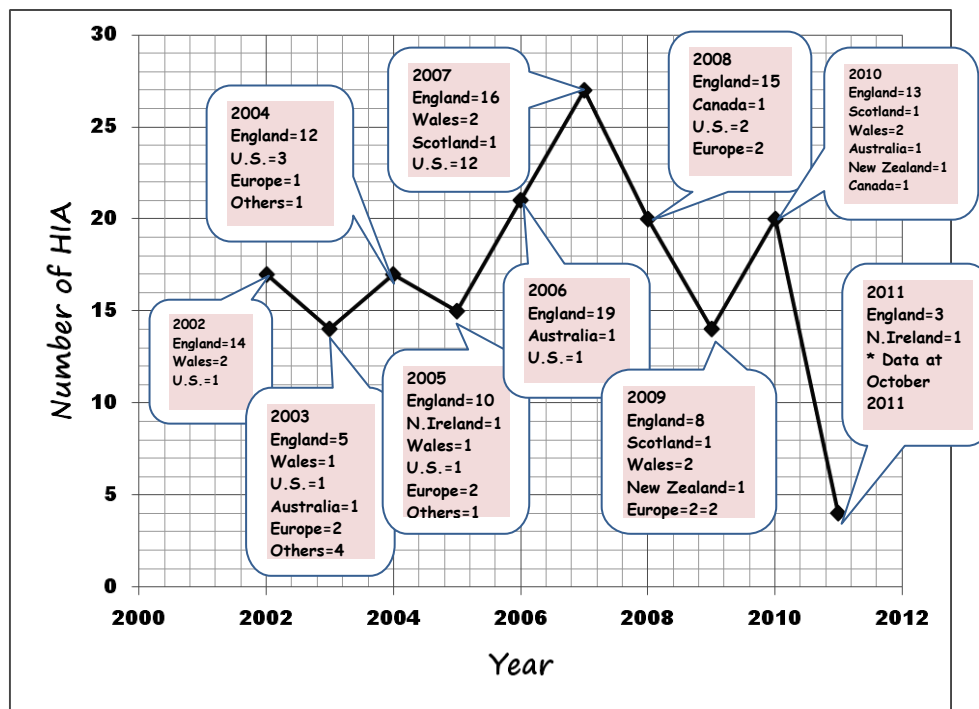


Figure 3.2 HIA practice in the U. K. and other countries (2002- 2011)

Source: Adapted from HIA Gateway database (2011, accessed 03/10/ 2011)



Later on, HIA practice internationally was reviewed to give an understanding of their diverse contexts. **Table 3.2** was produced based on the literature that provided the details about HIA practice in different countries and the lessons learned from the HIA practice and application.

Referring to **Chapter 2**, policy drivers on health at all levels have led to agreements between intergovernmental organisations that Health Impact Assessment (HIA) could be an effective tool supporting the decision-making process when considering policies, plans, or programmes development. It could be said that experience of HIA practice among countries in Europe and Canada, as summarised in **Table 3.2**, has been transferred to other countries across the world, in conducting, implementing, or using HIA in policy plans, programme, and project development (Mahoney and Durham, 2002, Metcalfe and Higgins, 2009, Banken, 2004).

Based on the experience of HIA practice worldwide, different countries have applied HIA differently with different levels of concerns when looking at HIA. Factors influencing HIA implementation are various as are the diverse contexts.

In the United Kingdom, HIA has been taken into consideration for healthy policy in England and Wales and, although no legislation has been enforced, governmental commitments were obtained (Milner, 2004, Breeze, 2004, Quigley, 2005, Bowen, 2004). It appears that applying HIA to strategic decisions, for example, the transport strategy for London, could help to develop understanding among the decision makers about health issues in relation to policy-making (Mindell et al., 2004b, Bowen, 2004). In addition, opportunities presented in different political contexts could allow new knowledge to be discovered for the improvement of HIA practice; however, it was underlined that more awareness should be encouraged, as well as more understanding about HIA, when it is implemented in actual contexts (Breeze, 2004, Douglas and Muirie, 2004). It was also emphasised that

**Table 3.2** HIA practice worldwide based on research publications

Region / Country	HIA practice
European Union (EU)	There were concerns that HIA needed to be considered in policy-making encouraged by the Amsterdam Treaty that emphasises policy-making based on population health protection. Regarding this, strategies, barriers, and structured use of HIA were introduced into HIA practice (Quigley, 2005).
England	HIA has been practiced at a local, regional and national level with support from government departments. As the government has committed to consider the impact of policies on health, non-mandatory guidance is provided. It was found that good cooperation between the stakeholders was achieved in HIA practice. The experience gained could show that HIA might be effective when considering policy making at both national and local levels (Quigley, 2005, Milner, 2004, Bowen, 2004).
Wales	HIA was implemented at policy-level with an opportunity provided to consider health in policy making (Quigley, 2005, Breeze, 2004).
Scotland	Pilot HIAs were applied at local level to consider experience. More understanding about the HIA and awareness are required if HIA is implemented at the policy-making level (Quigley, 2005).
Ireland and Northern Ireland	HIA was endorsed at strategic level on health during 2001-2002 (O'Mullane and Quinlivan, 2012), HIA capacity and support pilot HIAs were funded for more practice and training (Quigley, 2005). The research on HIA was conducted to consider local authorities' roles in relation to HIA practice development (O'Mullane and Quinlivan, 2012).
Netherlands	HIA was considered at policy-making level. It seems HIA works well, although more active response from the ministries on implementing the recommendations provided by the HIA might be needed (Quigley, 2005).
Sweden	HIA was conducted at the national and local level with concerns focusing on considering the health impacts of policies at the initial stages (Berensson, 2004). Health equity issues were considered via the HIA. Although time and resources were considered essential for the HIA process (Quigley, 2005).
Germany	HIA was implemented at project level, initially, prior to being considered at policy and planning level or national level (Fehr et al., 2004).
Republic of Slovenia	Pilot HIA was undertaken as a requirement to join the EU. Collaboration between the ministries and awareness were raised (Quigley, 2005).
Canada	HIA was integrated with EIA at national level as policy level HIA. Political context and institutional issues were found as the essential points to consider in evolving HIA (Quigley, 2005). In addition, HIA at local level was promoted to generate experience of the community in getting involved with planning and decision making for healthy communities (Mittelmark et al., 2004).
Australia	The HIA roles are shared with EIA to support decision making based on legislation (Wright, 2004) as well as local level HIA that reflected the potential of community in getting involved with local governmental agencies to solve environmental and health impact problems within the community (Mittelmark et al., 2004). To date, it was found that HIA in Australia has developed diversely, in different regions of the country, with three main focuses on HIA practice as HIA in EIA, policy HIA, and equity-focused HIA (Harris and Spickett, 2011). Research on HIA practice based on 'learning by doing' practice and institutions have been conducted for the improvement and development of HIA implementation in Australia (Gunning et al., 2011, Tugwell and Johnson, 2011).
New Zealand	In the Resource Management Act of a form of New Zealand, HIA practice is integrated with EIA at project level, and it is considered as risk assessment, and is being used at policy level (Morgan, 2011).
Thailand	Various tracks of HIA have been considered to develop in Thailand, for example, HIA in EIA, policy HIA, and community HIA. It seems HIA can be used as a social tool to provide evidence that the government could consider for solving conflicts and lack-of-trust problems. The Health Systems Research Institute (HSRI) funded the HIA practice cases. Community involvement with decision-making was encouraged via the HIA processes (Quigley, 2005, Sukkumnoed et al., 2009).
Korea	HIA was legislated as part of EIA in Korea in 2010 to support project development along with implementing HIA in the healthy cities programme to support the making of healthy public policies among non-health organisations (Kang et al., 2011).
China	HIA is a new challenge for China to consider it as a tool in policy, plan, programme, or project development (Wu et al., 2011).

resources for HIA practice and public participation in HIA practice at the local level provided by local authorities are essential, however, the workload of the local officers should be balanced with the activities (Milner, 2004).

However, as HIA practice in Scotland and Northern Ireland (as well as in Ireland) are in the early stages, more research is needed to build up practical experience and understanding, when implementing HIA at the policy-making level (Quigley, 2005, O'Mullane and Quinlivan, 2012).

For other European countries like the Netherlands, Sweden, and Germany, it seems that HIA practice has been focused on supporting decisions in policy-making either at local or national level (Quigley (2005), Berensson (2004), Fehr et al. (2004), and Roscam Abbing (2004)). In the Netherlands' experience, it was clear that HIA practice and research for policy-making at national level has been conducted based on pluralistic perspectives, however, HIA was found to be worth doing to ensure healthy public policy (Roscam Abbing, 2004). Meanwhile, experience from the project level in the Netherlands, for example, the Schiphol Airport HIA, was seen as a '*normal practice*' that could be applied with other relevant macro project developments (Staatsen et al., 2004). In Sweden, it appears that politicians' views tended to influence the HIA implementation as well as the political framework provided for considering HIA in decision making based on the needs and contexts of locality (Berensson, 2004). Experience on HIA practice in Germany has reflected that time and resources for HIA implementation at the strategic or national level is desperately needed when evolution of strategic HIA is considered (Fehr et al., 2004).

In Canada and Australia, an integrated form of HIA in EIA was employed on policy making at both national and local levels (Mittelmark et al., 2004, Quigley, 2005, Banken, 2004, Wright, 2004). In Canada, HIA integrated with EIA is compulsory for new development projects (McCaig, 2005).

Regarding its experience, institutionalisation of HIA with a good administrative framework, for relevant sectors to follow, appears to be an essential element for HIA practice and implementation (Banken, 2004). Experience of HIA practice at local levels suggested that HIA could be a tool for strengthening healthy communities, however, capacity building, resources and the structure of the local authority were considered important for the HIA practice (Mittelmark et al., 2004). In addition, integrating HIA in EIA could widen the perspectives of impact assessment in terms of providing more concerns about health and the community contexts (Noble and Bronson, 2005).

On the other hand, in Australia, Wright (2004) found that HIA, as well as being integrated with EIA by legal regulation for project development, has been used in supporting decisions rather than as a direct tool for policy-making. In some HIAs in which communities took part, for example, in Tasmania, the HIA process offered an opportunity for the community and local authority to work together to find a way to achieve a healthier community (Mittelmark et al., 2004). This could link to the comment that HIA practice could help building partnerships in cooperation to provide knowledge supporting decision makers such that they can take it into account (Tugwell and Johnson, 2011). However, it seems clear that HIA guidelines, as well as capacity building on HIA understanding, are required for EIA professionals and all relevant sectors in which HIA is integrated with EIA (Harris and Spickett, 2011, Harris et al., 2009).

Likewise, in New Zealand, HIA is integrated with EIA by law (Langford, 2005, Morgan, 2011). Political contexts and understanding about HIA practice seem to be major factors influencing the extent of its application in practice (Langford, 2005). Morgan (2011) emphasises that integrating HIA with other impact assess processes could provide thorough perspectives for decision makers when considering the development of projects, programmes, and policies (Morgan, 2011).

In Asia (except China), The recent introduction of HIA was demonstrated by the organisation of the first conference on HIA, the 007 South East Asia and Oceania HIA Conference which took place in Australia as mentioned in **Chapter 2**. Sharing experience and initiating cooperation on HIA practice between the countries was the focus of this conference (Harris-Roxas, 2008).

Referring to the experience of HIA practice worldwide, the lessons gained from the different countries could lead to its improvement for more practical and effective implementation based on the needs of particular contexts. This means that HIA practice could be flexible depending on the context where it is conducted. This argument is supported by Breeze (2004) who suggested that the philosophy of HIA relies on a '*common sense*' which could be '*an innovation*' when people allow themselves to think freely (p. 209).

In summary, while HIA could be useful if it is implemented as a supportive tool in decision-making as well as a tool bringing people to cooperate and work together, there are some concerns that several factors could influence the effectiveness of HIA, which could lead to success or failure of HIA practice. Particularly, political contexts, regulatory framework and opportunities could influence the introduction of HIA to decision-making processes (Langford, 2005, Breeze, 2004, Wright, 2004). These factors could be the starting point to introduce HIA at a national scale, either based on a legislative framework or not. Capacity building at all levels in terms of creating understanding among politicians and decision makers as well as institutional potential should be considered for evolving HIA practice and implementation (Dora, 2004, Douglas and Muirie, 2004, Lock and Gabrijelcic-Blenkus, 2004, Banken, 2004, Langford, 2005, Thackway and Furber, 2005). The experience of HIA practice suggests that provision of resources and good public consultation could lead to greater benefits, for example, partnerships and collaboration between sectors (Milner, 2004,

Barnes, 2004, Mittelmark et al., 2004). Finally, perspectives from all stakeholders are considered as beneficial information for a HIA process (Elliott and Williams, 2004, Ahmad et al., 2008).

### **3.5 NATIONAL POLICY AND PLAN AND HIA PRACTICE IN THAILAND**

This section demonstrates HIA practice in Thailand based on the literature available in both the Thai and English language. Firstly, to set the context, the focus will be governmental policy and the national development plan from 1997 to date, which sets out the rationale that influences national health concern. The following section reviews evolving concepts of HIA practice in Thailand. Then, the attention will focus on relevant regulatory frameworks that could link with the HIA practice and its application in Thailand. HIA institutionalisation and key sectors, and the experience of HIA practice in Thailand to date are also reviewed. Finally, the strengths and weaknesses of HIA practice are analysed, and the lessons learned are considered.

#### ***National development plan and governmental policies in Thailand***

To provide a fundamental context when looking at HIA practice and its application in Thailand, this section presents the history of national policy and the development plan in accordance with national health concerns. **Table 3.3** summarises the key objectives of the national socioeconomic development plan coupled with the focus on policy-making and national health concerns for non-health sectors to consider, in Thailand during the past 14 years.

In the period of Eighth National Economic and Social Development Plan (1997-2001), there was a move forwards greater globalisation. This led to both positive and negative impacts towards Thai society. Regarding this, the

**Table 3.3** Main focus stated in the National Economic and Social Development Plan and policy statements of the Thai government

National Plan	Main focus for the national development	Year	Prime Minister's Government	Main focus for policy making	National health concern mentioned in non-health sectors' policy
<p><b>Plan 8<sup>th</sup> (1997-2001)</b></p>	<p><i>'(1) To foster and develop the potentials of all Thais, in terms of health, physical well-being, intellect, vocational skills and ability to adapt to changing and economic conditions.</i></p> <p><i>(2) To develop a stable society, strengthen family and community, support human development, improve quality of life and promote increasing community participation in national development.</i></p> <p><i>(3) To promote stable and sustainable economic growth, and to empower the people to play a greater role in the development process and receive a fair share of the benefits of growth.</i></p>	1997	<p>Mr. Chuan Leekpai/ Democrat (9 November 1997 – 17 February 2000)</p>	<p>To recover economic conditions (The Prime Minister's Office, 1997, p.3), after 'Tom yam goong' crisis.</p>	<p>Concerns on environmental quality that might affect human health as well as sufficient water supply for rural areas (The Prime Minister's Office, 1997, p.36)</p> <p>Encouraged the citizen to pay attention to playing sports to create values on health and develop capacity at national and international level (The Prime Minister's Office, 1997, p.35)</p>
		1998			
		1999			
		2000			
	<p><i>(4) To utilise, preserve and rehabilitate the environment and natural resources in such a way that they can play a major role in economic and social development and contribute to better quality of life for the Thai people.</i></p> <p><i>(5) To reform the system of public administration so as to allow greater participation of non-governmental organisations, the private sector, communities and the general public in the process of national development'.</i></p> <p>(National Economic and Social Development Board, 1996, p.3)</p>	2001	<p>Thaksin Shinawatra / Thai Rak Thai (17 February 2001 – 8 March 2005)</p>	<p>To create job opportunities based on financial investment by the central government to mitigate poverty problems, mainly focused at local level (Policy statement, p. 2)</p>	<p>Public participation was encouraged when considering environmental pollution that might affect human health and quality of life (The Prime Minister's Office, 2001, p.16).</p> <p>Encouraged sport development at local and school level to create values on health, health promotion and develop capacity at national and international level (The Prime Minister's Office, 2001, p.18)</p>

**Table 3.3** Main focus stated in national economic and social development plan and policy statements of the Thai governments (continued)

National Plan	Main focus for the national development	Year	Prime Minister's Government	Main focus for policy making	National health concern mentioned in non-health sectors' policy
<p><b>Plan 9<sup>th</sup> (2002-2006)</b></p>	<p><i>'(1) To promote economic stability and sustainability. Measures will be taken to strengthen the financial sector and fiscal position of the country, along with economic restructuring, to create a strong and self-reliant economy at the grassroots level. The overall economy will be made more competitive through development of the knowledge base.</i></p> <p><i>(2) Establishment of a strong national development foundation to better able Thai people to meet the challenges arising from globalisation and other changes. Human resources development, education and health system reforms, the setting up of social protection system are priorities to be implemented. At the same time, popular participation in communities and rural areas will be enhanced to create sustainable urban and rural development networks, improve management of natural resources and the environment, as well as development of appropriate science and technology.</i></p> <p><i>(3) Establishment of good governance at all levels of the Thai society. Good governance will be fostered based on the principles of efficiency, transparency, and accountability. Emphasis will be placed on the reform of government management systems, the promotion of good corporate management in the private sector, and public participation in the development process, as well as the creation of a political system that is accountable to the public and does not tolerate corruption.</i></p> <p><i>(4) Reduction of poverty and empowerment of Thai people. Thai people will be empowered through equal access to education and social services. Employment generation will be supported, leading to increases in incomes. Quality of life will be upgraded. Public sector reform will be undertaken to create an enabling environment for public participation'</i></p> <p>(National Economic and Social Development Board, 2001, p.v-vi)</p>	2002	Thaksin Shinawatra/	To create job opportunities based on financial investment by the central government to mitigate poverty problem, mainly focused at local level (Policy statement, p. 2)	<p>Public participation was encouraged when considering environmental pollution that might affect human health and quality of life (The Prime Minister's Office, 2001, p.16).</p> <p>Encouraged sports development at local and school level to create values on health, health promotion and develop capacity at national and international level (The Prime Minister's Office, 2001, p.18)</p>
		2003	Thai Rak Thai		
		2004	(17 February 2001 – 8 March 2005)		
		2005	Thaksin Shinawatra / Thai Rak Thai (9 March 2005 – 19 September 2006)	To empower local people at community level and maintain natural resources (soil & water) based on balancing/ adapting social and economic structure (The Prime Minister's Office, 2005, p.5).	Encouraged the development on human resource and society with regard for people 'being healthy and happy', by focusing on the development of knowledge and ethics, educational reform, and building correct understanding about the Thai culture (The Prime Minister's Office, 2005, p.7-9, 11).
		2006	Surayud Chulanont/ - (1 October 2006 – 29 January 2008)	To instill confidence on state governance administration and reunite Thai people after the period of conflicts happening because of different views on politics (The Prime Minister's Office, 2006, p.2-3)	Proposed the enforcement of National Health Act (The Prime Minister's Office, 2006, p.18-19).
		2007			



**Table 3.3** Main focus stated in national economic and social development plan and policy statements of the Thai governments (continued)

National Plan	Main focus for the national development	Year	Prime Minister's Government	Main focus for policy making	National health concern mentioned in non-health sectors' policy
<b>Plan10<sup>th</sup> (2007-2011)</b>	<p><i>(1) To provide opportunities for learning combined with integrity and morality by creating linkages between families, religious institutions, and educational institutions; to enhance health services, balancing among health care, promotion, prevention, treatment and capacity rehabilitation; and to improve the security of life and property.</i></p> <p><i>(2) To increase the potential of communities by linking them in networks to serve as the foundation for developing the economy and quality of life; to conserve, rehabilitate, and utilize the environment and natural resources in a sustainable fashion to achieve sufficiency and reduce poverty.</i></p> <p><i>(3) To reform the production structure for goods and services for value creation on a foundation of knowledge and innovation; to promote linkages among production sectors to increase value-added.</i></p> <p><i>(4) To build safety nets and risk management systems for the sectors of finance, banking, energy, factor markets, the labour market, and investment.</i></p> <p><i>(5) To ensure fair competition in trade and investment for national benefit; to create mechanisms for fair distribution of the benefits of development to all segments of the population.</i></p> <p><i>(6) To preserve natural resources and biodiversity, along with safeguarding the quality of the environment to be a secure foundation of national development and livelihood for both current and future generations; to create mechanisms to safeguard national benefit in a fair and sustainable manner.</i></p> <p><i>(7) To promote good governance in government administration, the private business sector, and the people's sector; to expand the role and capacity of local government bodies; to promote mechanisms and processes of participation in development; and to nurture a culture of democracy for peaceful coexistence' (National Economic and Social Development Board, 2006b, p.viii)</i></p>	2008	Surayud Chulanont/ - (1 October 2006 – 29 January 2008)	To instill confidence in state governance administration and reunite Thai people after the period of conflicts happening because of different views on politics (The Prime Minister's Office, 2006, p.2-3)	Proposed the enforcement of National Health Act (The Prime Minister's Office, 2006, p.18-19).  Encouraged citizens to play sport to build unity values (The Prime Minister's Office, 2006, p.19).
		2008	Samak Sundaravej/ People's Power (29 January – 9 September 2008)	To rebuild unity between Thai citizens and strengthen economic condition (The Prime Minister's Office, 2008b, p.6).	Encouraged citizens to reduce their health risk behaviours  Encouraged citizens to play sport for their health and skills development (The Prime Minister's Office, 2008b, p.9).
		2008	Somchai Wongsawat/ People's Power (18 September – 2 December 2008)	To solve the problem of political conflict by building unity between Thai citizens and recover economic conditions (The Prime Minister's Office, 2008c, p.3).	Encouraged citizens to play sport for their health and skills development (The Prime Minister's Office, 2008c, p.13)
		2008	Abhisit Vejjajiva/ Democrat ( since 17 December 2008)	To build economic confidence historically in terms of recovering the economic condition, enhancing political reform, and encouraging national unity (The Prime Minister's Office, 2008a, p.4-5).	Promoted the implementation of the national health act in practice based on cooperation of all sectors (The Prime Minister's Office, 2008a, p.13).  Encouraged the citizens to play sport for their health and skills development (The Prime Minister's Office, 2008a, p.16)
		2009	Abhisit Vejjajiva/ Democrat		
		2010	Abhisit Vejjajiva/ Democrat		
		2011	Abhisit Vejjajiva/ Democrat (17 December 2008 – 5 August 2011)		

**Table 3.3** Main focus stated in national economic and social development plan and policy statements of the Thai governments (continued)

National Plan	Main focus for the national development	Year	Prime Minister's Government	Main focus for policy making	National health concern mentioned in non-health sectors' policy
<p><b>Plan11th (2012-2016) (Direction – draft)</b></p>	<p><i>'(1) To promote a peaceful society with good governance (2) To promote sustainable development through restructuring the economy, society and politics, and nurturing natural resources and environment. (3) To prepare the people and the community to be resilient to changes'</i> (National Economic and Social Development Board, 2011, p.8)</p>	<p>2011</p>	<p>Yingluck Shinawatra/ Phue Thai (5 August 2011 – present)</p>	<p>To lead Thailand's economic structure becoming stronger than in the past with an aim of sustainability in terms of good population health and quality of life. To build the unity between all sectors in the country. To provide the potential of Thailand as being ready as part of the ASEAN community in 2015 (The Prime Minister's Office, 2011, p.5).</p>	<p>To increase effectiveness of impact assessment processes; i.e. strategic environmental assessment, environmental impact assessment, and health impact assessment regarding the subject of environmental quality control (The Prime Minister's Office, 2011, p.35). To encourage citizens to play sports for their health and skills development (The Prime Minister's Office, 2011, p.31).</p>

**Remark**            The terms of office for the different governments are based on the website of the Prime minister's office at <http://www.opm.go.th/opminter/content/HisPrimeMinister.html>

plan emphasised the development of human potential including their health and wellbeing and intellectual skills, that they can contribute as an essential resource for the national development (National Economic and Social Development Board, 1996). However, later on in 1997, a financial crisis hit Thailand because of the decision made by the government to decrease the value of Thai baht, which subsequently led to the crisis in Thailand and other countries in Asia (Phongpaichit and Baker, 2000). Therefore, the policy-making at that time was mainly focused on national economic recovery as mentioned in the policy statement provided by the Prime Minister's Office (1997, p.3). Industrialisation at all scales was encouraged by the policy while concerns about health impacts, from the development, was expected to be taken into account, by providing a policy requiring monitoring of environmental quality (The Prime Minister's Office, 1997).

Although it was recognised later that the Eighth plan was not completely put into effect, it was emphasised that this plan was the first plan introducing new values, in terms of importance of '*popular participation*', to society (National Economic and Social Development Board, 2006b).

Later on, the Ninth National Economic and Social Development Plan (2002-2006) adopted the philosophy conferred by His Majesty the King on '*self-sufficient economy*' as a guideline to provide the national development plan. This philosophy was stated in the national plan as '*the philosophy of sufficiency economy, based on adherence to the middle path, is advocated to (a) overcome the current economic crisis that was brought about by unexpected change under conditions of rapid globalization, and (b) achieve sustainable development*' (National Economic and Social Development Board, 2001, p. i).

As such, the Ninth National Economic and Social Development Plan (2002-2006) promoted sustainability and stability of the national economy along with national social foundation development with more active public

participation at all levels. Health system reform was one of the components to strengthen the national foundation with a goal to achieve good health and better quality of life of citizens (National Economic and Social Development Board, 2001, p. v). The health system in this context emphasised equal accessibility to health services and coverage of health insurance schemes (National Economic and Social Development Board, 2001, p.6). However, in all aspects, it was stated that the main focus of the Ninth Plan was based on the '*balanced development of human, social, economic and environmental resources*' (National Economic and Social Development Board, 2001, p.2).

When considering policy-making during the Ninth Plan's period, the main focus of policy-making was to create job opportunities and decrease poverty (The Prime Minister's Office, 2001). This led to setting policy on encouraging industrialisation at all scales, with a focus on natural resources, traditional knowledge and skills, potential and marketing based on a national development strategy (The Prime Minister's Office, 2001, p.9-10). In addition, encouraging organic multiagriculture was stated in the policy coupled with tourism service improvement (The Prime Minister's Office, 2001, p.7-8 and 10-11).

In this government, a policy related to issues of health concern for non-health sectors was included in policies for natural resources and environment, and social consolidation (The Prime Minister's Office, 2001, p.16). Environmental pollution problems that might have caused health impacts were identified as a concern such that the government included it in the policy for natural resources and environment, to encourage public participation in the process of controlling the pollutants. Meanwhile, encouraging people to play sports was included in the policy for social consolidation as a health promotion campaign for the national citizen.

Although the performance of the Ninth plan was suggested as being '*adequately successful*', regarding the improvement of the economic situation, issues on '*human and social development*' and '*sustainable development*' were summarised as the priority to consider in the following plan (National Economic and Social Development Board, 2006b). This is because it was stated, in the Tenth Plan, that social problems remained partially unsolved whilst the imbalance in favours of development had led to environmental pollution, with the emphasis that '*transparency*' of the way that the government worked remained unclear.

In the Tenth National Economic and Social Development Plan (2007-2011), the concept of '*philosophy of a self-sufficient economy*' was maintained applying to the plan formulation. Under the changing context during that time, the focus of the plan was building opportunity for learning and capacity at all levels in all sectors to be the foundation of development. This was considered coupled with natural resources and biodiversity preservation as well as promoting good governance for the government authorities and administration.

During the implementation of the Tenth Plan (2007-2011), there have been policy statements from five different Prime Minister's governments (see **Table 3.3**).

In the initial phase of the plan, the main focus of the policy, by Prime Minister Surayud Chulanont's government, was to reunite the citizens in the country after conflicts based on different political views had arisen (The Prime Minister's Office, 2006, p.2-3). This was emphasised in order to ensure the state of the governance administration so that the country could move forward on its development. National and international sectors were called upon to take part in industrial investment by the government's policy (The Prime Minister's Office, 2006, p. 11). Meanwhile, the policy on economic foundation structure fostered public participation in planning and

the operational process of megaprojects, based on resource sustainability (The Prime Minister's Office, 2006, p.13-14). Furthermore, social policy proposed the enforcement of a National Health Act coupled with a campaign to encourage Thai people to play sports to improve health and unity (The Prime Minister's Office, 2006). Later on, The National Health Act successfully came into force in 2007 (Ministry of Public Health, 2007). However, it seems this Act was not explicitly mentioned by the next two governments in 2008, led by Prime Minister Samak and Prime Minister Somchai, respectively.

The policy on building unity of national citizens remained a focus along with strengthening the national economic condition in the period of Samak Sundaravej Prime Minister's government (2<sup>nd</sup> government of the 10<sup>th</sup> plan period) (The Prime Minister's Office, 2008b, p.6). In addition, developing production efficiency and competitive industries was a goal for developing a production base at global level (The Prime Minister's Office, 2008b, p.13-14), while environmental pollution problems were highlighted as needing control and management (The Prime Minister's Office, 2008b, p.19). In terms of national health concerns, the policy encouraged national citizens to reduce their health risk behaviour as well as promoting participation in sports (The Prime Minister's Office, 2008b, p.9).

Later on, the next Prime Minister's government (3<sup>rd</sup> government of the 10<sup>th</sup> plan period), Somchai Wongsawat, maintained the policy of solving political conflict by building national unity as well as recovering the national economic condition (The Prime Minister's Office, 2008c, p.3). Policy on industrial development, land, natural resource, and environment were maintained the same as the previous government. The government also promoted sports in Thai society to improve health status (The Prime Minister's Office, 2008c, p.13).

Then, in late 2008, a new government (4<sup>th</sup> government of the 10<sup>th</sup> plan period) led by Prime Minister Abhisit Vejjajiva took a role to govern the country. The policy focus emphasised the importance of building confidence on national economics, holistically, as much as on building national unity (The Prime Minister's Office, 2008a, p.4-5). To develop industries, the policy aimed to build competing capacity at global level for Thai industries based on sustainable community and environment (The Prime Minister's Office, 2008a, 21-22). This government stated in the policy that it would promote the implementation of the National Health Act 2007 with cooperation from all relevant sectors (The Prime Minister's Office, 2008a).

Finally, in the latest government of the Tenth Plan's period, Prime Minister Yingluck Shinawatra's government, the policy renamed similar to the previous government's in terms of building national unity in parallel with strengthening the national economic structure, based on sustainability for population health and quality of life (The Prime Minister's Office, 2011, p.5). However, the policy for industrial development emphasises increasing the capacity of domestic industries, developing new industrial zones in all regions of the country, and encourages a survey of mining resources for industrialisation and economic development purposes with consideration of environmentally friendly development (The Prime Minister's Office, 2011, p.17-19). In this policy, Health impact assessment (HIA), SEA and EIA are all highlighted as being necessary prior to project decision-making, although this statement of policy is only legally mandated for EIA (The Prime Minister's Office, 2011).

Regarding the performance of the Tenth National Development Plan, it seems '*philosophy of a self-sufficient economy*' could help strengthen Thai society at some point, however, more application of this philosophy is needed for the national development in future (National Economic and Social Development Board, 2011).

It has been seen that the concept of sustainable development has been taken into account since the Eighth National Economic and Social Development Plan (1997-2001) (National Economic and Social Development Board, 2001, National Economic and Social Development Board, 2006b). However, it has been suggested, regarding the history of the plan formulation, that an imbalance between industrialisation and sustainability of natural resources and environment remains problematic (National Economic and Social Development Board, 2001, National Economic and Social Development Board, 2006b, National Economic and Social Development Board, 2011). Policies stated by the governments in recent decades have focused mainly on economic development while concern about sustainable development was mentioned to an extent, but without much clarification how it might be achieved. Meanwhile, as has been seen in the main policy of the governments since 2006, raising national unity has been the main concern.

To sum up, this section has provided the history of the national development plan and policies in Thailand during the past 14 years, where globalisation was initially the focus. Reflecting on the national development plan and policies suggests an impression of the characteristics of the Thai context in recent years. This helps to set the scene for understanding the development of HIA practice in Thailand in the following section.

### ***Initial concepts of HIA in Thailand***

Referring to the Ninth National Economic and Social Development Plan (2001), health system reform was emphasised as one of the components, which could lead to stronger national foundation in the development process. This was considered and applied when formulating the Ninth Five-Year National Health Development Plan, for 2002-2006, in which ‘health promotion’ was stated to be one of the strategies to be aggressively pursued



in Thailand (The Ninth National Health Development Plan Steering Committee, 2001). In the 'health promotion' strategy in this part of the plan, healthy public policy (HPP), healthy environment, and healthy community were considered to be key components of systematic health promotion. In addition, the concept of creating '*knowledge*' interacting with '*social movement*' supported by '*political involvement*' was implemented in the concept of health system reform, as the three required components, referred to as a "*triangle that moves the mountain*" (Wasi, 2000, p.3).

A call for legal regulation on implementing health impact assessment (HIA) in project development was stated in the national health plan with an aim that health impacts experienced by the grass-roots population could be protected and mitigated (The Ninth National Health Development Plan Steering Committee, 2001, p.98). This can be considered a driving force, firstly introduced at strategic level, for the concept of healthy public policy and for implementing HIA practice in Thai society.

The Tenth National Economic and Social Development Plan (2007-2011) maintained the concept of 'philosophy of self-sufficient economy' and concern for 'people-centred development' for the national development (National Economic and Social Development Board, 2006a). Regarding the Tenth plan, the development strategies on biodiversity and conservation of the environment and natural resources emphasised the significance of providing a good environment as a strategy, based on sustainable development, for good quality of life as a way leading to 'national happiness' and 'people-centred development'. As such, to maintain a healthy environment and sustainability, the plan suggested that impact assessment processes, i.e. SEA, HIA, and SIA should be considered when project developments are to be conducted (National Economic and Social Development Board, 2006b). Additionally, the national health development plan within the period of the Tenth National Economic and Social Development Plan (2007-2011), also known as 'The Tenth Five-Year

National Health Development Plan 2007-2011', has provided a strategy in terms of empowering society to pay more attention to health based on building social norms and encouraging a healthy environment. This national health development plan emphasised that healthy public policy-making with participation from all sector in the society could lead to healthy life within a healthy culture.

At this point, it could be suggested that the national development plans for economics, society and health, based on '*philosophy of self-sufficient economy*' and '*sustainable development*', during the 21<sup>st</sup> century, have led to the concept of providing health impact assessment and healthy public policy to Thai society as part of strategies to foster '*human-centred development*'. Regarding this, the plans stated that cooperation from all sectors are required in considering health impacts from development in a globalised world based on the balance between resource consumption and sustainability.

### ***Key sectors related to the development of HIA in Thailand***

This section identifies the key sectors involved regarding HIA development in Thailand. It starts with the institutions that primarily introduced the HIA concept to Thai society followed by other organisations that have some statutory responsibility, which got involved later through considering how to apply HIA to their authority, to further develop HIA practice.

The Health System Research Institute (HSRI) was the first organisation to introduce the HIA concept to Thailand in 2000 (Phoolcharoen et al., 2003, Jindawatthana et al., 2009). HSRI was established in 1992 as an autonomous organisation under the Health System Research Institute Act B.E.2535 (1992). Regarding its roles stated in the Act, HSRI was assigned to provide fundamental knowledge for policy-making and planning in national health system development, as well as cooperating with other state

agencies and other organisations, in parallel with fostering research activities, to implement knowledge and the research findings in policy-making and planning, for the development of a national public health system. In 2000, the HSRI established the National Health System Reform Office (HSRO) through the Regulation of the Prime Minister's Office on National Health System Reform B.E.2543 (2000). The National Health System Reform Commission (HSRC), under the HSRO, was assigned to be the main organisation in developing the National Health Act in Thailand (National Health Commission Office, 2009b, Jindawatthana et al., 2008). To do this, the healthy public policy, as well as the HIA concept, was introduced as a key concept to confer rights on citizens to participate in assessing health impact from public policy, as stated in section 11 of the National Health Act later on (Phoolcharoen et al., 2003, Ministry of Public Health, 2007).

In 2001, HSRI established '*The Research and Development Programme on Health Impact Assessment System*' (National Health Commission Office et al., 2008, Siwaraksa et al., 2004), which was later, in 2003, called '*The Research and Development Programme on Healthy Public Policy and Health Impact Assessment (HPP-HIA Programme)*' (National Health Commission Office et al., 2008). This programme was funded to perform roles and research activities during 2002-2004 on providing a research framework, institutional framework, HIA networks, and enabling environment for healthy public policy such that the lessons can be gained for national HIA development (Siwaraksa et al., 2004, Phoolcharoen, 2005).

In 2004, the roles of the HPP-HIA Research Programme were evaluated by the Foundation for the Promotion of Public Policy Studies. The findings showed that the HPP-HIA Research Programme had performed strongly in terms of HPP-HIA knowledge and perception building in Thai society, however, weaknesses included that rapid expansion had led to gaps in network coordination, as well as struggling operation due to lack of

organisational strategies (Siwaraksa et al., 2004). In addition, the findings suggested that the roles of the HPP-HIA Research Programme should be focused on knowledge development to support potential organisations so that they can implement the knowledge in driving particular policies. Furthermore, it was suggested to review key strategies for programme operation prior to restructuring the programme as an autonomous institute under the health system research institute (HSRI). At present, this programme has changed its status to be the Healthy Public Policy Foundation, which supports knowledge, coordinates between networks, and conducts project evaluation for research and development projects on, for example, ‘alternative energy for healthy community’ (Healthy Public Policy Foundation, 2011).

In 2007, the same year when the National Health Act B.E. 2550 (2007) came into force, the National Health Commission Office (NHCO) was established as an autonomous organisation by this Act. The responsibilities of HSRI were transferred to NHCO as required by **section 50** of the Act (Ministry of Public Health, 2007). Thus, the roles of NHCO, under **section 27** of the National Health Act, cover the development of policy-making, cooperation with all sectors that have responsibilities related to health, health system study and analysis, arrangement of the national health assembly, and taking action as stated in this Act and other national legal regulations (Ministry of Public Health, 2007).

In 2009, the Health Impact Assessment Coordinating Commission was appointed to work as a HIA Co-Unit under the NHCO. This commission has a role in coordinating with all relevant stakeholders (e.g. institutions, organisations, project developers, and the citizens) to provide human potential development planning for HIA practice, as well as knowledge production based on research and development, supporting social communication, and other assigned responsibilities regarding the National

Health Act B.E. 2550 and the Thai Constitution B.E.2550 (National Health Commission, 2009b).

Meanwhile, other relevant authorities have become networks for HIA practice and development at the national level, to cooperate in developing HIA practice and application in Thailand (The academic working group on HIA 2008: Asia and Pacific Regional Conference on Health Impact Assessment, 2009). For example, a Health Impact Assessment Division was established under the Department of Health in 2002 to take action, under relevant legal regulations, on HIA system development, building capacity, as well as providing an environmental and health surveillance system at local level, along with cooperation with other relevant authorities (Health Impact Assessment Division: Ministry of Public Health, 2009).

The Office of Natural Resources and Environmental Policy and Planning (ONEP), is a state agency having a key role in assessing environmental impacts from projects development, or any activities caused by public or private enterprises (Office of Natural Resource and Environment Policy and Planning (ONEP), 2002). ONEP has taken health impact into account, for the projects that might cause significant adverse effects on the environment and health, based on section 67 in the Thai Constitution B.E. 2550 (2007) (Environmental Impact Evaluation Bureau: Office of Natural Resources and Environment Policy and Planning (ONEP), 2010). ONEP has become part of the HIA networks at national level in Thailand (The academic working group on HIA 2008: Asia and Pacific Regional Conference on Health Impact Assessment, 2009).

Other organisations, for example, the Department of Diseases Control, National Economic and Social Advisory Council (NESAC), National Research Council, higher education institutes, and all parties from the local level have cooperated in HIA practice and development in Thailand (The academic working group on HIA 2008: Asia and Pacific Regional

Conference on Health Impact Assessment, 2009). All the organisations mentioned, have become part of the HIA network at national level to date in terms of the development of HIA practice and its application in Thailand.

### ***HIA development, practice and its evolving concept in Thailand***

Sukkumnoed et al. (2002) suggested that the main objectives of HIA development in Thailand should comprise the implementation of HIA in the decision-making process of healthy public policy-making, developing the process based on public participation, and encouraging concerns on health, as well as capacity building at all levels in Thai society. For the history of the HIA development, it could be summarised that there are four phases of HIA development in Thailand: **pioneering HIA; questioning time about HIA; a glorious time for HIA; and challenging time for HIA** (HIA Coordinating Unit, 2009).

Firstly, **pioneering HIA**, the initial phase of the development was in the period of 2000-2003, when experience from EIA was reviewed in parallel with the concept of health and social impact assessment, along with analysis for healthy public policy formulation. Perspectives about HIA were also broadened by the HIA development team participating in international conferences and hosting an international workshop in 2001. Regarding the agreement of the National Health System Reform Commission, it was suggested that the results of HIA practice should be emphasised and applied at the public policy-making level (Phoolcharoen et al., 2003, Phoolcharoen, 2005, Sukkumnoed et al., 2002). Experience and lessons learnt from other countries, particularly, the United Kingdom and the Netherlands, focusing on applying HIA in healthy policy-making (Milner, 2004, Breeze, 2004, Bowen, 2004, Quigley, 2005), were considered when creating the main concept for HIA application in the Thai context, considering it as a learning process rather than a tool for project approval (HIA Coordinating Unit, 2009). This means HIA was supposed to be developed for healthy public

policy-making, therefore, it was expected to be used at all levels, from national to local level (Sukumnoed et al., 2002). In this sense, they defined public policy, for the Thai context, as “*the direction that the public activities or its development should be directed based on the agreement or belief generalised from its own society*” (Sukumnoed et al., 2002, p.12) that could be achieved by government organisations, private enterprises, and the public sector.

It was also noted that, in 2000, the process of development of the National Health Act was underway (National Health Commission Office, 2011). In this process, healthy public policy was implemented as a key concept of the National Health Act and, subsequently, the HIA concept was introduced in 2001 as presented in the draft National Health Act (Phoolcharoen et al., 2003).

Furthermore, at this initial phase, HIA experience was explored by conducting research on HIA in different case studies by researchers from academic institutions, funded by HSRI. The Research and Development Programme on Healthy Public Policy and Health Impact Assessment (HPP-HIA Programme) was assigned to be the key actor coordinating and facilitating the HIA research practice (HIA Coordinating Unit, 2009). Knowledge on HIA practice was explored through five main thematic research networks, categorised based on the suggestion given by HSRI, in order to develop the evidence of HIA practice and application fit with variable policy. The themes comprised Urban and Transportation; Industry and Energy Development; Agricultural and Rural; Water Resource Management; and Natural Resource Base and International Trade and Agreement (Healthy Public Policy and Health Impact Assessment Program, 2003, Sukumnoed, 2005, Phoolcharoen et al., 2003).

In terms of the Urban and Transportation Policy thematic network, the research studies focused on urban development problems that could link to

policy adjustment and development. For example, rapid HIA of high rise buildings in Chiang Mai, HIA of Chiang Mai city and transportation, and scoping for HIA of Khon Kaen City Municipal Solid Waste Management Policy (Wiwatanadate et al., 2002, Srisakda et al., 2003, Srisakda et al., 2005, Charoentanyarag et al., 2002).

The Industry and Energy Development thematic network focused on programmes influenced by the national policy set, and could affect a large proportion of the population as well as industrial projects that affect the economic-industrial development of the country. These studies included scoping for HIA from the eastern seaboard development programme (a case study of Mab Ta Phut industrial estate), citizen's perspectives on the HIA for the Mab Ta Phut industrial estate, HIA in renewable energy development, citizen's perspectives on the HIA for hydro power plants, HIA for small and medium-sized enterprise promotion policy, and HIA for mining projects (Haesakul et al., 2003, Kotchawat et al., 2009, Pakamat et al., 2004, Pengkam et al., 2006a, Sukkumnoed et al., 2001, Sangsoke and Boonjuea, 2003, Boonjuea et al., 2006).

The Agricultural and Rural thematic network focused on HIA for activities in farming as well as benefits the farmers could gain from implementing the government policy. For example, the studies on HIA of contract farming and HIA of the use of pesticide (Kessomboon et al., 2001, Nathapindhu et al., 2004, Prapamontol et al., 2004, Wisutisamajarn et al., 2005, Sabrum, 2008).

The Water Resource Management thematic network focused on water resource management based on the policy provided and its further development based on health consideration. HIA studies conducted include HIA on water use and water pollution (Chantara et al., 2003, Inmuong et al., 2003, Wanjararat and Nathomthong, 2005, Khonted, 2008).



The Natural Resource Base and International Trade and Agreement thematic network focused on creating knowledge and public consciousness on resource values and management based on concerns about population health consequences. In addition, the knowledge gained was aimed to build capacity on providing healthy public policy and strategic planning for the country, based on sustainable development. Regarding this, networks among all parties/ organisations could be established, and more effective management of natural resources be achieved (Healthy Public Policy and Health Impact Assessment Program, 2003).

Regarding these themes, four strategies to develop HIA concepts in Thai context were considered in parallel: the aspects of HPP-HIA analytical framework; institutional framework development; facilitating critical mass for HIA implementation; and enabling an environment for the learning process (Phoolcharoen, 2005, Siwaraksa et al., 2004).

Regarding the HIA practice based on the thematic networks, during the pioneering phase of HIA in Thailand, it is suggested that HIA could bring about benefits as a participatory learning process for all sectors in its relevant context. The benefits for the HIA process could be knowledge that the public gained, an individual right recognition, and awareness that might lead to changes or improvement in action. For example, perspectives on public policy could have become concerned that it is the business of everyone, not just a specific group of people and HIA could be an assisting tool to achieve desirable public outcomes (Wiwatanadate et al., 2002). In addition, the public voice could also be heard via the HIA process to suggest what government should consider when creating public policy (Luecha, 2003, Ninwarangkul et al., 2004, Sabrum, 2005). It could be said that this is the initial stage of exploring how HIA practice could influence the strategic level of programme and plan formulation.

Furthermore, Sukkumnoed et al. (2008) considered that using various approaches, retrospective and prospective HIA could support policies and project development through a series of case studies in Thailand (or as it has been called co-evolution). For example; HIA of Mab Ta Phut industrial estate development; HIA of Pak Mun hydropower dam; and HIA of Wiang Hang coal mining project were conducted on the basis of retrospective research (Phoolcharoen et al., 2003). Prospective HIA can be seen partially in EIA reports under the assessment section on 'quality of life'. Details related to this issue, in terms of health determinants, in the EIA report are mostly derived from secondary data from related organisations. On the other hand, some primary data are obtained via interviews and participatory meetings with stakeholder groups. As the public gain a better understanding of the cause of impacts, they become more concerned about engineering activity development (Phoolcharoen, 2005).

It was also added that the HIA practice, via the case studies, has focused on local empowerment, for example, through the HIA processes for mining projects, river basin development, and energy development projects (Pengkam et al., 2006b, Khonted, 2008, Nuntavorakarn, 2006). This could support the concept that enhancing the learning processes and capacity building at the local level should be emphasised in HIA practice at the community-based level for the local empowerment (National Health Commission, 2007, National Health Commission Office, 2009c, National Economic and Social Development Board, 2007).

The second phase of HIA development in Thailand, **questioning time about HIA** occurred during 2004-2005 (before the National Health Act came into force in 2007). At that time there was no sign of the enforcement of the National Health Act while the activities associated with HIA development were not continued, meanwhile, different perspectives led to disagreement in various ways within the HPP-HIA key network. As such, it seems that HIA development in Thai society had little direction at that time.

Later on, cooperation on driving HIA through the network was reinitiated, leading HIA onto the next phase of development for Thailand (HIA Coordinating Unit, 2009). However, during this time, research reports about HIA practice and some relevant publications were released, for example, Kamkongsak and Maungthai (2005), Siwaraksa et al. (2004), Nathapindhu et al. (2004), Ninwarangkul et al. (2004), Pakamat et al. (2004), Prapamontol et al. (2004), Haesakul and Kuasirikun (2005), Kessomboon et al. (2005) and Srisakda et al. (2005).

Nevertheless, **a glorious time for HIA in Thailand** arrived during 2006-2009 when the National Health Act B.E.2550 (2007) came into force (Ministry of Public Health, 2007). This Act emphasises the human rights of individuals in terms of having good health, which raises awareness on health impacts that can be affected by any development in general and industrialisation in particular. Regarding the enforcement of the Act, a network of citizens in the eastern part of Thailand requested HIA for the expansion phase of a petrochemical project, in an eastern industrial estate, for the first time based on section 11 of the law to protect their rights to enjoy good health from the development (HIA Coordinating Unit, 2009). Later on, in the same year, the Thai constitution B.E.2550 (2007) was announced and adopted; section 67 of this law provides protection for population rights to enjoy their good health such that health impacts shall be assessed if development is proposed that might cause harm to their health (Thai Constitution, 2007, HIA Coordinating Unit, 2009). Therefore, HIA practice development for supporting the enforcement of the National Health Act B.E. 2550 (2007) was a priority that the HIA Coordination unit was assigned by the NHCO to be a key organisation for network cooperation of the HIA development in Thailand, as well as with other countries at international level (HIA Coordinating Unit, 2009).

When the 10<sup>th</sup> National Economic and Social Development Plan B.E. 2550-2554 (2007-2011) was announced, a brainstorming meeting examining

actions and roles of involved sectors on HIA was conducted for the first time in 2006, held by the National Health Commission Office (Nuntavorakarn et al., 2008). The result of the meeting is summarised in **Table 3.4**. The working agenda was divided into eight main aspects: HIA in EIA; HIA at community-based and local level; HIA for healthy public policy; HIA for international policy and agreement; knowledge base for HIA development; HIA in the National Health Act B.E. 2550 (2007); development of public communication system for HIA; and central coordination for HIA.

It was summarised that collaboration between all organisations were needed while key roles on different aspects would be contributed to each organisation (Nuntavorakarn et al., 2008). In the mean time, the organisations would have a support roles in some aspects with the core sector of the work agenda. The organisations taking part in this meeting comprised the HSRI, NHCO, Department of Health (Sanitation and Health Impact Assessment Division), Department of Disease Control (Occupational and Environmental Health Bureau), ONEP, King Prajadhipok's Institute (KPI), Thailand Environmental Institute (TEI), National Economic and Social Advisory Council (NESAC), and Healthy Public Policy Foundation (HPPF). **Table 3.4** shows that all organisations are expected to take part in HIA development based on multidisciplinary.

**Table 3.4** Work agenda and roles of relevant organisations on HIA development in Thailand

Work Agenda	Operating and Supporting Organisations							
	HSRI	HSRO (NHCO)	Dept. Of Health	Dept. Of Disease Control	ONEP	TEI/ KPI	NESAC	HPPF
1. HIA in EIA								
1.1 Development of guideline and manual for HIA in EIA	Support			Support	Core			
1.2 Application and assessment of good governance in EIA and other IA systems	Support			Support		Core		
1.3 HIA capacity building for relevant agencies and stakeholders in EIA process	Support			Core	Support			
1.4 Development of people manual for participating in the process of HIA in EIA				Support	Support	Support	Support	Core
2. HIA at community-based and local level								
2.1 Development of HIA tools for communities and the local	Support		Core				Support	Support
2.2 HIA development and application based on the Public Health Act B.E. 2535	Support		Core	Support				Support
2.3 Development of supporting mechanisms for HIA application at local level	Support	Support	Core	Support			Support	Support
2.4 Synthesis of HIA experience at community and local level	Core		Support				Support	Support
3. HIA for Healthy Public Policy								
3.1 Concepts and tools for HIA application at strategic level	Support				Support		Support	Core
3.2 Linkage of health with other dimensions	Support		Support				Support	Core
3.3 Development of alternative policy database	Support		Support	Support			Support	Core
3.4 Forums information exchange and policy deliberation	Support	Core					Core	Core
3.5 Development of concept and approach to policy process analysis	Support		Support					Core
3.6 Public policy development for health and environmental health promotion			Support					
4. HIA for international policy and agreement	Support						Support	Core
5. Knowledge base for HIA development								
5.1 Knowledge base on 'Ecosystem Health'	Core		Support					Support
5.2 Linkage of health with other dimensions	Core		Support					Support
5.3 Long-term capacity building of human resource	Core	Support	Support	Support	Support	Support	Support	Support
6. HIA in the National Health Act B.E. 2550 (A.D.2007)								
6.1 Supports to legislative processes	Support	Core					Support	Support
6.2 Structure development for HIA institutions	Support	Core					Support	Support
6.3 Supports to HIA application in Health Assembly at all levels	Support	Core						Support
7. Development of public communication system for HIA	Support		Support	Support	Support		Support	Support
8. Central coordination	Core	Core						Core

**Source:** Based on Nuntavorakarn et al. (2007) Remark: (ONEP), King Prajadhipok's Institute (KPI), Thailand Environmental Institute (TEI), National Economic and Social Advisory Council (NESAC), and Healthy Public Policy Foundation (HPPF).

Then, the first set of guidelines for health impact assessment within the EIA process was published in Thai (based on the HIA guidelines of Canada, Australia and European countries), by the ONEP in September 2007 (Office of Natural Resources and Environment Policy and Planning, 2007). Initially, practitioners were expected to use this guideline to perform HIA in the EIA process for particular projects, which needed to consider health impacts as potential consequences. However, the contents in the guideline were expected to evolve and will need a more sophisticated approach.

Subsequently, the National Health Assembly of Thailand has been established in December 2008 in the “Statute on National Health System: Direction to Healthy Public Policies and Social Well-Being” (National Health Commission Office (NHCO), 2008b). This Health Assembly is supposed to be a key mechanism for strengthening public participation for policy making based on health concerns (National Health Commission Office (NHCO), 2008a).

Since 2009, HIA development in Thailand has moved into a more **challenging time for HIA** (HIA Coordinating Unit, 2009). It was argued that HIA has received more attention from all stakeholders by turning it into practice and more application, for example, application of HIA process for industrial factories in an eastern seaboard industrial estate, Map Ta Phut (HIA Coordinating Unit, 2011). However, the way to make it clear how HIA could be a part of healthy public policy-making, rather than just a decision-making tool for project development, is an ongoing question for all organisations. Meanwhile, Thailand has contributed responsibility as part of driving HIA at international level among countries in the Association of Southeast Asian Nations (ASEAN).

### *Relevant legal regulations for HIA practice, application and implementation in Thailand*

When considering mechanisms directing HIA practice, it could be said that the National Health Act is a key mechanism that supports this movement while the National Economic and Social Development Plan tends to be a supporting device in clarifying how HIA is essential. In relation to the adoption of the National Health Act B.E.2550 (A.D.2007), **Table 3.5** summarises, in chronological order, key regulations related to HIA practice in Thailand.

As mentioned previously, in 2000, the National Health Act was drafted by the National Health System Reform Office (HSRO) (National Health Commission Office, 2011). Later on, it came into force in 2007 as the National Health Act B.E. 2550 (2007). This Act has established structures, to support the consideration of health in policy-making, through National Health Commission Office roles, a Health Assembly and a Statute on National Health System. Section 40-45 in the National Health Act B.E. 2552 (2007) provides guidance on conducting health assemblies as a participation process in which government organisations and the public can share their knowledge to contribute to healthy public policy making. There are three ways to conduct the Assembly; Area-based Health Assembly, Issue-based Health Assembly, and National Health assembly such that this process could lead to the achievement of healthy public policy based on social mechanisms and a participatory approach (National Health Commission Office, 2009a). The function of the Health Assembly would link with that of the National Health Commission Office based on the framework provided by the Act. For the system for national health Statute, section 46-48 of the Act stated that the National Health Commission shall provide the national health Statute as a framework for policy-making, concerning national health, in connection with the Thai Constitution and all

**Table 3.5** Legal regulations/declarations related to HIA practice in Thailand

<b>Year</b>	<b>Key Events</b>	<b>Key sector</b>
2000	National Health Bill was provided based on the concept of healthy public policy	National Health System Reform Commission, National Health System Reform Office (HSRO)
2007	National Health Act B.E. 2550 (A.D.2007) was enacted in March	HSRO (responsibilities transferred to NHCO later on when the Act became effective)
	Thai constitution B.E.2550 (2007)	Constitution of the Kingdom of Thailand
2008	'The guideline on assessing health impacts in Environmental Impact Assessment (EIA) process' was published	ONEP
2009	Declaration of National Health Commission Subject: Rules and Procedures for the Health Impact Assessment B.E.2552 (A.D.2009)	National Health Commission Office
	The Announcement of Thailand National Health Statute B.E.2552 (A.D.2009)	National Health Assembly
	Notification of the Ministry of Industry Re: Projects or Activities which may seriously affect community with respect to quality of environment, natural resources and health (2009)	Ministry of Industry
	Notification of the Ministry of Natural Resources and Environment Re: Rule, Procedure, Method and Guideline for Preparation of the Environmental Impact Assessment Report for Project or Activity which may Seriously Affect Community with respect to Quality of Environment, Natural Resources and Health (2009)	Ministry of Natural Resources and Environment
2010	The regulation of Prime Minister's Office on the coordination for the judgement of independent commission on projects or activities which may seriously affect community B.E. 2553	The Prime Minister Office
	Notification of the Ministry of Natural Resources and Environment Re: Guideline and regulations for Environmental Impact Assessment on the projects those might cause severe affects on health, environment and natural resources No.2, 16 September 2010 (in Thai)	Ministry of Natural Resources and Environment
	Notification of the Ministry of Natural Resources and Environment Re: Rule, Procedure, Method and Guideline for Preparation of the Environmental Impact assessment Report for Project or Activity which may seriously Affect Community with respect to Quality of Environment, Natural Resources and Health, 31 August 2010 (in Thai)	Ministry of Natural Resources and Environment
	Notification of the Ministry of Natural Resources and Environment Re: Environmental Impact Assessment regulations for the projects those might cause severe affects on health, environment and natural resources (statement of project types, scales, and regulations) No.2, 29 November 2010 (in Thai).	Ministry of Natural Resources and Environment



relevant sectors. This means there are directions provided for HIA practice and application in Thailand.

Referring to **Section 5** of the National Health Act B.E. 2552 (2007), “*A person shall enjoy the right to live in the healthy environment and environmental conditions. A person shall have the duties in cooperation with State agency in generating the environment and environmental conditions under paragraph one.*” (Thai Government Gazette, 2007b), it is implicitly suggested that any development conducted should be concerned about population health based on healthy policy or activities. This suggests that implementing HIA practice prior to the policy or project implementation should be the first possible consideration to undertake.

In addition, **sections 10** and **11** provide the rights of the public to be informed about the development that might bring adverse effects to their health, and rights to take part in the assessment process of health impacts as follows:

**Section 10** “*In the case where there exists an incident affecting health of the public, a state agency having information related to such incident shall expeditiously provide and disclose such information and the protection thereof to the public.*

*The disclosure under paragraph one shall not be done in such a manner as to infringe personal right of any specific person”* (Ministry of Public Health, 2007, p.4).

**Section 11** “*An individual or a group of people has the right to request for an assessment and to participate in the assessment of the health impact resulting from a public policy.*

*An individual or a group of people shall have the right to acquire information, explanation and underlying reasons from state agency prior to a permission or performance of a program or activity which*

*may affect his or her health or the health of community, and shall have the right to express his or her opinion on such matter.”(Ministry of Public Health, 2007, p.4).*

Jindawatthana and Sukkumnoed (2009) investigated the HIA concept based on the Act and suggested that HIA application could be flexible for stakeholders in the Thai context. They shared their views about HIA that *“The National Health Act intends HIA to be a social learning process, developed to allow all stakeholders in society to examine health impacts of policies, projects, and activities that may affect, or already have affected, a group of people, in order to support the most appropriate alternative through a public decision making process with the goal to protect and promote the health of all Thai people. HIA is both a social mechanism and a social process for applying a participatory approach to healthy public policy. Therefore, the institutional structure of HIA itself does not require a specific institute or administrative body. Rather, HIA should be applied by stakeholders in all sectors in order to protect and support the rights and the health of Thai people”* (Jindawatthana et al., 2009, p.18).

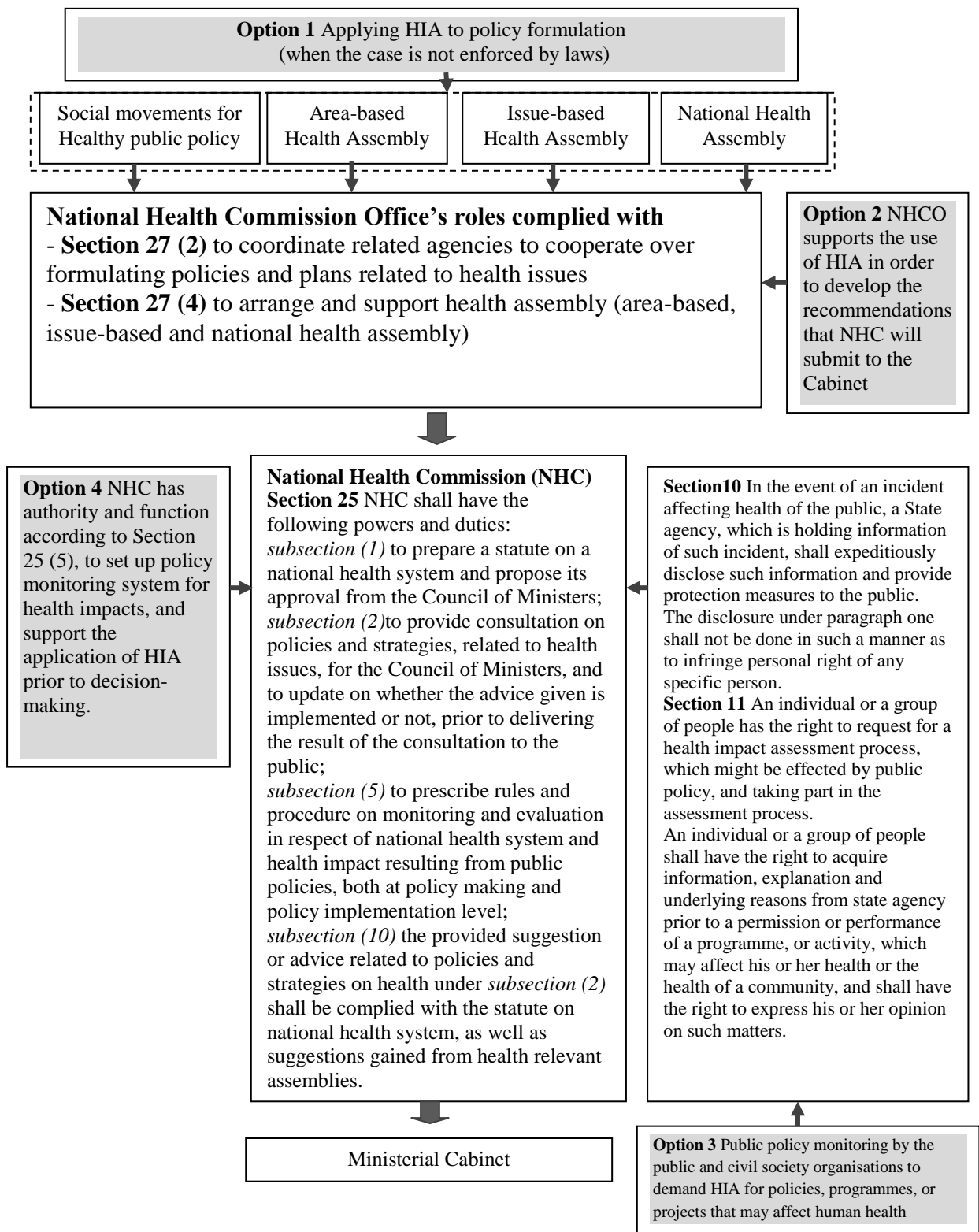
The text underlined above seems to emphasise that HIA is supposed to be a social process. This could imply that although the National Health Act has provided a way to apply HIA in Thai society, it was not compulsory to apply HIA to the decision-making process for project or policy development. It only stresses caution when serious impacts might occur towards the health of the population.

Jindawatthana and Sukkumnoed (2009) also claimed that *‘HIA itself does not require a specific institute or administrative body’*, which tends to contradict the framework stated in the National Health Act B.E. 2552 on the authorisation of the National Health Commission (section 25) and its infrastructure as the National Health Commission Office (section 26 -39 in Chapter III of the Act). It would be essential that a core institution should

exist so that it could be a mentor or coordinator in keeping HIA activities moving in the right direction under the regulatory framework provided. For example, as their own suggestion shows in **Figure 3.3**, the National Health Commission Office and National Health Commission have a key role in overseeing HIA implementation in cases where health impacts might occur.

In **Figure 3.3**, suggested by Jindawattana and Sukkumnoed (2009), there are four options where HIA practice in Thailand can occur, based on the National Health Act B.E. 2550. Firstly, HIA can be applied to policy-making via social movements and a health assembly when the issues are not enforced by law. Secondly, HIA can be applied when the National Health Commission agreed that the case might need HIA practice. Thirdly, HIA can be applied for public policy monitoring when those policies might affect human health. Finally, HIA practice can be introduced when the National Health Commission considers HIA is required for policy monitoring before the decision about the policy has been made.

Therefore, the regulatory framework initially provided tends to be a key mechanism for directing HIA into real practice, application and implementation.



**Figure 3.3** HIA application based on National Health Act B.E. 2550

Source: Adapted based on National Health Act B.E. 2550 (2007) and Jindawatthana and Sukkumnoed (2009)

Following the enactment of the National Health Act B.E. 2550, the Constitution of the Kingdom of Thailand was announced and the significance of health concerns that might be affected from any development was stated in **section 67** (paragraph 2):

*“....Any project or activity which may seriously affect the quality of the environment, natural resources and biological diversity shall not be permitted, unless its impacts on the quality of the environment and on health of the people in the communities have been studied and evaluated and consultation with the public and interested parties has been organized, and opinions of an independent organisation, consisting of representatives from private environmental and health organisations and from higher education institutions providing studies in the field of environment, natural resources or health, have been obtained prior to the operation of such project or activity.....”* (Thai Constitution, 2007, p.16-17).

This law directed all organisations to take consider the health impact from policy, project and programme development such that guidelines, declaration, announcements, regulations, and notifications related to health impacts were announced, considered, or came into force, as presented previously in **Table 3.5**.

In 2008, the guideline on assessing health impacts within environmental impact assessment was published (Office of Natural Resource and Environment Policy and Planning (ONEP), 2008) prior to rules and procedures for HIA on 2009 (National Health Commission, 2009a).

When the Declaration of the National Health Commission on Rules and Procedures for the Health Impact Assessment B.E.2552 (A.D.2009) was announced, terminology on HIA and public policy were formally defined in following paragraphs.

Referring to the original declaration (in Thai), Health Impact Assessment means “a learning process, cooperated by members of a society, in assessing negative and positive health consequences, which might be effected from policies or projects or activities, occurring in an area at times, on the basis of integrating relevant tools and public consultation to support decision-making, considering short- and long-term state of human health” (National Health Commission, 2009a, p.2).

In term of public policy, it was defined (in Thai) and translated (by the author) as “directions or guideline to be undertaken based on agreement made by society, as well as the policies formally declared by the national government” (National Health Commission, 2009a, p.2)

The declaration also stated that the process principles to conduct HIA should be based on democracy, equity, reliable evidence, appropriate practice, good collaboration, integrating holistic approach, and sustainability. The process for HIA has been divided into 4 categories: (1) HIA at project level that could affect the impacts on environmental quality, natural resources, and health; (2) HIA at public policy level performed by project or policy developer; (3) HIA at public policy level performed by the public institutions regarding the right to request following section 11 of the National Health Act B.E. 2550 (A.D.2007); and (4) HIA for capacity building at community level (National Health Commission, 2009a).

In addition, the Thailand National Health Statute B.E. 2552 (A.D.2009) was announced as a result of the first national health assembly based on the National Health Act B.E. 2552. This statute has been developed as a supportive framework for conceptualising health policy, health strategies, and health operational planning for the country (National Health Commission Office, 2009c). It has suggested the health promotion strategy based on healthy public policy and environment development as well as

community empowerment regarding sufficient economy and participatory cooperation.

The Ministry of Industry also announced the Notification of the Ministry of Industry Re: Projects or Activities which may seriously affect the community with respect to quality of environment, natural resources and health in 2009. Based on section 67 in the Thai Constitution, this notification emphasises the requirement that EIA and HIA, based on public consultation, shall be conducted prior to decision-making for project proposals, for some kinds of projects listed by the ministry in this notification (Ministry of Industry, 2009).

Similarly, the Ministry of Natural Resources and Environment announced notifications in 2009 and 2010. The Notification of the Ministry of National Resources and Environment Re: Rules, Procedures, Method and Guideline for Preparation of the environmental impact assessment report for project or activity which may seriously affect community with respect to quality of environment, natural resources and health was announced in 2009. This notification was also implemented based on the section 67 of the Thai Constitution to provide regulations and procedures for projects development. The annex of this notification set out the guideline for assessing health impact within the EIA process that the project developer and EIA practitioners are required to follow (Office of Natural Resource and Environment Policy and Planning (ONEP), 2008, Ministry of Natural Resource and Environment, 2009).

In 2010, the types of projects that might cause serious effects on the environment, natural resources and health were considered by an independent commission appointed by the Prime's Minister Office (The Prime Minister's Office, 2010). After the independent commission on environment and health submitted their resolution, the government made a decision, based on the suggestions from the National Environment Board.

Then the Notification of the Ministry of Natural Resources and Environment on EIA regulations for the projects that might cause severe effects on health, environment and natural resource (statement of project types, scales, and regulations) was announced (Ministry of Natural Resources and Environment, 2010).

However, to date, with reference to the relevant legislation, HIA is implicitly needed rather than explicitly required, which may motivate the Thai governmental infrastructure and related organisations to focus on the study and the way to use it properly. Regarding the health system reform and fundamental legal basis, the Department of Health was assigned to take principal action on HIA while the Department of Disease Control shall have a crucial role on health hazard control (Sukkumnoed et al., 2008). According to previous experiences and studies, implementation of health impact assessment in Thailand is still evolving (Phoolcharoen et al., 2003). At the present time, HIA is not compulsory on a legal basis completely, although its benefits are acknowledged (Sukkumnoed et al., 2008) while evidence of impact on environmental and health consequences are becoming more evident at many levels in Thailand. For example, regarding large scales of industrial estates located and operated in Map Ta Phut, local communities have experienced acute health impacts and anxieties regarding the long-term impacts, particularly on respiratory system diseases (Sukkumnoed and Tang, 2005). The acute health impacts occurred in 1997-2000 while the long-term impacts still cause worry to date.

Likewise, as defined in the Notification on HIA in healthy public policy B.E. 2552, HIA is a tool assisting decision making for healthy public policy; however, a social mechanisms and social processes are needed and could lead HIA to achieve its purpose as a tool in the decision-making process. This could be supported as the National Health Commission said that “*the approach for HIA pursues a social learning process in practice, rather than just in principle* (National Health Commission and Foundation, 2009, p.6).



Therefore, the HIA concept should be clarified and be considered with the basic purpose of HIA practice in Thailand, step by step. That means it could start from being a decision-making support tool and then it could be perceived by the public and relevant sectors such that it could become a social mechanism and learning process later on.

### ***Barriers to HIA implementation in Thailand***

As has been mentioned, HIA is expected to increase health benefits and decrease health inequalities, and the three main ways to establish this expectation comprise informing the decision making process, predicting the impacts of the decision, and getting involved with stakeholders in the decision-making process (Kemmer, 2005). Barriers to HIA implementation should be considered regarding experiences or problems within these components.

HIA development in Thailand could probably be impeded by various factors: limitation on authorised participation for local people, tensions among scientific and participatory interpretation, confusion as to using HIA as a means of local empowerment, possibility of using HIA for conflict resolution, and lack of clarity over using HIA as a tool for healthy public policy formulation and project development (Sukkomnoed et al., 2008). It is also critical that new governance structures under the health system reforms should be considered along with the direction of HIA development (Phoolcharoen, 2005) and its evaluation. Also, there has been agreement that knowledge management on HIA process and practice needs to be constructed for effective application, referring to a meeting in 2007 (Office of Natural Resource and Environment Policy and Planning (ONEP), 2007). Likewise, Thai researchers in the HIA field should also strengthen their capacity to understand and analyse the public policy process and formulation related to HIA as well as promoting coordination between key organisations (Sukkomnoed and Nuntavorakarn, 2005, Nuntavorakarn et al.,

2008). To summarise, barriers to HIA application in Thailand are: insufficient knowledge and information on environment and health issues; limited availability of time and resources for the HIA process; and the different capacity of various stakeholders to access and understand information (Quigley, 2005). These barriers tend to be influenced by insufficient legal regulations, as well as unclear policy statements for sustainable development, provided by different governments over time, while economic development has been mainly focused at policy level. Meanwhile, as presented in **Table 3.3**, it seems that national economic and social development plan seem to be taken into account in policymaking at a lower level than it should be.

However, in terms of potential for HIA development in Thailand, it could be said that Thailand has a supporting environment to promote HIA implementation and its development practice in the decision and policy-making process. This is because it has legislation concerning health impacts from project or policy development such as the National Health Act B.E.2550 (A.D. 2007) and Section 67 of the Thai constitution, followed by established guidelines and notifications for HIA application. The National Health Act has provided key institutions, for example, the National Health Commission and National Health Assembly, as drivers of policy on health in healthy public policy-making in Thailand.

HIA practice in Thailand emerged during the years 2000-2005 with research on various case studies related to development for energy, manufacturing, agriculture, water resources, urban development and transport. The HIA was considered as part of the focus of policy support and project development (Kessomboon, 2002, Siwaraksa, 2002, Sukkumnoed and Sae Tang, 2002, Thanh and Lefevre, 2000). However, full evaluation of the effectiveness of HIA in Thailand based on a research methodology approach has not taken place.

To this point, evaluation of HIA effectiveness from experience can be another key consideration to identify the causes of barriers to HIA and to consider how best to improve and strengthen the potential for HIA implementation in Thailand in the future. The next chapter will explain the background of effectiveness and conceptualise a framework for measuring the effectiveness of HIA.

### **3.6 Summary**

This chapter has provided an overview of HIA theory as well as HIA practice worldwide and in Thailand. It has demonstrated that while there have been many competing definitions and purposes of HIA proposed by different views of research scholars, considering what HIA is seems to depend on the methods and goals people envisage for HIA. It can be said that the context of the situation would be the key element considering what HIA is and what people expect from it as part of their society. Regarding this, they can apply the guideline provided theoretically as a methodology for HIA practice, and adopt it to fit with their context.

Experience from HIA practice worldwide suggests that various factors could lead to the improvement of HIA practice. These include the political contexts, legal regulation, the ways that people apply HIA, cooperation between sectors, public participation, resources used, perception, etc.

In the case of Thailand, HIA practice has been evolving during the past 10 years through the national economic and social development plans and related legal regulation partially provided. The National Health Act B.E. 2550 and the Thai Constitution are key drivers for HIA practice in Thailand. In addition, the Ninth and Tenth National Economic and Social Development Plan were also supportive drivers for HIA implementation in all organisations prior to the enforcement of the laws.

The HIA concept in Thailand tends to focus on HIA implementation at public policy and programme level as well as for project development through the EIA process. In addition, HIA at community-based level is also considered to support capacity building at the local level so that the local people can recognise their rights to health and to live in a pleasant environment.

For the future value of HIA in Thailand, it is essential that the effectiveness of HIA is evaluated to improve practice at all levels.

## **CHAPTER 4**

### **EFFECTIVENESS OF HEALTH IMPACT ASSESSMENT**

#### **4.1 INTRODUCTION**

It has been questioned whether HIA is an effective tool for decision-making processes (Quigley and Taylor, 2003), and some academics claim that HIA is just a ‘*slogan*’ (Erlanger et al., 2008). Regarding this, there has been insufficient evidence that key decision makers have considered HIA in policy making in developing countries. This suggests the need for a full-evaluation of the effectiveness of HIA, even though HIA practice has been increasing (Quigley and Taylor, 2004). In order to increase the understanding about effectiveness and its evaluation, this chapter will demonstrate contested definitions of effectiveness, which will draw on literature from the field of impact assessment, integrating SEA, EIA, SIA and HIA. Literature will be reviewed to conceptualise effectiveness in impact assessment (SEA, EIA, SIA and HIA) based on effectiveness categories.

#### **4.2 CONTESTED DEFINITIONS OF EFFECTIVENESS**

Effectiveness has been defined as “*the extent to which an activity fulfils its intended purpose or function*” (Harvey, 2004-2009). In addition, it has been defined as “*the quality of being able to bring about an effect*” (The American Heritage, 2000). Other dictionaries define “effectiveness” as the quality of having an intended or desired effect or result (Chambers, 1996, BBC English, 1993, Canadian Oxford, 1998, Collins English, 2007, Concise Oxford, 2008).

In addition, “effectiveness” is “*a matter of contribution that institutions make to solving the problems that motivate actors to invest the time and energy needed to create them*” (Young and Levy, 1999, p.3). Intended and

unintended effects of policies, projects and programmes could be identified as a result of effectiveness evaluation (Wimbush and Watson, 2000).

In the fields of impact assessment, effectiveness of these tools has been questioned widely in terms of how well it works, what are the outcomes resulting from impact assessment, and what factors lead to its successful implementation in various contexts (Cashmore et al., 2009).

There have been contested definitions to explain effectiveness of impact assessment tools as presented in **Table 4.1** with different interpretations and discourses considered based on the various purposes. Impact assessment tools: Strategic Environmental Assessment (SEA); Environmental Impact Assessment (EIA); Social Impact Assessment (SIA); and Health Impact Assessment (HIA); are designed to support decision-making in policy, plan, programme and project development with multiple purposes such as concerns on environmental or economic efficiency (Cashmore et al., 2009).

Firstly, in terms of SEA, effectiveness can be considered to be the contribution of its influence on decision-making processes in selecting the most appropriate option strategically based on sustainability measures (Partidário, 2000, Van Buuren and Nooteboom, 2009). As effective SEA should influence and add value in decision-making (Partidário, 2000), political issues are also the key influence which leads to effective functioning of SEA (Theophilou et al., 2010). This can help decision makers consider the strengths and weaknesses of policy-making and could make SEA become an influential tool for the assessment and planning process. The effectiveness of impact assessment is found to be influenced by expectations among involved actors (Theophilou et al., 2010). Also, the context of understanding and implementing SEA legislation and guidelines among actors has significant influence on the SEA effectiveness (Stoeglehner et al., 2009).

**Table 4.1** Some contested definitions of effectiveness among impact assessment tools

<b>Tool</b>	<b>Definition of Effectiveness in Impact Assessment</b>
SEA	<p><i>“a function of the extent it influences, and adds value, to decision making”</i> (Partidário, 2000, p.647).</p> <p><i>“a function of design, procedure, substance, as well as transaction, influenced by political issues”</i> (Theophilou et al., 2010, p.136).</p> <p><i>“the contribution of SEA to the selection of the most sustainable, environmentally friendly planning option”</i> (Van Buuren and Nooteboom, 2009, p.146)</p>
EIA	<p><i>“how well something works or whether it works as intended and meets the purposes for which it is designed”</i> (Sadler, 1996, p.37).</p> <p><i>“the potential outcome of a goal-directed process”</i> (Elling, 2009, p.129)</p>
SIA	<p>The quality of <i>“facilitating the political mobilization of affected communities and allowing the renegotiation of power relationships between affected groups, corporations and governments”</i> (O’Faircheallaigh, 2009, p.99).</p>
HIA	<p><i>“how HIA works, contributes and is accountable in public policy development based on resources used and stated aims”</i> (Taylor et al., 2003a, p.2).</p> <p><i>“how HIA contributes to positive changes in project and policy design that take account of the need to safeguard and enhance human health, and that they are cost-effective”</i> (Birley, 2003, p.313)</p> <p>the extent of <i>“achieving goals, impact on decision-making, and learning and changes in views”</i> (Kauppinen et al., 2006, p.1036).</p> <p><i>“the capacity to influence the decision-making process and to be taken into account adequately by the decision-makers”</i> (Wismar et al., 2008, p.15).</p>

However, the growth in SEA application has led to more complicated understanding of effective SEA (Bina, 2007). Theophilou et al. (2010) found that actors involved in the SEA process were uncertain about the achievement of its proposed goal, as were external researchers because of the multiple variables affecting the process.

Secondly, considering effectiveness of EIA, Sadler (1996) defined effectiveness based on how something functions to achieve the designed purposes. Elling (2009) emphasised the higher level of effectiveness as the result of a goal-directed process as well as cost-effectiveness in performing assessment processes which can also be considered within the sphere of effectiveness. EIA could be considered effective by being a driving force in decision making which could lead to positive change on project

management during the development phase (Hickie and Wade, 1998). However, Cashmore et al. (2009) considered that goals created by actors in impact assessment could possibly change when their understanding developed during the process.

Thirdly, in Social Impact Assessment (SIA), effectiveness is suggested to depend on its defined purpose and its context such that it can facilitate negotiation among stakeholders for good co-operations and political mobilisation (O'Faircheallaigh, 2009). For example, SIA application in Iran, in agricultural development projects, was evaluated based on policy context and its practice implementation (Ahmadvand et al., 2009). In this context, effectiveness was considered based on legislation of SIA, administrative arrangement for SIA practice across the country, SIA practice, SIA foundational measures, and SIA report quality. On the other hand, SIA can be considered as a tool to balance equity and positive understanding on social change, which is related to culture, religion, and politics (Burdge, 1990). It can be seen that regulatory authorities and potential stakeholders (project proponents and affected population) are key actors in providing effective SIA, comprehensively and rigorously, for public decision-makers (O'Faircheallaigh, 2009). Effectiveness viewed in this situation might sound different from effectiveness aspects in SEA and EIA, however, the effectiveness aspects in SIA could broaden the effectiveness concept of impact assessment processes when social consequences from development activities are considered. Meanwhile, in some circumstances, there are linkages following the environmental and social changes, for example, as mentioned by Sloopweg (2003), it has been found that SIA is included in the EIA process to provide perspectives on socioeconomic consequence regarding the development of a project or plan.

Concerning effectiveness aspects in HIA, Taylor et al. (2003a) and Birley (2003) stated that the effectiveness of HIA should be the extent to which HIA works and contributes to the changes of programme and public policy



development regarding human health enhancement, resources invested and intended aims. In addition, Kauppinen et al. (2006) added that effectiveness of human health impact assessment should consider the quality of achieving goals, its influence on decision-making, and learning and changes of actors' perspectives. Wismar et al. (2008) emphasised the capacity of HIA in influencing decision-making on policy and programme development as the determinant of effectiveness. According to the definitions reviewed, practitioners try to define the effectiveness of HIA based on the process (how well it works/ contributes), impact (influencing stakeholders decision-making) and outcome (learning and changes of views) (Birley, 2003, Quigley and Taylor, 2004).

However, considering the reviewed definitions of effectiveness in impact assessment, the definition cannot be defined constantly as different contexts might require different components of effectiveness. This can be supported by the idea that the impact assessment process allows stakeholders to have an opportunity to share their perspectives relating to purposes, goals, and effectiveness of the impact assessment, whatever their background is (Cashmore et al., 2009). This means the effectiveness of the impact assessment process depends on the context and key role in participation among key actors and stakeholders (O'Faircheallaigh, 2009, Stoglehner et al., 2009, Jha-Thakur et al., 2009, Therivel et al., 2009). In addition, the participation between stakeholders is a key driving-force influencing final decision-making (Joffe and Mindell, 2005).

#### **4.3 CATEGORIES OF EFFECTIVENESS AND CONCEPT OF EVALUATION IN IMPACT ASSESSMENT**

This section demonstrates the review of effectiveness categories along with the concept of evaluation for the effectiveness of impact assessment tools. Descriptions for effectiveness categories are clarified based on experience of measuring the effectiveness gleaned from the literature. The concepts of

evaluation for HIA are reviewed based on learning experience from previous studies and other impact assessment fields. Then, the concept of effectiveness of HIA is defined to set the context for this study.

Defining categories of effectiveness is a useful approach for determining effectiveness (Theophilou et al., 2010).

In addition, based on the literature of effectiveness relevant to impact assessment fields, effectiveness can be categorised into 4 types; procedural, substantive, transactive, and normative effectiveness. Sadler (1996) divided effectiveness for environmental assessment into three categories; procedural, substantive, and transactive. He suggested that procedural effectiveness means that the assessment complies with acceptable standards and principles, substantive effectiveness shows the achievement of expected objectives, and transactive effectiveness is the outcomes obtained with least cost in the minimum time frame. Similarly, Bina (2007) argued that the effectiveness of SEA can be improved when its key concepts are based on strategic aims, procedure, and purpose. In addition, Baker and McLelland (2003) added normative effectiveness for considering achieved purpose at policy level for its adjustment and improvement in the future, for example, promoting sustainable development is expected to be a normative goal in implementing policy on public participation in environmental assessment. Regarding this justification, the characteristics of effectiveness based on its categories in the field of impact assessment are presented in **Table 4.2**.

*Procedural effectiveness* relates to the principles governing impact assessment processes (Sadler, 1996). To measure procedural effectiveness of practice, consideration of the way in which policy or procedures were implemented is required, in this context, this means determining how the environmental assessment process was implemented regarding mining development (Baker and McLelland, 2003). Bina (2007) added that the effectiveness should be able to frame the methodological dimension as well

as develop the process based on implemented techniques. Furthermore, it was stated that findings and information as a result of an effective impact assessment report, for example, for an SEA process, should be clear and robust enough when delivered to decision-makers (Therivel, 2010).

*Substantive effectiveness* relates to be the achievement of the agreed objectives set on implementing the impact assessment tool to inform decision-makers (Sadler, 1996). Likewise, Baker and McLelland (2003) suggested that substantive effectiveness is the performance obtained when the practice, for example, policy implementation or procedures used, is completed regarding the objectives set. Also, Theophilou et al. (2010) emphasised that substantive effectiveness is demonstrated when changes are made to the policy, plan, or programme being assessed.

*Transactive effectiveness* is the achievement of outcomes, when cost and time are considered, as the minimum investment or when the outcomes are efficient (Sadler, 1996). In addition, proficiency in using resources to achieve the objectives should be examined to assess the effectiveness (Baker and McLelland, 2003). Transactive effectiveness should be able to indicate whether efficiency is achieved and includes the skills and roles of human resources (Theophilou et al., 2010).

*Normative effectiveness* relates to the achievement of normative goals (Baker and McLelland, 2003). These goals could be incremental changes in institutions, organisations, philosophy, science and culture that could bring about changing consent and decision making (Cashmore et al., 2004). The result obtained could be the evidence of the contribution towards achieving sustainable development, as mentioned in the sense of SEA (Bina, 2007).

**Table 4.2** Effectiveness categories and descriptions from the literature

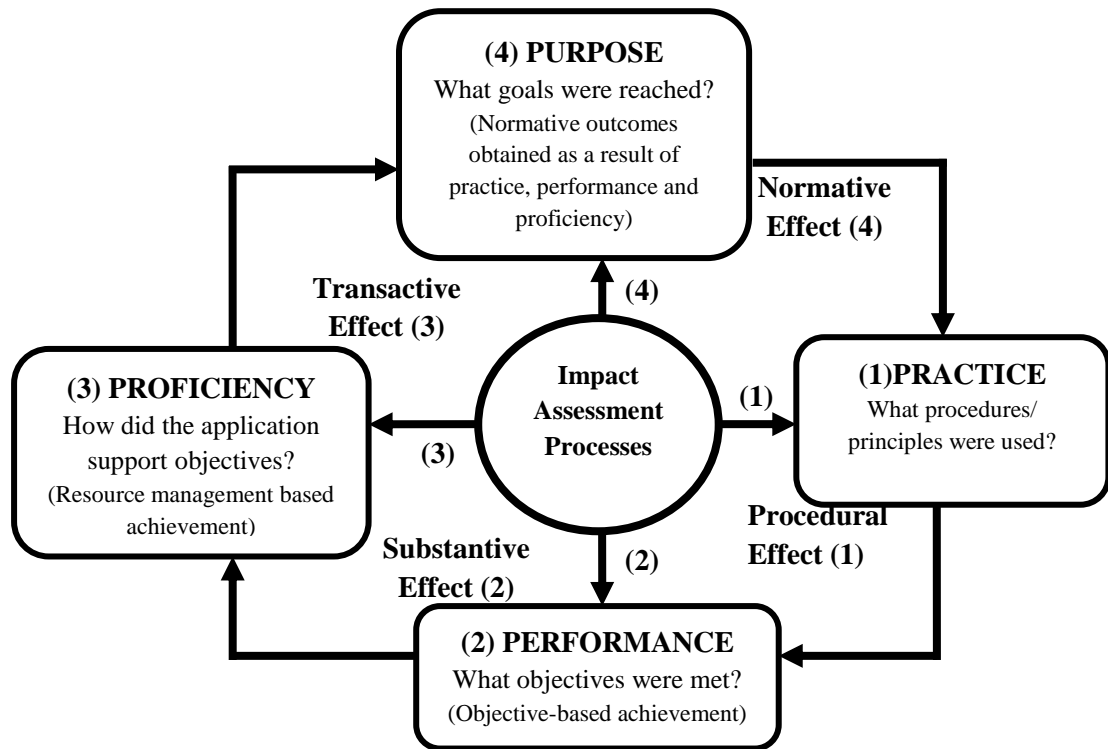
Effectiveness	Characteristic
Procedural Effectiveness	<p><i>“Does the EA (environmental assessment) process conform to established provisions and principles?”</i> (Sadler, 1996, p.39)</p> <p><i>“Examination of the practice involves finding out how the policy was applied or what procedures were used ”</i> (Baker and McLelland, 2003, p.585)</p> <p>The process is related to <i>“The framing of SEA’s methodological dimension in response to perceived limitation in EIA practice, and the growing emphasis on process versus technique”</i> (Bina, 2007, p.587)</p> <p><i>“As an input to decisions about strategic actions, effective SEA must provide decision-makers with robust, clearly presented information about the environmental impacts of their plan and the rights”</i> (Therivel, 2010, p.39)</p>
Substantive Effectiveness	<p><i>“Does the EA process achieve the objectives set, e.g. support well – informed decision-making and result in environmental protection?”</i> (Sadler, 1996, p.39)</p> <p><i>“Examination of performance involves finding out what objectives were met as a result of the application (the practice) ”</i> (Baker and McLelland, 2003, p.586)</p> <p>The output is related to <i>“The strategic dimension of SEA, originally linked to the paucity of environmental type assessments of policies, plan and programmes (PPPs)”</i> (Bina, 2007, p.587)</p> <p><i>“Does it answer whether integrated environmental decision-making is achieved? And does it refer to performance?”</i> (Theophilou et al., 2010, p.139)</p>
Transactive Effectiveness	<p><i>“Does the EA process deliver these outcome(s) at least cost in the minimum time possible, i.e. is it effective and efficient?”</i> (Sadler, 1996, p.39)</p> <p><i>“Examination of proficiency involves finding out how resources were used in achieving objectives ”</i> (Baker and McLelland, 2003, p.586)</p> <p><i>“Does it answer whether efficiency is achieved and does it refer to proficiency?”</i> (Theophilou et al., 2010, p.139)</p>
Normative Effectiveness	<p><i>“Examination of the purpose involves finding out what normative goals are realised ”</i> (Baker and McLelland, 2003, p.586)</p> <p><i>“the contribution of EIA to consent and design decisions can be viewed resolutely as one component of incremental changes in institutions, organisations, philosophy, science and culture”</i> (Cashmore et al., 2004, p.306)</p> <p>The output is to relate to <i>“The purpose of SEA and the increased reference to the contribution to sustainable development”</i> (Bina, 2007, p.39)</p>

Considering relationships of effectiveness categories, Theophilou et al. (2010) proposed that substantive effectiveness might influence transactive

effectiveness. In addition, they identified relationships between substantive and transactive effectiveness and suggested that they have an essential linkage to one another; however, transactive effectiveness might be more difficult to determine and achieve.

In addition, Baker and McLelland (2003) suggested that evaluating effectiveness components of policy could start from practice, performance, proficiency and purpose in a circular effectiveness cycle, respectively. The procedural effect, substantive effect, transactive effect, and normative effect can be determined based on these components.

Based on perspectives on effectiveness categories, mainly proposed by Sadler (1996), Baker and McLelland (2003), and Theophilou et al. (2010), **Figure 4.1** is developed in this study to conceptualise effectiveness categories of impact assessment processes. Regarding this, it can be justified that when the impact assessment process is conducted, the procedural effect could depend on the way that procedures or principles have been applied in practice. Once the result of the implementation post-decision-making are clear in relation to the original set objectives for the impact assessment process, the performance from a substantive perspective can be established. Meanwhile, the proficiency of resources managed in the practice and performance process could represent the transactive effect. Finally, as a result of the practice, performance and proficiency, a normative effect could be achieved to serve a purpose or set goals at a higher level. The relationship among these effectiveness variables is an important point to investigate while very few studies have done this (Theophilou et al., 2010).



**Figure 4.1** Components of effectiveness in impact assessment lens

**Source:** Developed based on Baker and McLelland (2003), Sadler (1996), and Theophilou et al. (2010)

Concerning measuring effectiveness of impact assessment, some research scholars use the term “evaluation” to investigate how they measure effectiveness. “Evaluation” has been defined as the way to gather data or information, systematically, which leads to the investigation of value or effects resulting from plan, programme, or policy implementation so that it can be assessed based on set goals (Quigley, 2005). In addition, Owens et al. (2004) defined ‘appraisal’, or ‘evaluation’, as the way to forecast the effects of human activities. The effect could be good or bad, direct or indirect, and internal or external (Young and Levy, 1999). Evaluation of practice could help to influence decision-makers in policy adjustment, bringing about desirable outcomes, and developing appropriate legal regulation (Owens et al., 2004).

For HIA, various dimensions can be used to evaluate its effectiveness. Taylor and Quigley (2002) and Birley (2003) suggested that HIA could be evaluated based on its process, impact prediction, and outcome. Quigley and Taylor (2003) recommended that the evaluation process for HIA could be applied for any public health intervention. For example, evaluating programme development based on policy-making, planning, operation, and research that could help achieve 'evidence-based health promotion' (Wimbush and Watson, 2000). The value of a project or intervention, such as HIA, could be judged based on systematic approaches called an evaluation process to show how effectiveness is achieved (Taylor et al., 2003b). The evaluation might focus on the HIA value in terms of process criteria and outcome criteria of the three domains; prediction, participation, and informing the decision-makers (Parry and Kemm, 2005). Health benefits for the population are expected to be the result of using HIA (British Medical Association, 1998). HIA evaluation attempts to prove how HIA could bring about effective decisions (Kemm, 2007b).

Evidence which shows how HIA informs decisions and builds key capacity in individuals, communities, and institutions, could demonstrate its effectiveness (Elliott and Francis, 2005, Bekker et al., 2004). In addition, evaluation of HIA could be a process to show how it influences the decision-making process in terms of health promotion and balancing the inequalities (Quigley and Taylor, 2003). The HIA should be monitored and evaluated so that the findings and key lessons experienced could contribute to improving its effectiveness in terms of what factors could make it work (Taylor and Quigley, 2002). Reflection from completed HIAs could be one key to improve its effectiveness for the subsequent practice (Kemm, 2005).

Regarding the effectiveness categories and associated definitions, as well as the evaluation concept reviewed for considering HIA effectiveness, it could be said that effectiveness might develop within a cycle or numbers of cycles of project/ policy/ or programme development when HIA is applied. The

cycle comprises the step of input, process, output, and outcomes/ or consequences. The practice within a cycle could develop to the next cycle, depending on the requirements of the project/ policy/ or programme being conducted. This can be supported by Yin (2012) that numbers of sequences of a '*logic model*' (inputs, activities, outputs, and outcomes) could be found through the connections of processes and outcomes, when evaluating a case and this could depend on the case context and its complication.

Considering the effectiveness of HIA in this research, when applying HIA in decision-making of policy/ project/ or programme development, planning for the HIA process in terms of its principles regarding its purpose in use and resources needed can be provided as an input of the development cycle. This means basic effectiveness; procedural; substantive; and transactive can be measured even from the first step (input stage) of applying the HIA to the development.

**Figure 4.2** represents the concept of how the effectiveness of HIA can be observed, when it is applied in the consideration of the development of projects/programmes/ policies, through the four categories of effectiveness: procedural; substantive; transactive; and normative.

First, procedural effectiveness can be observed from three main stages of the project/policy/ programme cycle: input; process and output in terms of context and resource, principles provided as a guideline or regulation for HIA practice, and results of the practice or findings, respectively. Once the findings from the IA process is considered applied by relevant people, for example, in decision-making process or in driving policy as an evidence, this could be counted as outcomes or consequences as a result of procedural effectiveness.

Second, in substantive effectiveness, setting aims can be provided as an input prior to the practice within the process that might bring some benefits

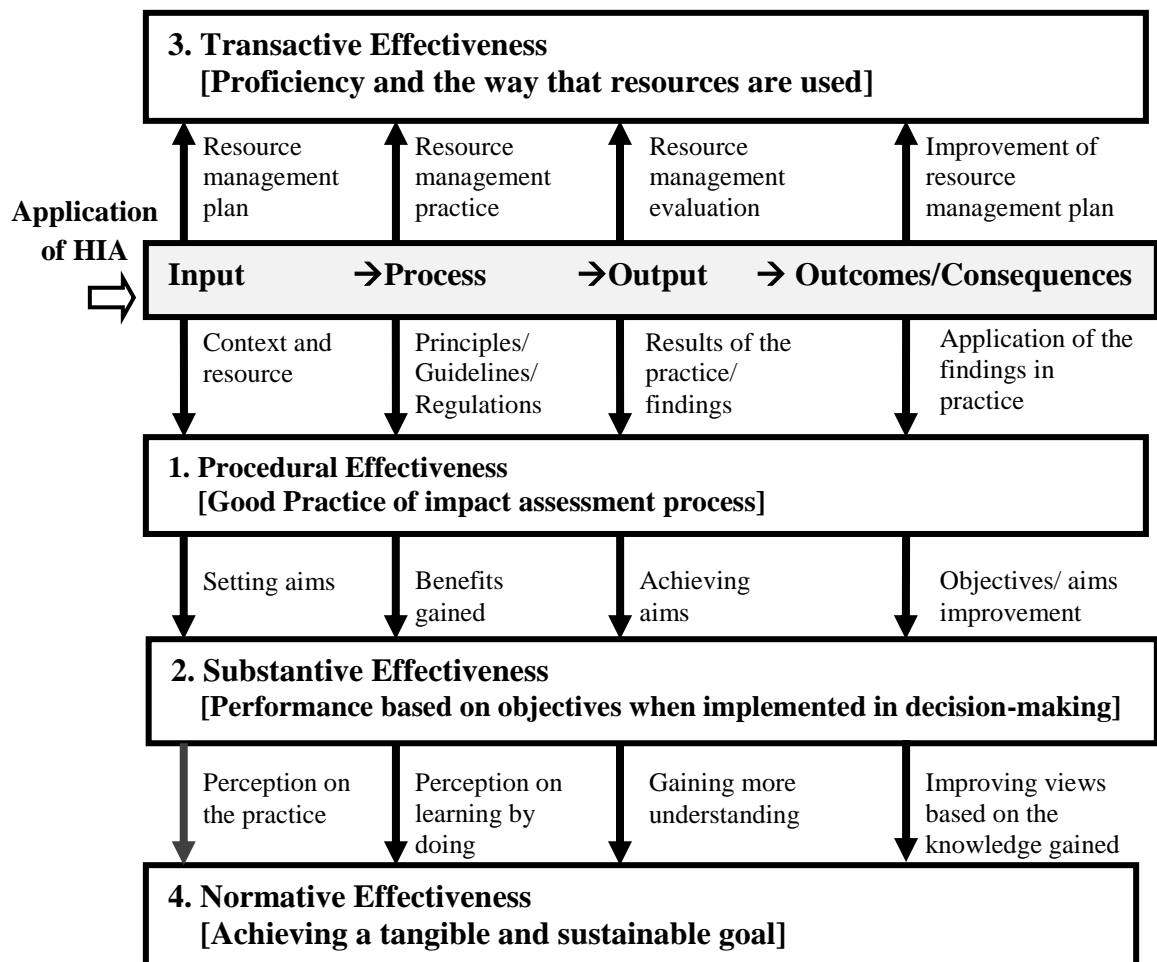


to sectors that get involved with HIA practice and application such that they can achieve aims as an output, and this could lead to the improvement of the aims as an outcome.

Third, transactive effectiveness can be measured based on resource management plan provided at the beginning as an input, resource management practice at the process stage, the output stage that reveals resource management evaluation, and this could lead to the improvement of resource management plan as an outcome in the transactive category.

Finally, normative effectiveness can be researched through the perception on HIA practice and its application/ implementation at the input stage, which could possibly be found at the first cycle or later on in the following cycles. Then, in the process stage, learning by doing experience could change people's perceptions such that more understanding can be gained at the output stage. The improvement of perspectives perceived could possibly lead to more sustainable goals as defined normatively.

However, determining effectiveness depends on the context (Young and Levy, 1999, Jha-Thakur et al., 2009, O'Faircheallaigh, 2009, Stoeglehner et al., 2009, Therivel et al., 2009, Theophilou et al., 2010) where different categories of effectiveness tend to have interconnections between each other (Theophilou et al., 2010).



**Figure 4.2** Effectiveness of HIA based on the conceptualised criteria framework when applying in logical cycle of policy, project, or programme development

Regarding **Figure 4.2**, it could imply that there are links between the effectiveness categories. For example, effectiveness could be developed step by step, good practice could lead to good performance prior to good proficiency as represented in procedural, substantive, and transactive effectiveness, respectively. Beyond the basic three categories of effectiveness, normative goals could be achieved from each step based on the result of practice, performance, and proficiency within a particular context.

The concept of effectiveness created in **Figure 4.2** will be used as the main consideration for determining HIA effectiveness in this study. In addition, it is essential to establish a definition for effectiveness of HIA based on the reviewed definitions and effectiveness categories, combined with definitions of HIA for the context of this study.

According to the definition of HIA created in this study, HIA is a process and tool assisting decision-makers in considering project or policy development activities based on quantified and qualified health impacts, tending to affect populations, when activities occur. The population health effects to be considered should include physical and mental health, based on the health determinants context, which should reflect the wellbeing of the whole and parts of the populations to identify inequities.

Therefore, **“effectiveness of HIA”** in this study means, **“the extent to which the HIA process works (procedurally), and contributes to decision-making of project/ programme/ policy development, and gains the acceptance and satisfaction of key stakeholders, on the basis of resources used (transactively), intended aims (substantively), and how they can learn and change their views when HIA is implemented (normatively)”**.

This definition will be used as the benchmark against which to evaluate the effectiveness of HIA in Thailand.

#### **4.4 FACTORS INFLUENCING THE EFFECTIVENESS OF IMPACT ASSESSMENT**

Factor means *“An element in the composition of anything, or in bringing about a certain result; a fact, etc which has to be taken into account or which affects the course of event”* (Chambers, 2003, p.534). It is *“a circumstance, fact, or influence contributing to a result”* (Concise Oxford,

2008, p.509, Canadian Oxford, 1998, p.496, Oxford Reference, 1986, p.290). The result influenced by the factor could be “*an event, decision, or situation*” (BBC English, 1993, p.394). In addition, factor is “*one that actively contributes to an accomplishment, a result, or a process*” (American Heritage, 1993, p.489).

This section identifies some of the factors influencing the effectiveness of impact assessment based on experience drawn from evaluation of strategic environmental assessment (SEA), Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), and Health Impact Assessment (HIA). This will form the basis for the derivation of criteria within a framework to evaluate the effectiveness of HIA to be used in this research structured, around the four effectiveness categories.

#### **4.4.1 Factors influencing procedural effectiveness**

Procedural effectiveness considers the principles and practice of the impact assessment process (Sadler, 1996, Baker and McLelland, 2003). The effectiveness can be measured based on the practice of impact assessment which shows how the policy is applied in the process as presented in **Figure 4.1** (Baker and McLelland, 2003).

Based on the literature, factors influencing procedural effectiveness of impact assessment processed could be political framework, political context, active public participation, availability of resources for HIA practice, and lessons learned from experiences.

*Political framework for impacts assessment* is likely to be a fundamental mechanism in providing the scope or regulatory framework for the practice of impact assessment such as, for example, a national plan, legal regulations, or basic guidelines for practitioners (Caussy et al., 2003, Bekker et al., 2005). The guidelines or performance standards provide fundamental

principles, which influence the quality of impact assessment practice. Procedural effectiveness could be examined regarding the procedural principles suggested in the policy (Baker and McLelland, 2003). In addition, Ahmadvand et al. (2009) proposed that legal regulations could significantly influence the effectiveness of performing the SIA.

For example, the International Association for Impact Assessment (IAIA) has provided an SEA performance standard for considering the effectiveness of SEA and indicated that it should be integrated, sustainability-led, focused, accountable, participative, and iterative (IAIA, 2002). Nooteboom (2007) suggested that effective procedures in impact assessment should relate to sustainability. In addition, Hickie and Wade (1998) said that procedures and guidelines for use in the environmental assessment process should be revised so that understanding of the assessment can be conveyed among EA professionals and decision-makers. This can lead to the improvement of EIA effectiveness as well as the support of capacity building in EIA practice (Waldeck et al., 2003). Moreover, research by Stoeglehner et al. (2009) has shown that implementation with understanding of SEA guidelines and regulations is a crucial factor leading to the improvement of its effectiveness as well as the links within SEA planning activities and ‘ownership of the SEA process’ among the plan-makers.

*Political context on impacts assessment* in terms of decision-making process, integrating the impact assessment with planning process, regulatory frameworks and collaboration among institutions could influence an achievement of procedural effectiveness. For example, decision-making on the specific SEA methodology to apply could help practitioners make SEA effective in its particular context (Fischer and Gazzola, 2006). In addition, Stoeglehner et al. (2009) suggested that integration of SEA in the planning process as well as developing their links could help improve the effectiveness.

To integrate SEA into the framework for policy making and implementation so that it could influence and add value to SEA in the decision-making process was also suggested by Partidário (2000). This framework provides the elements for SEA based on the questions why, who, what, and how to do the SEA. Answering these questions could measure the value of SEA in terms of procedural effectiveness. For example, who gets involved with the SEA process, what are the key values of the process, why SEA is needed and how to conduct SEA regarding the assessment. According to this, the frameworks tend to help practitioners create the criteria for assessment, identify options, investigate communication mechanisms, look for existing guidance, and provide quality control mechanisms.

Similarly, SIA studies suggested that the effectiveness of implementing SIA depends on the policy context such as institutions influencing SIA function (Ahmadvand et al., 2009). The SIA should contribute benefits to both project proponents and affected populations (Burdge, 1990). Teamwork with close collaboration could support implementation of environmental information gained into the planning process of the assessment (Van Buuren and Nootboom, 2009). In HIA experience, a case study on the effectiveness of human health impact assessment in Finland, using the criteria suggested by Parry and Kemm (2005), found that the effectiveness could increase when organisations implement the assessment as part of its activities, as it helped decision-makers to comprehend the assessment perspectives (Kauppinen et al., 2006). Caussy et al. (2003) also suggested to consider institutional infrastructure, capacity building mechanism, and intersectoral collaboration when assessing the procedural effectiveness of HIA.

In addition, environmental offsets provided as compensation in mitigation measures could also lead to the improvement of EIA effectiveness (Wende et al., 2005, Morrison-Saunders and Hayes, 2007).

It is believed that effectiveness of EIA can be achieved when it '*makes thing different*' because decision-making and environmental impact protection are improved (Sandham and Pretorius, 2008). It tends to gain wider perspectives and rationality when the impact assessment process is separately conducted in parallel with the decision making process (Elling, 2009).

***Availability of financial resources for HIA practice*** is likely to be another essential factor in conducting HIA (Ardern, 2004). Without doubt, this could influence capacity in achieving procedural effectiveness of HIA significantly. It has been suggested by the Merseyside Guidelines for HIA that the budget for HIA practice should be separated from the project fund (Ardern, 2004, Scott-Samuel et al., 2001). However, based on the review of relevant factors towards procedural effectiveness, it could be suggested that the political framework in terms of national plan or policy making, regarding healthy public policy, can be another driving force in allocating funds for HIA research and practice so that experience of HIA practice could be gained to develop its procedural effectiveness.

***Public Participation*** in the impact assessment process tends to influence procedural effectiveness as a supporting mechanism. For example, in the SIA process, Dreyer et al. (2009) suggested that integrating social concerns or performing public consultation could help conceptualising what and how the consequences of the development could be determined. Similarly, stakeholder engagement was emphasised as being essential for an EIA process (Del Furia and Wallace-Jones, 2000). It was suggested that a lack of public participation, such as an SEA case study in China, could lead to ineffective planning for environmental assessment (Zhu and Ru, 2008). Accessibility of information, fairness, and transparency in public hearings was argued to lead to the achievement of procedural effectiveness in environmental assessment policy making (Baker and McLelland, 2003, Harris-Roxas, 2009). In addition, identification and involvement of key

stakeholders could be one of the indicators demonstrating the effectiveness of HIA (Quigley and Taylor, 2004).

*Lessons and experiences* learned from impact assessment practice and evidence could lead to the improvement of procedural effectiveness. Development of HIA practice could be achieved when the means of approaching to HIA practice has been refined from time to time, cases to cases (Taylor et al., 2003a). This could imply that experience and contribution when all parties get involved with HIA practice and its application, regarding their roles and responsibility, could help improving practice of the impact assessment process. Furthermore, it is important to make HIA evidence understandable such that HIA can be beneficial to decision making (Bekker et al., 2005). This means HIA practitioners' experience and the lessons they have learned from conducting the HIA could be fundamental elements leading to improving HIA practice and evidence as an effective output of the HIA process.

In term of evidence for HIA, in Europe, a report on the effectiveness of HIA on the scope and limitations of supporting decision-making was released to share actual practice of HIA case studies across Europe, so that all relevant actors can see and learn from its diversity in different contexts (Wismar et al., 2007b). These case studies considered HIA effectiveness based on health, equity, and community (Wismar et al., 2007a).

Bekker et al. (2005) suggested that user satisfaction and knowledge gained from HIA could have a positive influence on decision-making. This satisfaction could be measured from procedural effectiveness in terms of capability in solving problems, policy development, and relevant context consideration such as laws and regulations. This means policy context, process and strategies, techniques, and scientific framework for the assessment should be borne in mind by the practitioners so that the effectiveness of the tool implementation can be improved. According to



this, designing criteria for measuring the effectiveness should be considered based on evidence review and the context of the case study.

#### **4.4.2 Factors influencing substantive effectiveness**

Substantive effectiveness can be considered based on the extent to which set aims can be obtained when applying something, such as impact assessment tools or policy, in practice (Sadler, 1996, Baker and McLelland, 2003). Theophilou et al. (2010) suggested that it is relevant to performance, likewise, Baker and McLelland (2003) advised that substantive effectiveness can be measured based on the performance in relation to the achievement of objectives (**Figure 4.1**).

The literature suggests that the achievement of substantive effectiveness could depend on several factors, such as, regulatory framework, mechanism in decision-making context, public participation, and quality of impact assessment report.

*Regulatory framework* seems to be an essential priority to consider when implementing HIA or other impact assessment process into decision-making. For example, Partidário (2000) suggested that legal requirement and the need for SEA is a basis to consider when setting the objectives for implementing the SEA. Furthermore, Bekker et al. (2005) also considered legal requirement as one of the criteria for determining the substantive effectiveness of HIA.

*Decision-making context* in implementing impact assessment in the decision-making process could significantly influence the achievement of substantive effectiveness.

With reference to the field of impact assessment, it has been suggested that the main aims of SEA are to support sustainable development and improve

project EIA in terms of influencing decision-making for best practice consideration and protecting adverse impacts from the development (Sadler, 1998). For EIA, it was suggested to have clear objectives of sustainable development so that its effectiveness could be strengthened (Jay et al., 2007). However, mechanisms through the EIA process which lead to sustainability are so diverse that the practices need to consider a reflection of its purposes, methods, and context (Cashmore, 2008). This demonstrates that further study on substantive effectiveness is required.

For lessons from HIA, the substantive effectiveness could be determined based on how well HIA worked in terms of recommendations being accepted or rejected, achieving the objectives of HIA, and other associated impacts of HIA (Taylor et al., 2003a).

Regarding decision-making influence, Van Buuren and Nootboom (2009) considered that SEA could become effective in terms of influencing the final decision rather than being judged solely on an SEA specific report, however, it is important to study how the SEA contributes to the decision-making process in terms of investigating its mechanisms.

Theophilou et al. (2010) advised that supportive mechanisms to achieve the effectiveness substantively could be considered from the performance changed when SEA has been informed in decision-making based on close collaboration among institutions and sectors, its early start, parallel development, and statutory consultation. Similarly, evidence of effective cooperation, more concern over health issue at the local level, implementing HIA in decision-making and its influence, concerning HIA recommendations among decision-makers, and implementing changes for the proposal could lead HIA to achieve its substantive effectiveness (Quigley and Taylor, 2004, Bekker et al., 2005).

In addition, Stoeglehner et al. (2009) raised the possibility of using dimensions of effectiveness, democratic and environmental, as an idea for analysing SEA effectiveness. They argued that substantive effectiveness could be achieved directly through the democratic dimension when political options that support environmental objectives are implemented in decision-making, and this decision leads to SEA practice and implementation based on the legal framework. On the other hand, in the environmental dimension, substantive effectiveness could be addressed when environmental quality is improved and the environmental knowledge is included in the planning and decision-making process whereby the plan is adjusted when negative impacts tend to occur (Stoeglehner et al., 2009). However, Van Buuren and Nootboom (2009) considered that the influence of SEA on deciding options in a particular policy context remains unclear regarding various views of information among stakeholders based on their own context.

***Stakeholder and public participation*** could influence the decision-making context in terms of taking findings from impact assessment processes into account regarding the public voice. For example, in the SIA case, public involvement through an interactive community forum could strengthen SIA in informing decisions (Becker et al., 2003). In addition, Kauppinen et al. (2006) determined substantive effectiveness of human impact assessment regarding how general goals set by stakeholders were achieved. The general goals of the human impact assessment process were set based on the literature while the set goals could be explored by interviewing different actors. Also, agreement among stakeholders was suggested to determine the substantive effectiveness of HIA by Bekker et al. (2005).

***Quality, accuracy, and understandability of the impact assessment report*** could lead to substantive effectiveness in term of achieving robust decision-making. Improving the quality of impact assessment with more common sense could help practitioners and regulators or decision makers understand the contents for relevant consideration (Ross et al., 2006). Some authors

regard good quality of the EIA report as essential for improving the effectiveness of EIA (Sandham and Pretorius, 2008). Also, in terms of performance regarding HIA implementation in decision-making, expected consequences for substantive effectiveness are not only policy adjustment but also the impact prediction accuracy (Petticrew et al., 2007). This could help decision-makers develop effective policies, plans, or programmes.

In addition, referring to a study by Kauppinen et al. (2006), it was found that understandability of the HIA concept and its benefits could strengthen substantive effectiveness when organisations integrated HIA in their activities or considerations. In addition, Petticrew et al. (2007) suggested that credibility of HIA and satisfaction on implementing it are also necessary in supporting substantive effectiveness (Petticrew et al., 2007). However, the extent to which HIA influences decision-making is not clear so that more evaluation of HIA effectiveness would be helpful to clarify this (Ali et al., 2009).

In summary, the factors influencing substantive effectiveness are regulatory framework, mechanisms in decision-making context, availability of stakeholder and public participation, and the way that decision-makers understand the impact assessment report based on its acceptable quality and accuracy.

#### **4.4.3 Factors influencing transactive effectiveness**

Transactive effectiveness is achieved when resources in term of actors, cost and time are invested at the minimum level to achieve the objectives set or efficient outcomes (Sadler, 1996, Baker and McLelland, 2003).

*Investing minimum resources and time* for impact assessment activities based on efficiency related to the proficiency in the process has been

claimed to be a key factor to achieving transactive effectiveness (Sadler, 1996, Baker and McLelland, 2003, Theophilou et al., 2010).

Baker and McLelland (2003) suggested that transactive effectiveness could be achieved when the policy on environmental assessment and public participation are applied to deliver the objectives with efficiency of resource investment. This could be evaluated based on proficiency in terms of how the application supports the objectives as shown in **Figure 4.1**.

Theophilou et al. (2010) determined transactive effectiveness of SEA by using four main criteria; time, financial resources, skills, and specification of roles, respectively. These criteria tend to reflect how resources and time are invested and how they support the transactive effectiveness. Periods of time, resources use, personal skills and specific roles and responsibilities could be determined to draw out the transactive effectiveness of the impact assessment.

There are few studies on transactive effectiveness, however, the criteria for evaluating this category of effectiveness can be set based on the efficiency concept. This means it should be measured based on proficiency in resources use and time consumed during the implementation process on impact assessment.

#### **4.4.4 Factors influencing normative effectiveness**

Normative effectiveness could be achieved based on considering the purpose in term of what goals were achieved in addition to establishing objectives set (Baker and McLelland, 2003). These goals could be incremental changes in institutions, organisations, philosophy, science and culture that could impact on consent and decision making (Cashmore et al., 2004). This could lead to evidence of the promotion of sustainable development in practice (Bina, 2007, Cashmore et al., 2004).

It can be justified that the *Context of the case* (such as culture, individual expectation, policy, practice, and existing condition) in which impact assessment tools are implemented is likely to be the main factor influencing the normative effectiveness. For example, in learning at an organisational level contributing to the SEA effectiveness, it was found that culture and history could facilitate the capacity for knowledge delivery (Jha-Thakur et al., 2009). In addition, Theophilou et al. (2009) found that individual expectations are influential towards perspectives of SEA effectiveness. Moreover, Van Buuren and Nooteboom (2009) suggested that SEA effectiveness can be determined based on the quality of available policy (*usefulness, applicability*), procedural quality of the planning process (*transparency, timeliness*) and the quality of engagement with stakeholders (*openness, equity, dialogue*). According to this, it means a thorough understanding about effective SEA could probably change individual expectations.

Stoeglehner et al. (2009) suggested that normative change could be observed via the process when decision-makers take part in considering SEA implementation, regarding their roles concerning environmental consequences in decision-making, based on political options and legal framework in implementing SEA at strategic level, such that the sense of their ownership, environmental knowledge, and good-quality environment can be achieved as outcomes. This means the sense of democracy among them, which employs political choice and administration, could have been changed or improved after taking part in the decision-making process, as well as their attitudes on institutional development towards the environmental-concern dimension.

Revision of assessment practice based on an application of theory could lead to better understanding of SEA application (Bina, 2007). For example, SEA in local-level plans should identify significant changes that might occur

related to the type of development based on environmental costs and social benefit (Therivel et al., 2009). SEA effectiveness can be achieved based on applying policy, programme, and planning into the process of decision-making and implementation (Jha-Thakur et al., 2009). This means that considering SEA effectiveness based on its framework combined with its dimensions could help clarify how effective SEA is in a particular context.

In HIA experiences, Quigley and Taylor (2004) suggested indicators to evaluate normative effectiveness in the form of outcome indicators. The indicators focused on the improvement of health, education, and employment at the local level, for example, sense of better quality of life, improved satisfaction with healthcare service, improved housing quality, etc.

Kauppinen et al. (2006) determined normative effectiveness of human impact assessment through learning and changes in views among the participants. They evaluated based on lessons learned during the human impact assessment, meaning of assessment towards involved actors and individuals, and what added value was achieved from the assessment.

Regarding the literature reviewed and analytical concept presented in **Figure 4.2**, it seems that normative goals could possibly be achieved at any step from the result of practice, performance, and proficiency within a particular context. Achievement of normative effectiveness tends to depend on the context in which the impact assessment tool is implemented in decision-making. This could be determined from lessons learnt and incremental changes among stakeholders, institutions, organisations and community. In addition, improvement of environmental quality, health inequality, and social inequality, regarding what impact is to be assessed, could be considered as indicators for evaluating normative effectiveness.

With respect to the perspectives on impact assessment effectiveness, most studies conducted emphasise the improvement of the assessment process for procedural effectiveness (Stoeglehner et al., 2009, Bekker et al., 2005, Waldeck et al., 2003, Van Buuren and Nooteboom, 2009, Tinker et al., 2005, Pettecrew et al., 2007, Zhu and Ru, 2008, Therivel et al., 2009). Cashmore (2004) remarked that there has been evidence focusing on evaluating procedural effectiveness in the EIA process whereas substantive effectiveness requires more clarification. Some studies additionally explore substantive and transactive effectiveness in impact assessment evaluation, however, this effectiveness needs more clarification (Cashmore et al., 2004, Cashmore, 2008, Theophilou et al., 2009, Bina, 2007). Normative effectiveness was demonstrated implicitly by a few studies (Baker and McLelland, 2003, Stoeglehner et al., 2009, Quigley, 2005, Kauppinen et al., 2006) but, again, needs to be considered for more evidence and clarification.

#### **4.5 CONCEPTUALISATION OF FRAMEWORK FOR EVALUATING EFFECTIVENESS OF HIA IN THAILAND**

Existing evaluation on effectiveness of HIA in Thailand is reviewed in this section so that, based on the literature, a framework for evaluating HIA in Thailand can be conceptualised. Then, the criteria are created for using as a guideline to determine procedural, substantive, transactive, and normative effectiveness of HIA based on the development of effectiveness and its relationship as critically outlined in **Figure 4.2**.

##### **4.5.1 Effectiveness of HIA in Thailand**

According to the research by Caussy et al. (2003) on evaluation of HIA in Southeast Asian countries, Thailand could meet some criteria in term of having HIA policies and procedures. The findings showed that Thailand has potential in intersectoral collaboration for implementing HIA (76-100% of criteria met), has capacity for HIA development (51-75% of criteria met),



has existing framework and procedures (51-75% of criteria met), however, its institutional infrastructure was found to meet only 26-50% of the criteria.

However, HIA experience in Thailand should be evaluated in a more qualitative way, to clarify the effectiveness of HIA, so that the lessons learnt could contribute to HIA implementation, both internally and within its neighbouring countries with similar contexts.

Thailand has ongoing activities on HIA, which have been developed based on lessons from other countries and its own experience from various case studies (Ritsatakis, 2004). However, in term of the HIA effectiveness, the only study has been on HIA's contribution to healthy public policy (HPP) based on HIA core values (value, evidence, resource in **Table 4.3**) (Sukkomnoed et al., 2002), HPP process, and policy impact (Sukkomnoed, 2005).

Regarding **Table 4.3**, these core values for HIA could be viewed as substantive or normative effectiveness (from the 'value' aspect), procedural effectiveness (from the 'evidence' aspect), and implicitly transactive effectiveness (from the resource aspect), respectively. However, in the resource aspect, efficiency in investing time and resource has not been explicitly mentioned in this study.

In addition, the findings showed that HIA benefit and influence on healthy public policy could provide a key role in meeting its intention to *contribute to the three core values in terms of high priority in social value, need developed methodology for sound evidence, and require better focus on resource*, respectively (Sukkomnoed, 2005, p.31-32).

**Table 4.3** Thailand's HIA core values

Core value	Description
Value	Health value based on considering HIA should address public and stakeholder concerns. It should also bring different social values of health into the public discussion, aiming to understand and greatly respect different values of health from different stakeholders. Therefore, the decision-making will pay greater attention to health aspects, as well as, being more equitable for all stakeholders due to the understanding and respectability of their values.
Evidence	HIA should have a capacity to present clear and sound evidence on various dimensions of health impacts, based on the social values of stakeholders. This clear and sound evidence will significantly assist the decision-makers and stakeholders to make decisions in favour of healthier solutions.
Resource	As a learning process, HIA should aim to mobilise the resources of all stakeholders and the resources within society towards healthier solutions. This can be achieved, if the public awareness and consciousness in collectively self-organising to protect and promote human health has been raised during the HIA process. It is also important that HIA should assist stakeholders to realise the available and potential resources within society, which can be redirected towards healthier direction.

**Source:** Based on Sukkumnoed et al. (2002)

Implicitly, other studies or reviews focused on effectiveness by analysing relevant components that might influence HIA development, implementation and decision-making in Thailand.

In terms of strengthening procedural effectiveness of HIA, the National Health Act B.E.2550 (A.D.2007) established a core concept for HIA development in Thailand in terms of rights and duties in respect of health, and established the National Health Commission, Office of the National Health Commission, Health Assembly, and Statute on National Health System (Thai Government Gazette, 2007a). This could be a fundamental framework in considering effective process on HIA implementation in Thailand. However, effective and flexible mechanisms for HIA implementation are still required in terms of its evolution and information disclosure (Nuntavorakarn et al., 2008).

The Thai National Health Assembly is an example of facilitating process and local empowerment in which stakeholders can participate to share knowledge and experiences based on problem solutions (Nuntavorakarn et al., 2007). This could lead to achieving effective practice in implementing HIA.

However, governance barriers could impede the active process of HIA, for example, corruption problems or transparency in mining policy which affect people's health in the mining areas such as, Lead mine contamination in Klity village (Kanchana Buri province), Zinc mine in Tak province, and Potash mine in Udon Thani Province (Pengkam and Sukkummoed, 2007).

Local organisations in Thailand with interests in considering HIA in policy/programme/ project development could be one of the key factors corroborating the effectiveness of HIA, e.g. substantively and normatively. For example, Regional Health Centres, Department of Health have stated their intention to implement HIA as a tool for decision-making and participatory learning at the local level (Nuntavorakarn et al., 2008). This could demonstrate the potential for intersectoral collaboration for achieving HIA implementation as suggested by Caussy et al. (2003). In addition, a HIA case study on water management led the local administrative organisation of Bang Rakam Sub-district, Nakhorn Pathom province, Thailand to change its land use policy by turning the area into an organic farming zone (Khonted, 2008).

Considering normative outcomes, the collective learning process generated among local people is the most important result from implementing HIA (Sabrum, 2008). For example, in the case of HIA in the orange plantations and its contribution to healthy public policy in the agricultural sector in Thailand, local people, as receptors of the pollutants, learned and shared experiences on the changing environment and the impacts in their communities as a result of facilitation by the HIA process. Moreover,

knowing their rights is another result from HIA implementation as shown in the HIA case study of a potash mining project in Udon Thani province, Thailand, where local people sought their rights to participate in the public policy development (Pengkam et al., 2006b).

In the Thai context, procedural effectiveness has been studied the most compared to substantive and normative effectiveness in only some case studies. However, very few studies focus on transactive effectiveness.

Parry and Kemm (2004) stated that the effectiveness issue could not be ignored in HIA development, therefore, HIA effectiveness studies need to be developed as part of effective HIA implementation and development. In addition, evaluation of HIA could be a process to show how it influences the decision-making process in terms of health promotion and balancing the inequalities (Quigley and Taylor, 2003). The HIA should be monitored and evaluated so that the findings and key lessons experienced could contribute to improving its effectiveness in terms of what factors could make it work (Taylor and Quigley, 2002). Reflection from completed HIAs could be one key to improve its effectiveness for the subsequent practice (Kemm, 2005).

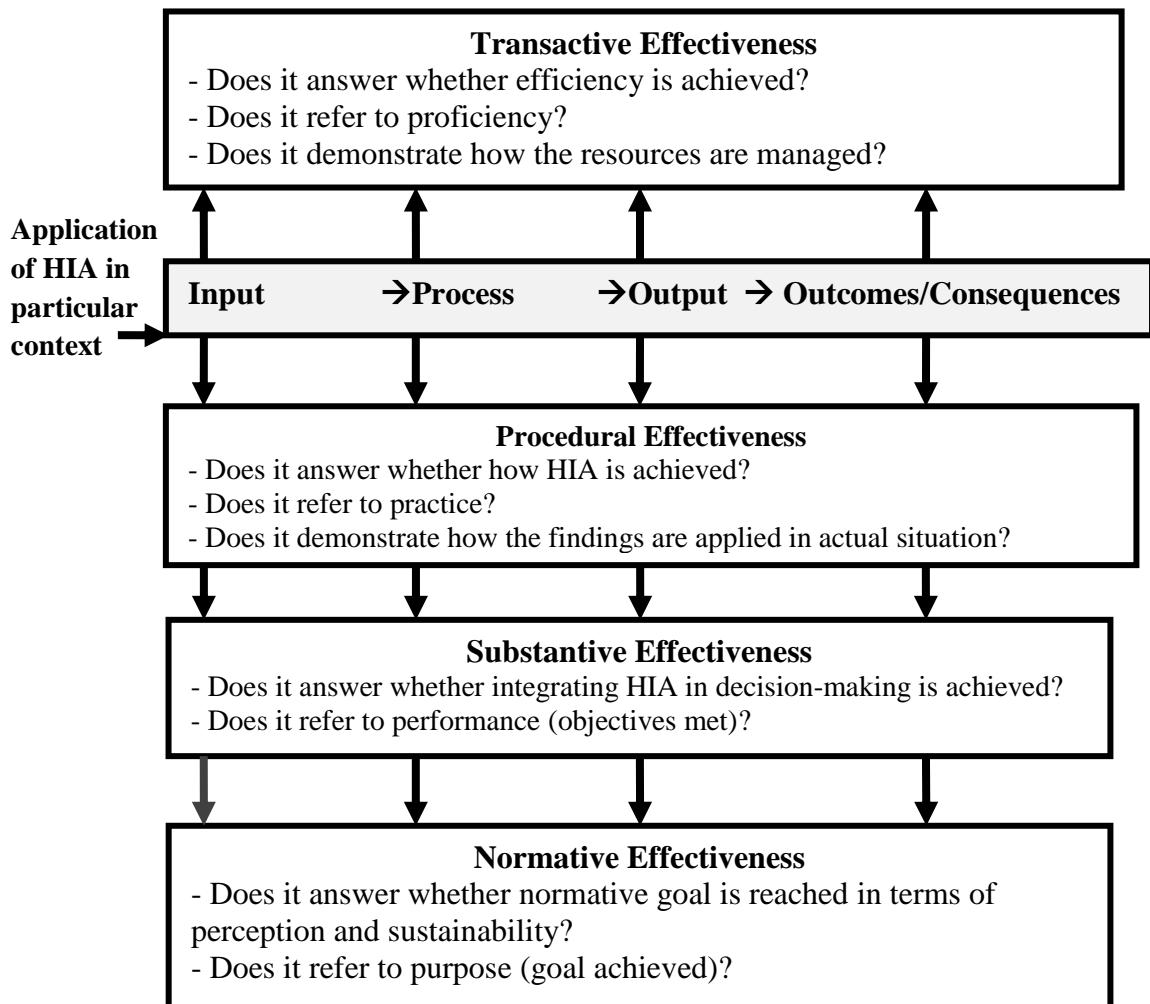
#### **4.5.2 Criteria conceptualisation for evaluating effectiveness of HIA**

It could be said that factors influencing the effectiveness of HIA in Thailand are similar to those reviewed in the previous section on factors influencing effectiveness of impact assessment regarding its four categories. Based on this review, a framework can be conceptualised and adjusted to be compatible with evaluating the effectiveness of HIA.

For this study, effectiveness of HIA is “the extent to which the HIA process works (procedurally), and contributes to decision-making of project/ programme/ policy development, and gains the acceptance and satisfaction of key stakeholders on the basis of resources used (transactively), intended

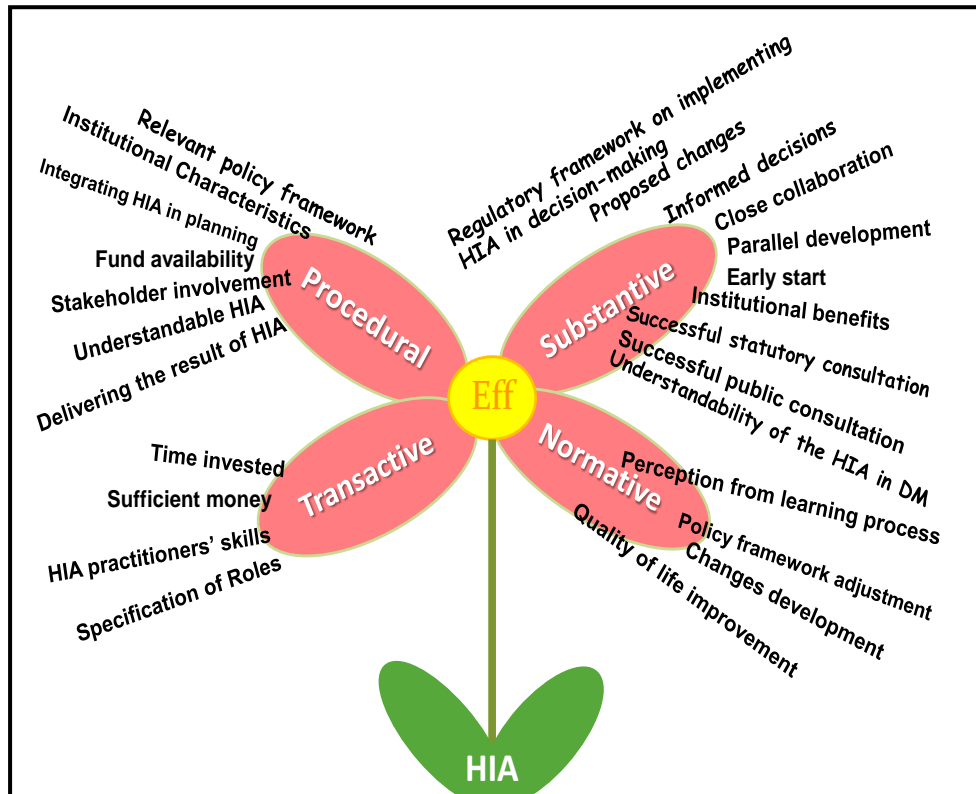
aims (substantively), and how they can learn and change their views when HIA is implemented (normatively)”.

Based on this definition, the conceptualisation for the effectiveness evaluation criteria focuses on considering four main categories of effectiveness. The criteria created will be used as the basis for answering the research questions using a framework developed based on the literature. Appropriateness of the criteria set in the four categories was tested based on sets of questions as presented in **Figure 4.3**.



**Figure 4.3** Testing suitability of measuring criteria for effectiveness of HIA  
Adapted from Theophilou et al. (2010) and Baker and McLelland (2003)

Regarding the review on factors influencing the effectiveness of impact assessment in section 4.4.1 to 4.4.4 and the concept for criteria setting in Figure 4.3, the criteria for evaluating procedural, substantive, transactive, and normative effectiveness in this study could be summarised as drawn in Figure 4.4 as a 'flower of effectiveness' and as listed in Table 4.4.



**Figure 4.4** HIA effectiveness criteria conceptualisation for applying to the case (The sources of the criteria are presented in Table 4.4)

**Table 4.4** Evaluation checklist for the effectiveness of HIA in Thailand case study

Effectiveness Category	Factors	Criteria
Procedural	⊙ Political Framework	<ul style="list-style-type: none"> <li>• <b>P1. Existence of relevant plan, policy framework and procedures</b> for HIA – Existence of national plan on health, regulations or guidelines or standard performance for HIA, procedure implementation in HIA, and licensing (Caussy et al., 2003, Baker and McLelland, 2003, Bekker et al., 2005, Van Buuren and Nooteboom, 2009).</li> </ul>
	⊙ Political Context	<ul style="list-style-type: none"> <li>• <b>P2. Institutional characteristics</b> - institutional infrastructure, roles and collaborations of relevant authorities – Existing environmental monitoring network, disease surveillance network, and allocated roles of government/ decision-making authorities in the impact assessment process (Caussy et al., 2003, Bekker et al., 2005, Van Buuren and Nooteboom, 2009).</li> <li>• <b>P3. Integrating impact assessment in planning process</b> based on legal requirement , or policy framework (Partidário, 2000, Stoeglehner et al., 2009)</li> </ul>
	⊙ Financial Resources	<ul style="list-style-type: none"> <li>• <b>P4. Availability of financial funds</b> for HIA practice (Ardern, 2004)</li> </ul>
	⊙ Public Participation	<ul style="list-style-type: none"> <li>• <b>P5. Involvement of stakeholders</b> in the process (Bekker et al., 2005, Baker and McLelland, 2003, Quigley and Taylor, 2004, Harris-Roxas, 2009, Sukkumnoed et al., 2002).</li> </ul>
	⊙ Lessons and Experiences	<ul style="list-style-type: none"> <li>• <b>P6. Capacity of HIA in presenting as a sound and clear, understandable evidence</b> for decision-making process with validity of predictions, argumentation, and understandability (Sukkummoed et al., 2002, Bekker et al., 2005, Therivel, 2010)</li> <li>• <b>P7. Delivering the report to participating stakeholders</b> (Baker and McLelland, 2003, Quigley and Taylor, 2004, Bekker et al., 2005).</li> </ul>

**Table 4.4** Evaluation checklist for the effectiveness of HIA in Thailand case study (Continued)

Effectiveness Category	Factors	Criteria
Substantive (Criteria S2-S9 are based on Theophilou et al. (2010))	⊙ Regulatory framework for decision-making	<ul style="list-style-type: none"> <li>• <b>S1. Regulatory framework on implementing HIA in decision-making</b> (Partidário, 2000, Bekker et al., 2005).</li> </ul>
	⊙ Mechanism in decision-making context	<ul style="list-style-type: none"> <li>• <b>S2. Incorporation of proposed changes</b> – most or all proposals for changes and/ or additions to the draft programme emanating from the HIA were taken into account in the final version of the programme.</li> <li>• <b>S3. Informed decision-making</b> – the use of all mandatory documents produced as part of the HIA process coupled with continuous dialogue between the parties involved in the process of informed decisions on the final version of the programme.</li> <li>• <b>S4. Close collaboration</b> – there was communication and a high level of collaboration between those producing the HIA and those producing the programme.</li> <li>• <b>S5. Parallel development</b> – the HIA and programme developed alongside one other with considerable cross-cutting between the processes.</li> <li>• <b>S6. Early start</b> – the HIA process was initiated at the very first stages of programme development.</li> <li>• <b>S7. Institutional and other benefits</b> – there is strong evidence of better department relations, development of otherwise absent expertise, learning, new partnerships and better public-private-voluntary sector communication as a result of HIA.</li> <li>• <b>S8. Successful statutory consultation</b> – the statutory consultation bodies had a fair opportunity to contribute and their views and comments were taken on board.</li> </ul>
	⊙ Stakeholder and public participation	<ul style="list-style-type: none"> <li>• <b>S9. Successful public consultation</b> – the public consultation bodies had a fair opportunity to contribute and their views and comments were taken on board.</li> </ul>
	⊙ Quality, accuracy, and understandability of impact assessment report	<ul style="list-style-type: none"> <li>• <b>S10. Understandability of, or satisfaction</b> , and knowledge gained, the HIA report in decision-making process (Ross et al., 2006, Sandham and Pretorius, 2008, Petticrew et al., 2007, Kauppinen et al., 2006)</li> </ul>



**Table 4.4** Evaluation checklist for the effectiveness of HIA in Thailand case study (Continued)

Effectiveness Category	Factors	Criteria
Transactive (Criteria T1-T4 are based on Theophilou et al. (2010))	⊙ Investing minimum resources and time	<ul style="list-style-type: none"> <li>• <b>T1. Time</b> – HIA was carried out within a reasonable time frame without undue delay or within a very short time period (as compared to old ex-ante mechanism, where applicable).</li> <li>• <b>T2. Financial resources</b> – carrying out the HIA did not entail excessive spending</li> <li>• <b>T3. Skill</b> – the acquiring of skills and personnel required for the HIA did not contribute a big burden and these were easily accessible.</li> <li>• <b>T4. Specification of roles</b> – responsibilities were clearly defined and allocated and tasks were undertaken by the most appropriate subjects.</li> </ul>
Normative	⊙ Particular context of the case (such as concern, policy, practice)	<ul style="list-style-type: none"> <li>• <b>N1. Adjustment of relevant policy framework</b> concerning the normative goal achieved in term of changes of views (Baker and McLelland, 2003, Kauppinen et al., 2006).</li> <li>• <b>N2. Learning process, perception, and lesson learned</b> from HIA (Kauppinen et al., 2006, Stoeglehner et al., 2009, Harris-Roxas, 2009).</li> <li>• <b>N3. Development or changes in relevant institutions</b> (Stoeglehner et al., 2009).</li> <li>• <b>N4. Improvement of health outcomes and quality of life</b> (Quigley and Taylor, 2004)</li> </ul>

As HIA is expected to be a tool informing and assisting decision-making, its practice and performance based on prediction, public participation, and informing decision-makers tend to be key elements of the effectiveness at a fundamental level. The framework for HIA effectiveness in this study places emphasis on the investigation of how prediction, participation, and informing decision-making in the HIA process were conducted and applied. Answers to these questions can address the level of procedural effectiveness of HIA in Thailand. Similarly, to demonstrate substantive effectiveness at

the performance level, it is essential to find out what objectives in prediction, participation, and informing decision-making have been achieved and why these things have happened. This framework can convey this meaning and reflect each component in the form of cyclic improvement.

#### **4.6 SUMMARY**

This chapter has demonstrated the review of contested effectiveness definitions, categories of effectiveness and concept of evaluation in impact assessment coupled with factors influencing the effectiveness. Subsequently, the criteria framework for evaluating a case study of HIA in Thailand is conceptualised. Review of the contested definitions leads to defining effectiveness in the sense of impact assessment as **“the extent of achieving expected purpose or problem solution in accordance with actor satisfaction on the performance of the invested activity”**. This definition was considered with effectiveness categories to define the meaning for effectiveness of HIA. Effectiveness categories were reviewed and classified into four: procedural, substantive, transactive, and normative. The concept of effectiveness related to the application of HIA in the development of policy, as plans, programmes or projects was derived through inputs, processes, outputs, and outcomes of the cycle.

Based on the review, **“effectiveness of HIA”** has been defined as **“the extent to which the HIA process works (procedurally), and contributes to decision-making of project/ programme/ policy development, gains the acceptance and satisfaction of key stakeholders on the basis of resources used (transactively), intended aims (substantively), and how they can learn and change their views when HIA is implemented (normatively)”**.

The conceptualised effectiveness criteria obtained provides a framework to evaluate the effectiveness of HIA in this research.

## **CHAPTER 5**

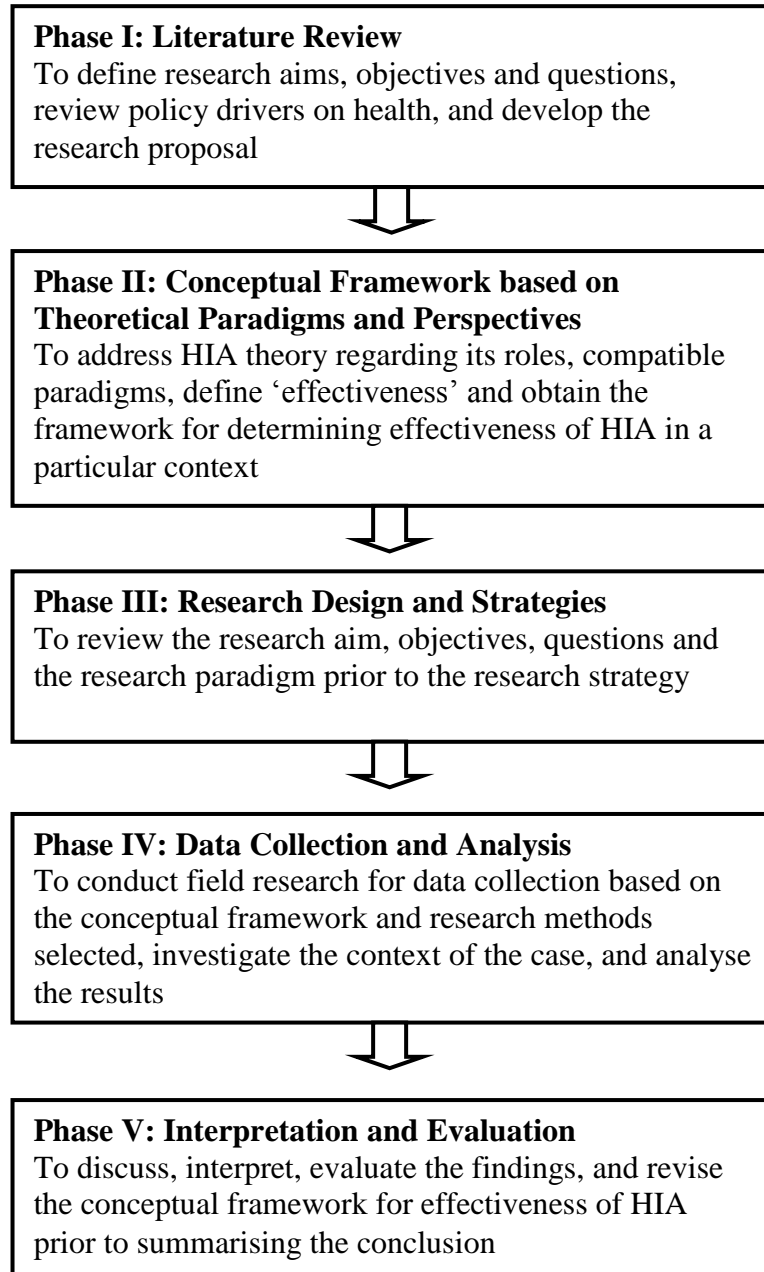
### **RESEARCH METHODOLOGY**

#### **5.1 INTRODUCTION**

This research aims to study the effectiveness of HIA based on a case study conducted and implemented in Thailand. The effectiveness will be determined based on the categories of procedural, substantive, transactive, and normative effectiveness. This chapter presents the core paradigms leading to the design of the research methodology. Different paradigms discussed by research scholars in the literature are reviewed before concluding that a '*constructivism paradigm*' is most appropriate to apply within this research based on the ontological, epistemological and methodological compatibility with the research questions and objectives of this study. Regarding this paradigm, the research strategy and research design are justified in this chapter as well as the research methods used.

Denzin and Lincoln (2005) suggested that the research process should comprise five phases: Phase I researching based on multicultural perspectives relating to history of the subject, Phase II interpreting paradigms and perspectives, Phase III providing research strategies, Phase IV designing methods of data collection and data analysis and Phase V interpretation and evaluation of the findings. This process is applied in planning the research methodology of this study as shown in **Figure 5.1**. The research process was initiated from the literature review of knowledge relevant to HIA practice and its application so that research objectives and research questions could be generated for the study. The knowledge gained from the review leads to the development of a conceptual framework for reviewing HIA effectiveness based on the interpretive paradigm used. The research design and strategies are derived based on the research questions and effectiveness framework, prior to providing data collection methods for

the selected case study area. Data analysis, interpretation, and evaluation are then performed subsequently.



**Figure 5.1** Research plan in this study based on Denzin and Lincoln (2005)

In summary, this chapter outlines the research methodology for this study in terms of the ideas generated from research paradigms leading to research design, research strategy, research setting, research methods, and ethical considerations in the research process. Constructivism based on a relativistic ontology is justified as the paradigm for the research methodology development. Qualitative research is selected as a mono method for this study, and a single case study approach is adopted as the research strategy. Methods for data collection are designed to accommodate ethical concerns.

## 5.2 RESEARCH PARADIGMS

According to the understanding about research paradigms, Reese (1980) proposed that basic beliefs or knowledge could be built based on systematic ideas which could rationally demonstrate how and why things exist in reality. The resulting “*systematic sets of beliefs and ideas*” was termed a “*paradigm*” (Lincoln and Guba, 1985, p.15).

Initially, ‘paradigm’ is a word derived from Greek *paradeigma* meaning “*a pattern, model, or plan*” (Reese, 1980, p.411). The word ‘pattern’ was introduced to conceptualise the word “paradigm” by T. S. Kuhn’s who suggested that a paradigm could be a concept shared in a scientific community consisting of men, a group commitment, and a shared pattern for justifying things (Kuhn, 1970). According to Kuhn’s concept, a paradigm is also considered a principle framework in creating scientific theories (Reese, 1980).

Another viewpoint considering the term paradigm in accordance with Kuhn’s idea suggested that “*paradigm is the assumptions or conceptualisations – either explicit or implicit – underlying any data, theory, or method. Paradigms act, therefore, as “world views” suggestive of research questions or problems*” (Smith, 1975, p.24). This could suggest that the “*systematic sets of belief or paradigm*” (Lincoln and Guba, 1985,

p.15) could be achieved based on the existing condition of the world or reality or knowledge (ontology), the way to understand this reality (epistemology), and the way to achieve the knowledge and the understanding (methodology) (Maxwell, 2005, Guba and Lincoln, 1994). On the other hand, Guba and Lincoln (1994) stated that any findings based on different paradigms are the result of the “*invention of human mind and hence subject to human error*”, which suggested that the paradigms could also be viewed as “*human constructions*” that rely on “*persuasiveness and utility rather than proof*” of those arguments (p.108).

In other words, the paradigms should determine how the methodology of the research should be designed, in terms of identifying data, how to collect the data, what should be called the findings, and how to evaluate the quality of the findings (Bamberger et al., 2006).

In addition, even in normal science, Kuhn (1970, p.42) proposed that “*shared paradigms*” are essential in guiding a research. Kuhn (1970) defined normal science as “*research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice*” (p.10). In addition, it has been argued that in normal science, the paradigms could be a principle used in knowledge production, which could be ‘*more or less creative and flexible*’ rather than a fixed idea or concept (Blackburn, 2008). This suggests that even though normal science places emphasis on scientific practice, it tended to rely on created and flexible concepts of the paradigms in gaining the achievement of knowledge. In other words, it could imply that researching in reality might need to consider the appropriateness of creativity and flexibility in designing the paradigm(s) to allow research processes to achieve the answers to the research questions.

Therefore, this study intends to explore the paradigm(s) that are applicable, flexible and fit in with the research objectives to evaluate the effectiveness of health impact assessment (HIA), in Thailand, for this research, based on the four categories of effectiveness; procedural, substantive, transactive, and normative. In order to gain knowledge from these effectiveness perspectives, selecting the appropriate research paradigm is essential in directing the methodology and research process based on the review of knowledge production or paradigm development history.

From the prepositivist to positivist, and then to postpositivist, paradigms guiding knowledge production tends to shift over time (Lincoln and Guba, 1985). Prepositivism represents a precursor of systematic ideas creation, with less emphasis on understanding, prior to the period with more ‘*active observers*’ called positivists, that tended to “*reach out and touch, to try ideas and see if they worked*” (Lincoln and Guba, 1985, p.19). In contrast, subsequently, postpositivism (or later termed “naturalism”) argued that reality in positivistic beliefs could differ from the reality of others’ views. Seemingly, the quests created among researchers have been proved based on different paradigms as suggested in **Table 5.1**. (Lincoln and Guba, 1985).

**Table 5.1** Contrasting positivist and naturalist axioms

<b>Axioms about</b>	<b>Positivist paradigm</b>	<b>Naturalist paradigm</b>
The nature of reality (ontology)	Reality is single, tangible, and fragmentable	Realities are multiple, constructed, and holistic
The relationship of knower to the known (epistemology)	Knower and known are independent, a dualism	Knower and known are interactive, inseparable
The possibility of generalisation	Time- and context-free generalisations (nomothetic statements) are possible.	Only time- and context-bound working hypotheses (idiographic statements) are possible
The possibility of causal linkages	There are real causes, temporally precedent to or simultaneous with their effects	All entities are in a state of mutual simultaneous shaping, so that it is impossible to distinguish causes from effects
The role of value	Inquiry is value-free	Inquiry is value-bound

Source: Based on Lincoln and Guba (1985, p. 37)

The positivistic paradigm emphasises the consideration of reality based on “*positive evaluation of science and scientific method*” (Reese, 1980, p.450). August Comte (1798-1857) developed this term as the most important consideration, arguing that “*the only genuine or legitimate knowledge claims are those founded directly on experience*” regarding three stages of empirical knowledge evolution; theology, metaphysics, and positive philosophy (Reese, 1980, p.450, Schwandt, 2001, p.199). Positivists believe that knowledge or reality is definite and can be proved as it is true only based on experimental or manipulative approaches (Lincoln and Guba, 1985, Guba and Lincoln, 1994).

In contrast, postpositivism or naturalism argues that explanation of realities should rely on objects, events, and time that could have multiple construction and be more holistically based on a ‘*logical empiricism*’ approach (Reese, 1980, Lincoln and Guba, 1985, Schwandt, 2001).

In 1994 and 2005, Guba and Lincoln revised the alternative paradigms and categorised them based on ontology, epistemology, and methodology as presented in **Table 5.2**. Critical theory and related ideological positions, constructivism, and participatory paradigms were all added and compared.

Critical theorists focus on structuring theory and its results based on kinetic change of historical realism (social, political, cultural, economic, ethnic, and gender perspectives) (Schwandt, 2001, Guba and Lincoln, 2005). The knowledge theorised by the knower based on the investigation of objects or groups is claimed to be existing in reality (Guba and Lincoln, 1994). Comparing and contrasting existing rationality, influenced from society and culture, and ideality are used in developing the reasons for the theorising (Blackburn, 2008).

In term of the participatory paradigm, which tends to emphasise political participation, Guba and Lincoln (2005) suggested that the reality or the



knowledge could be cooperatively brought into existence based on public participation activities and their minds within a context. Activities in participatory action research tend to allow researchers to work together and gain ideas for knowledge production based on a democratic approach and wider perspectives/ or experiences among participating people (Schwandt, 2001).

**Table 5.2** Alternative Inquiry Paradigms

<b>Items</b>	<b>Ontology</b>	<b>Epistemology</b>	<b>Methodology</b>
<i>Positivism</i>	Naïve realism - “real” reality but apprehendable	Dualist/ objectivist; findings true	Experimental/ manipulative; verification of hypotheses; chiefly quantitative methods
<i>Postpositivism (Naturalism)</i>	Critical realism - “real” reality but only imperfectly and probabilistically apprehendable	Modification dualist/ objectivist; critical tradition/ community; finding probably true	Modified experimental/ manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods
<i>Critical Theory</i>	Historical realism - virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time	Transactional/ subjectivist; value-mediated findings	Dialogic/ dialectical
<i>Constructivism</i>	Relativism- local and specific constructed realities	Transactional/ subjectivist/ created findings	Hermeneutical/ dialectical
<i>Participatory</i>	Participatory reality – subjective – objective reality, co-created by mind and given cosmos	Critical subjectivity in participatory transaction with cosmos; extended epistemology of experiential, propositional, and practical knowing; co-created findings	Political participation in collaborative action inquiry; primacy of the practical; use of language grounded in shared experiential context

**Source:** Based on Guba and Lincoln (2005, p.195)

Meanwhile, constructivists believe that realities could be seen differently depending on social structure constructed by individuals or groups (Guba and Lincoln, 1994). The realities obtained were constructed based on various views of research participants sharing with the knower (Snape and

Spencer, 2003). Schwandt (1998) analysed that the philosophy of constructivism proposed by Guba and Lincoln could be idealist, pluralist, and relativist because they considered individuals' minds and multiple realities. However, the state that reality is relative was emphasised more dominantly in Guba and Lincoln's views (Schwandt, 1998). Later, Schwandt (2001) considered that "*a conceptual framework through which the world is described and explained*" could influence the knowledge claims based on constructivism (p.31).

Considering the literature on knowledge production for HIA, adoption of certain paradigms has not been claimed explicitly among research scholars. Kemm and Parry (2004) suggested that the basic knowledge in predicting health impacts in HIA could be obtained based on both positivistic and relativistic paradigms. This is because they considered that the HIA concept is derived from impact assessment and policy appraisal. These appraisals initially focused on consequences from environmental change and policy implementation using a positivistic approach to measure physical effects. In HIA, they commented that it also a process assessing probable health consequences occurring from the decision-making process when multidisciplinary expertise has got involved, this means scientific research based on the positivistic paradigm is implemented. However, the positivistic approach on its own could not explain certain outcomes for health consequences. Hence, they asserted that interpreting effects toward human health may be better understood via a relativistic approach that human perceptions about the effects could be based on the context they are in.

However, it could not be stated, as more evidence is needed, that both the paradigms (positivism and relativism) could predict the consequences as a basis for researching knowledge production in HIA. Therefore, reviews and understanding about the science of knowledge production or paradigm evolution as well as objectives, based on the research questions of the

research study, are essential in identifying which paradigm (s) should be considered.

Referring to the main purposes and research questions of this study, the focus is on the ways in which people use and look at HIA, how the effectiveness of HIA can be measured, how the conceptualised criteria (created in this research) work when applied to the case, and what factors could influence the effectiveness of HIA? This means different perspectives need to be explored to seek for more understanding about the reality and perception of individuals on HIA application in the context they are in, by using the conceptualised framework created by the researcher. After gaining answers and increasing understanding about the effectiveness of the selected HIA, recommendations for the improvement of its effectiveness can be provided. In order to achieve this, based on the relevant literature, factors encompassing all four categories of effectiveness were subjected to study. The key factors influencing the effectiveness are considered to include the political framework, political context, financial resources, degree of public participation, lessons and experiences, regulatory framework, decision-making context, and stakeholders and their beliefs (details are in Chapter 4). Caussy et al. (2003) and Bekker et al. (2005) commented that political framework is a basic driver of providing principles and legal regulations for impact assessment practice. Meanwhile, political context could reflect how decisions are made. Arden (2004) emphasised that financial budget is essential for the impact assessment practice while Quigley and Taylor (2004) suggested that stakeholder involvement in a HIA process could support the quality of HIA. In addition, experience gained from HIA practice could provide lessons for the practitioners, to help them conduct a good impact assessment process such that a good HIA report could deliver knowledge and information to the decision-makers and stakeholders. These factors could have different characteristics in various contexts of the society. Considering these factors, a criteria framework of effectiveness to determine the value of HIA in this research was created to apply within the case.

Constructivism is considered an appropriate paradigm to applying to this research regarding its ontology, epistemology, and methodology. A constructivist ontology is considered to be relativistic in that human intellects and additional knowledge gained could influence a change in the social realities or findings among various contexts of the studies (Guba and Lincoln, 1994). When considering the original idea about relativism, Bigge (1971) emphasised that it is about the qualities of any object that is influenced by its total situation or its context. In addition, it was suggested that relativism could support the concept that varying perspectives of truth could exist in “*external reality*”, and that ‘what is believed to be true’ could be influenced by particular beliefs of society where the beliefs could be based on political, or others, contexts (Cruikshank, 2001, p.221).

The reviews in the previous chapters (Chapter 2, 3, 4) have shown that various contexts could lead to various perceptions, actions and consequences of doing something, for example, considering health as part of sustainable development. Chapter 2 has demonstrated policy drivers on health from global level to national level. It has shown that the approaches to take health concerns into account and the actions on it are different in different parts of the world. Chapter 3 presented HIA theory and practice worldwide including in Thailand and, again, the definitions of HIA were contested based on the ways that people view the purposes for it. In addition, HIA applications in different countries are different depending on the degree to which health impacts are considered essential, explicitly or implicitly in policymaking, by law or voluntarily. Chapter 4 characterises the effectiveness categories presented, based on an assumption that complexity of the context, for example, political context and decision-making context, could play key roles influencing the implementation and the effectiveness of impact assessment processes, including HIA.

Research questions raised in this study as presented in chapter 1 emphasise how and why people use HIA in the Thai context, how we can know if HIA is effective or not, what framework we should use considering the effectiveness, why major factors could influence HIA effectiveness, and how we can improve the effectiveness of HIA. These are all about complexity and relationships between components in a context that we need to explore. Therefore, the nature of knowledge in this research is considered to be based on different aspects and views about how people perceive HIA and interpret its meaning when applying HIA in their particular context. Moreover, the characteristics of these different factors could vary and interrelate regarding different places, time, components of the communities, and the way people live.

Considering the influence of a context on implementing impact assessment tools and their effectiveness, it was found that characteristics of the context could influence the perception of people on effectiveness, and this could affect the way that impact assessment tools, for example, SIA, are implemented (O'Faircheallaigh, 2009). In addition, in implementing SEA in decision-making or planning processes, the decision makers are individuals that might use SEA in supporting policymaking based on their understanding and attitudes (Stoeglehner et al., 2009). This is relevant to the context influence suggested in findings by Jha-Thakur *et al.* (2009) that particular context tends to have an influence on both how the SEA process is designed and how people that get involved learn and understand about the SEA practice. These findings emphasise that a relativistic approach is necessary in studying the effectiveness of impact assessment processes when the context is a consideration.

In terms of HIA practice, although a positivistic approach tends to influence the research on HIA as well, complicated details in considering health consequences and related factors could not be determined completely by such an approach (Kemmer, 2004). This is because it could help predicting

environmental quality that might bring about the impacts on health, however, public perceptions or concerns would be better studied based on relativistic views (Kemmm and Parry, 2004b).

Protagoras's statement as *'man is the measure of all things'* was the first relativistic view presented in the history of relativism (Baghranian, 2004, Wardy, 2006, Margolis, 1991). This underpins the view about relativism proposed by Margolis (1991) that *"relativism presents itself as a philosophy of the free spirit, of all those unwilling to let any premise count as privileged or fixed, of all those unwilling to divide the world between the revealed and the debatable"* (p.xvi).

Relativism is defined as *"the doctrine that no absolute exists"* such that relativistic philosophers believe that *"all truth is relative"* and the justification criteria are related to individual context (Reese, 1980, p.487, Bigge, 1971). Schwandt (2001) added that relativism rejects *"universal truth"* (p.225).

Swoyer (2008) suggested that relativism could be characterised based on three components: what is relative (dependent variables such as beliefs, perception, practice, reality); what it is relative to (independent variable such as culture, choices, history); and the connections between them. Accordingly, relativism about concept was defined as *"the view that different groups may have rather different central concepts and that this can lead their members to rather different conceptions of the world"* (Swoyer, 2008, title 2.1)

Even though it has been argued that relativism might not be rational enough and could not be proved by scientific standards, a relativistic concept still tends to be essential in order to understand scientific knowledge in areas such as anthropology, sociology, and psychology (Barnes and Bloor, 1982).

Webb (1995) proposed that the relativistic approach could have both strengths and weaknesses. He stated that it would not be appropriate when bias was generated among the viewpoints from individuals within the social structure. However, it tends to achieve strong and practical findings when the researcher is independent from the social context. This means ‘objectivity’ from the researcher’s perspective is considered as a key basis in using relativism as a paradigm (Lukes, 1982).

It could be said that relativism is an open-minded approach and allows individuals’ perceptions to be considered, which tends to be flexible when researching the real world.

Considering the relativism concept suggested in the literature with the research questions in this study, the application of HIA (as a choice for society) could be considered as an independent variable, which might be perceived differently by people (considered as dependent variables) based on their knowledge, understanding, and the context they are in. The investigation of this interrelation could help determine the effectiveness of HIA.

Furthermore, having said that relativism could fit with the concept to explore the reality in a particular context, provided that the researcher is independent from that context and is being ‘objective’, coupled with the identified factors of effectiveness of HIA, the relativistic view on the reality of the research setting here is considered appropriate for this research.

Moreover, referring to Guba and Lincoln (1994), constructivism aims to understand the reality based on the relativism concept that credits the influence of social context on multiple realities. An approach for identifying the social context of people, that might be affected by a proposed action, could help structuring the possible health impact based on reality and this tends to be a “*socially constructed truth*” which could be supported by a

relativistic approach (Kemmm and Parry, 2004b, p.7). In addition, at the present time, judgements made related to power and politics, which influence the characteristics of social context, seem to rely on relativistic views (Smith and Hodkinson, 2008). Therefore, it could be said that exploring the realities in this research would need to investigate the findings based on relativism perspectives.

In terms of epistemology in constructivism, the findings are created based on what the researcher has explored from the reality where he or she interacts with the research participants (Guba and Lincoln, 1994, Guba and Lincoln, 2005, Guba and Lincoln, 1998). Multiple meanings gained as knowledge are taken from various views of the respondents in a research setting such that the researcher would need to consider the context influencing the perspectives of individuals, and the interrelations between them (Creswell, 2007). Then, the researcher would need to work out how the knowledge can be constructed based on the research methodology.

It was suggested that methodology in a constructivistic paradigm is hermeneutic and dialectic (Guba and Lincoln, 1994, Guba and Lincoln, 1998, Guba and Lincoln, 2005). This means the researcher could gather the data for interpretation, to build the knowledge, via the interaction and discussion with her or his research participants. The researcher would need 'interaction processes' based on a particular context to communicate with the respondents in this matter so that the meaning gained could lead to knowledge production, which the researcher could construct based on his/her understanding and experience (Creswell, 2007).

Hence, the constructivism paradigm is selected in guiding the decision for choosing research strategy, research design, and research methodology in this study.



### **5.3 RESEARCH STRATEGY ASSOCIATED WITH RESEARCH PARADIGM**

Research strategy means the way that researchers use their skills, assumptions, and concept practices when they apply the selected paradigm(s) to researching for new findings (Denzin and Lincoln, 2005b). Research strategies in social sciences could be surveys, case studies, experiments, ethnography, phenomenology, grounded theory, mixed methods, or action research (Denscombe, 2007). Each approach provides the data for the different aims, emphasis, and either quantitative or qualitative paradigms. Strategic approaches to qualitative paradigms include, for example, case studies, ethnography, phenomenology and grounded theory (Denzin and Lincoln, 2005a, Creswell, 1994). Meanwhile, Creswell (1994) summarised that experiment and survey strategies tend to be associated with quantitative research paradigms.

In terms of the focus of the approaches, ethnography focuses on interpreting cultural or social systems developed from the shared model whereas grounded theory emphasises studying a process or interaction within the system which could lead to the generation of theory (Miller and Salkind, 2002). Derived from Alfred Schuts (1899-1959), phenomenology pays attention to the way that one person thinks about the meanings of his/ her own experience such that these meanings could be studied for knowledge production (Holstein and Gubrium, 1998, Bryman, 2008). In mixed methods strategy, Denscombe (2007) considered that mixed methods integrate both qualitative and quantitative approaches within a research process, and are valuable where researchers are concerned about accuracy and developing an analysis method that will allow them to gain clearer ideas about their research questions. Meanwhile, in action research strategy, Bryman (2008) defined that action research is a process which focuses on participation between the researchers and the research respondents in investigating a

research problem together prior to assessing the problem; the data can be gained quantitatively and/ or qualitatively.

Gomm et al. (2000), Creswell (1994) and Yin (2009) characterised and compared schematic research strategies; experimental, case study, and survey approaches based on the types of research questions, investigation, data collection and analysis, settings of the case, types of research data, tentative paradigms, and the purposes of the approaches as shown in **Table 5.3**

The characteristics of research strategies suggested above could help decide which strategy is the most appropriate to use, however, these following aspects should be taken into consideration: the objectives set, research questions, and designed paradigm for conducting the research. Denscombe (2007) suggested that deciding a strategy for the research with a focus on the '*types of problem and investigation*' could help the researcher to have a good strategy that is compatible with what they are looking for such that it could bring about the answers for their questions.

Regarding the review in **Table 5.3**, experimental and survey strategies tend to fit with the positivistic paradigm, as they emphasise quantitative approaches, whereas a case study strategy offers more opportunity to study social phenomena based on qualitative approaches and the selected paradigm in this study. This is because each case is set in a particular context. In addition, Denscombe ((2003) said that selecting the research approaches or strategies should take account of '*appropriateness*' for '*specific aspects of investigation*' and '*specific kinds of questions*'.

**Table 5.3** Comparison of case studies with experimental and survey strategies

<b>Experiment</b>	<b>Survey</b>	<b>Case study</b>
How-, why- research questions	Who- , what- , where- How many- , how much- research questions	How- , why- research questions
Investigation of a relatively small number of cases	Investigation of a relatively large number of cases	Investigation of a relatively small number of cases (sometimes just one)
Information gathered and analysed about a <b>small number of features</b> of each case	Information gathered and analysed about a <b>small number of features</b> of each case	Information gathered and analysed about a <b>large number of features</b> of each case
Study of cases created in such a way to control the important variables – <b>control required</b>	Study of a sample of naturally occurring cases; to maximise the sample’s representativeness in relation to some larger population – control <b>not</b> required	Study of naturally occurring cases; or, in ‘action research’ form, study of cases created by the actions of the researcher but where the primary concern is not controlling variables to measure their effects – control <b>not</b> required
Quantification of data is a priority	Quantification of data is a priority	Quantification of data is not a priority. Indeed, qualitative data may be treated as superior
Tentatively associated with quantitative paradigms	Tentatively associated with quantitative paradigms	Tentatively associated with qualitative paradigms
The aim is either theoretical inference – the development and testing of theory – or the practical evaluation of an intervention	The aim is empirical generalisation, from a sample to a finite population, though this is sometimes seen as a platform for theoretical inference.	The main concern may be with understanding the case studied in itself, with no interest in theoretical inference or empirical generalisation. However, there may also be attempts at one or other, or both, of these. Alternatively, the wider relevance of the findings may be conceptualised in terms of the provision of vicarious experience, as a basis for ‘naturalistic generalisation’ or ‘transferability’

**Source:** Integrated based on Gomm et al. (2000), p.4, Creswell (1994), p.10-12, and Yin (2009), p.8

Experimental research focuses on factor manipulation in a controlled environment that tends to effect the change of the dependent factor (Chadwick et al., 1984). It aims to test a hypothesis or theory or the

*'practical evaluation of an intervention'* (Gomm et al., 2000). Experimental design applied to the studied units is required so that the changing condition of the subjects can be investigated and explained (Gomm, 2009). However, even though experimental research tends to be repeatable, precise, and convenient; it is determined to be an artificial setting which might not be completely appropriate to the 'real world' condition where human behaviour and decisions are key (Denscombe, 2003).

The survey approach tends to need a larger number of cases for the investigation in order to generalise the findings empirically for a group or population (Gomm et al., 2000). It could provide primary information focusing on data as the basis for further research based on quantitative approach, however, it might have a weak point that it could not explain the cause and effect relationships of the problems (Chadwick et al., 1984, Denscombe, 2003).

The case study approach emphasises the study in the natural setting of a case which has its boundary within its particular environment and context (Gomm et al., 2000, Silverman, 2005, Punch, 2005). Cresswell and Maietta (2002) added, "*a case in a case study is a bounded system, bounded by time and place, and the case may be a programme, an event, an activity, or individuals*" (p.163).

This research strategy allows the researcher to explore the relationships and processes generated in the social context of the case (Denscombe, 2003). A case study approach could allow the researcher to explore and investigate significant and dominant points existing in the particular case(s) (Stake, 2005, Stouffer, 1941, Bryman, 2008). It tends to be appropriate in investigating the circumstances of success or failure in particular contexts so that further analysis or prediction could be undertaken (Stouffer, 1941, Robson, 1995). The situations to be studied could be a location setting or context setting, which could be in a large or small context (Miller and

Salkind, 2002). In order to achieve information for the effective findings, communicating with people in the field is an essential task for the researcher (Stake, 2005).

The interest in particular issues of the cases is likely to be a key idea in defining the case study rather than the “*methods of inquiry used*” (Stake, 2005). In addition, Punch (2005) suggested that a wide range of methods can be applied to study a case that could allow researchers to gather answers for their research questions and provide enriched understanding for them. Major foci of a case study approach could be the things related to the main aims of the study, for example, ‘*decision*’, ‘*organisations*’, ‘*individuals*’, and ‘*processes*’ (Yin, 2009). To understand the case in detail, the researcher might need to collect data in various forms (Creswell and Maietta, 2002).

A case to be studied could be single or multiple (Stake, 2005). A single case study tends to be appropriate when the case is considered critical, unique, typical revelatory, and longitudinal, whereas multiple case studies should be conducted based on replication and sound justification in selecting the cases (Yin, 2009). In other words, multiple cases might be studied based on the comparison of the findings among them (Creswell and Maietta, 2002). Stake (2005) mentioned that the most essential concept is that researchers should try to learn about the case sufficiently and try to deliver the findings to the readers so that they can experience the case as if they could see it, understand it, and learn from it via the researchers’ conclusions.

The case study approach has been used in various fields of studies (e.g. psychology, political science, medicine, and law) (Creswell and Maietta, 2002). Among researchers, a case study could be viewed either as a methodology or epistemology rather than a research design (Cashmore, 2007). Regarding the nature and characteristics of this approach, it could suggest that the case study approach provides a wider range of opportunities for researchers gathering the data in different ways such that it could

support knowledge production in most of the research paradigms, for example, positivism, naturalism, constructivism, and participatory research (also see **Table 5.2**). However, it was considered that the most dominant point is that a case study approach could allow a researcher to investigate the “*contextually rich*” structure of what they are studying (Cashmore, 2007,p.70). Hence, without doubt, it could be said that a case study is an appropriate approach when the reality is being focused via the lens of relativistic ontology, which respects the influence of context on the reality.

For these reasons, a case study approach is considered as the most appropriate research strategy for this study as it tends to allow us to find the answers to the research questions ‘how’ and ‘why’ (Yin, 2009). This is because this research study intends to learn lessons on HIA effectiveness based on exploring the answers for the research questions concerning how and why HIA is effective or is not effective in Thailand, with a focus on the nature of its context. Yin (2012) has demonstrated that a case study has been a useful strategy to apply to activities assessments in a real world context, where it does not allow the researcher or evaluator to control the activities in that setting, which are being assessed. In addition, it was agreed that the case study approach is considered useful when the research is relevant to situations occurring in reality (Denscombe, 2003). Furthermore, Stake (2005) suggested that a case study could reflect lessons learned from experience, influencing public policymaking and it could support knowledge development on the issues of interest.

Therefore, a case study approach will be applied to research about the effectiveness of HIA based on the effectiveness framework created in this study. In addition to the reason that the approach could allow the researcher to explain how HIA works in Thailand, why it works, how people perceive it, using a case study approach also allows exploration of the explanation under real world conditions as well as how the findings from the selected case could contribute to HIA development in Thailand.

A single case to study in this research is expected to be an instrumental case study, which means that its findings could contribute to the improvement of HIA effectiveness of those cases in similar contexts. Stake (2005) categorised an instrumental case study as a case, which plays a ‘*supportive role*’ in developing and generalising knowledge based on its findings, nevertheless, the case is still looked at in depth through its context. Yin (2012) justified the theory of the case study, that it should provide linkages between its activities and its outcome within a case context via the “*logic model*”, which comprises *inputs*, *activities* (processes), *outputs*, and *outcomes* (p. 171-172). This is relevant to **Figure 4.2** presented in Chapter 4 in which the effectiveness criteria conceptualised in this research were established to apply to the HIA case.

#### ***Case study selection and generalisability***

Stake (2005) proposed that instrumental case study/studies would require a selection process to isolate an appropriate case from the sample available. Denscombe (2003) suggested that justification in selecting case study could be either based on suitability, or pragmatism, or on a “*no real choice*” basis. Regarding this, the suitability basis could allow the case to be relevant with the research aims and objectives. The pragmatic basis tends to rely on convenience in accessing data. Finally, the “*no real choice*” basis means when “*the study is part of commissioned research*” with unique characteristics of the case (p.33-35).

Silverman (2000) suggested that the case should be selected based on “*combining qualitative research with quantitative measures of populations, purposive sampling guided by time and resources, and theoretical sampling*” so that the findings could be generalised (p.129-133). According to this, purposive sampling tends to be based on parameters of the population when theoretical sampling tends to be based on research settings,

focus, and further generalisation. The case to be selected should allow the researcher to find out more about what they are looking for (Silverman, 2010). Stake (2005) said that for qualitative fieldwork, purposive sampling could bring about “*building in variety and acknowledging opportunities for intensive study*” (Stake, 2005, p.451). For an example of selecting a case by a researcher, Cashmore (2004) selected the cases for his study based on well-resourced EIAs with the assumption that they could provide great probability of gathering the broader perspectives of the cases.

Regarding the research goal in this study whereby recommendations for improving HIA effectiveness are sought, it is necessary to gain knowledge from studying a dominant case, which could show the role of HIA in the Thai context so that lessons from the HIA process can be refined and reflect what should be done in the future. Therefore, it is acceptable for a single case study to be used in this research.

Generalisability could be seen as an external validity of the research that its findings can be applied to other cases or contexts (Punch, 2005). The problem of credibility when generalising the findings from case studies has been mentioned. In particular, the findings might not be representatives of other cases (Denscombe, 2003, Donmoyer, 2000). Regarding this, some social scientists use multiple case studies to support generalisation (Miller and Salkind, 2002). However, if we put the views on generalisation in another way, a case study could be a model for the broader perspectives of different or similar issues (Denscombe, 2003). Silverman (2010) stated that generalisability could be found in any case no matter where the starting point of the research is. Punch (2005) added that, looking beyond the quantitative generalisation, deeper understanding gained from studying the case could reflect the lessons learned, which could fulfil more understanding and contribute more knowledge to other different research strategies. Furthermore, Donmoyer (2000) emphasised that alternative views on generalisation regarding experience accumulated as personal knowledge



should also be considered. Moreover, to generalise the findings from a case study approach, Punch (2005) stated that researching on “*conceptualisation*” and “*proposition development*” could be considered and applied with other cases (p. 146).

Regarding the arguments about researching using a case study approach, this study expects to achieve more understanding about the effectiveness of HIA in the context of the case based on the conceptualised criteria created. The findings could be evidence supporting one or more of the four categories of effectiveness of HIA (procedural, substantive, transactive, and normative), and could contribute to the decision-making process as well as considering how to improve the effectiveness of this case, and of other impact assessment processes at national level. The contribution of this research towards improved HIA would be sought after the completion of this thesis by communicating the findings and recommendations to the research respondents, including those who work on HIA practice development, as well as the decision making organisations, in Thailand. Therefore, the knowledge gained from this case study can be generalised in the sense of lessons learned from the case as part of the whole research process or learning process about measuring the effectiveness of impact assessment processes in Thailand.

The selection criteria for the case study are based on those suggested by Denscombe (2003), Cashmore (2007), Silverman (2005), and Stake (2005) that the case should be suitable, purposive, and allow accessibility and opportunity to learn from.

To select a case to measure the effectiveness of HIA for this research, research on HIA case studies in Thailand were screened, the researcher obtained the information about the cases from the database of Knowledge Bank provided by the Health System Research Institute (HSRI) and its alliance (<http://kb/hsri.or.th/dspace/>). This database was used because the

HIA research cases were introduced and sponsored by HSRI, as reviewed in Chapter 3 before legal regulations for HIA implementation came into force explicitly, and all those reported have been recorded in this knowledge bank. The keywords used for the search were both in Thai and in English and comprise ‘HIA’ (8 items found), ‘health impact’ (1410 items found), ‘ผลกระทบต่อทางสุขภาพ’ (89 items found), ‘health impact assessment’ (1417 items found), and ‘การประเมินผลกระทบต่อทางสุขภาพ’ (77 items found). In this search, an abbreviation for HIA does not exist in Thai. Nevertheless, not all items were HIA research reports because relevant words were contained in the titles of irrelevant reports, therefore, the reports were screened, based on suitability and purposes of this research, by browsing the titles and abstracts. There were 47 reports found relevant to HIA whereas there were only 10 cases among these that presented the HIA process associated with specific cases.

The HIA of a Potash mining project in Udon Thani province, Thailand (**Table 5.4**), was selected for this study. It is appropriate as a single case study for the following reasons:

1. *Availability of HIA*: Although this HIA was not conducted by law, the public demand for HIA led to public scoping prior to the HIA process being conducted.
2. *Availability of EIA*: An EIA of the Potash mining project was completed and was approved by the Office of National Natural Resource and Environment Policy and Planning (ONEP), prior to doubts and anxiety from the public leading to conflicts between the project developer and local people.
3. *Public expression on the right to be healthy regarding Section 67 in Thai Constitution*: The idea of conducting HIA for this project was initiated by participants from various sectors:

academic institutes, NGOs, local people representatives, and governmental sectors.

4. *Activities of public participation in the HIA process*: It took 2 years to complete the HIA process involving cooperation among 2000 participants from various sectors: governmental, private, public, academic, mass media, and NGOs.
5. *Continuing activities after the HIA*: The HIA report provided the solutions for further operations such that it is interesting to follow up how the HIA influenced stakeholders and how it affected their actions.
6. *Reputation of the case*: This case received attention from the public via public media communication and relevant sectors due to the demand of community members to participate in the impact assessment process of the case.
7. *Ongoing decision-making*: Decisions about the project development have not been finalised yet. Therefore, the findings from this research might be useful in the ongoing decision-making process.

**Table 5.4** Potash mining project and HIA findings summary

<b>Project developer</b>	: Private sector
<b>Mining type</b>	: Room and Pillar
<b>Approximate development budget</b>	: <i>Construction phase</i> : 300 million US dollars : <i>Operation phase</i> : 68 million US dollars per year
<b>Duration of operation phase</b>	: 25 years
<b>Environmental and health constraints</b>	:Concerns on impacts that might occur from the construction and operation phase towards human health and physical environment in the sensitive area
<b>Socio-political context</b>	:Salt production from Potash mining could affect salt mine management in Udon Thani province by over-producing salt in the area which affects the balance of both the physical environment and socio-economic environment. : Water resource conflict
<b>Findings from HIA process</b>	: <i>Positive impacts</i> suggested that there would be more employment opportunity, development of basic public utility, mining technology development, and the project development caused the initiation of public consultation for healthy public policy in Udon Thani (via HIA process). : <i>Negative impacts</i> suggested that the project could affect the environment and people's health. Environment may be contaminated by mass of tailing from project operation. Meanwhile, health consequences could be influenced physically (illness that might result from pollution), mentally (anxiety on environmental and social changes), socially (conflicts between project supporters and opponents), and intellectually (learning and knowledge gain from taking part in the public consultation via this HIA process). : <i>Recommendations for project development</i> <b>Option 1:</b> Terminate the project development as it conflicts with the health system reform concept, local health vision and provincial strategic plan, and the 10 <sup>th</sup> national socioeconomic development plan. <b>Option 2:</b> Review the project development by conducting strategic environmental assessment (SEA) for salt policy development related to Potash in the northeast, reviewing the contract between the project developer and the Thai government based on the equity concept, cancelling the previous approved EIA, providing public consultation for Udon Thani vision development, and provide efficient systems to support the consequences in case the project is allowed to develop.
<b>Comments</b>	: The HIA process allows the findings to be considered in the decision-making process as well as reconsideration for EIA concerning more public participation in future, SEA of salt management, and local public comments.

**Source:** Adapted based on EIA report by Team Consulting Engineering and Management Co., Ltd. (2001) and HIA report by Pempkam et al. (2006)

For these reasons, it could be emphasised that the case selected could provide a wide range of opportunity for the researcher to learn about the effectiveness of the HIA process, even though it was not legally required at that time. This could be supported by the suggestion made by Boeije (2010) that the research setting (or a case) should be selected when the researchers recognise that there are sufficient opportunities for them to learn and explore the reality and knowledge, to answer their research questions, coupled with the possibility that they could access the field or community.

#### **5.4 RESEARCH DESIGN**

It was investigated, by Valerie Janesick, that four main components should be considered in research design: the connections between the paradigm and the research design; things to be studied; research strategy and research methodology (Denzin and Lincoln, 1998, Janesick, 1998). Lewis (2003) added that providing clear research questions, research setting, and good cooperation for research practice would help make the research design effective. Likewise, Maxwell (2005) argued that the key components of the research design should comprise goals, conceptual framework, research questions, methods, and validity (Maxwell, 2005). He emphasised that these components could interact and reflect each other so that researchers could demonstrate their research concept explicitly. Yin (2009) also stated that the components of research design should comprise research questions, research proposition, research unit(s) of analysis, logical connection between data and the propositions, and the criteria for data analysis.

A qualitative research approach is applied in this study because its characteristics allow the researchers to find answers for their research questions from what they see in the real world. This is because qualitative research could lead to knowledge exploration on the basis of empirical materials (Denzin and Lincoln, 1994). Creswell (1998) suggested that qualitative research is *'an inquiry process of understanding based on*

*distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting'* (p. 15). It could help researchers understand things in the real world based on data collection from interaction between people so that knowledge or meanings could be interpreted and created (Denzin and Lincoln, 2000, Chadwick et al., 1984). The qualitative research approach also sheds light on the context where the research is conducted (Marshall and Rossman, 2006, Rossman and Rallis, 2012).

Furthermore, qualitative methods allow researchers to understand more about '*evaluative functions such as implementation analysis, process analysis, and community acceptance studies*' (Mohr, 1995, p.260). Also, it is a flexible concept which allows researchers to learn and explore more of what they are focusing on (Chadwick et al., 1984). Holliday (2007) considered the qualitative approach in terms of activities, beliefs, steps, and its rigour that it allows the researcher to research things in a particular context and build knowledge, which is compatible with the context, based on what they see in the field such that the focus can be investigated in parallel with developing the research strategy.

Moreover, Creswell (2007) argued that a qualitative research methodology is an inductive process that allows the researchers to learn based on the experience gained during the research process, when research questions might be modified, such that knowledge can be built. This suggests that the research setting and context could influence how knowledge can be achieved when researching something in reality. However, it should be recognised that the researcher must possess the desired skills before starting data collection in the field (Yin, 2009). Good questions are necessary as well as preparing to be a good listener, and be adaptive and flexible

Thus, a qualitative approach is compatible with the constructivism paradigm for this study, with a focus on relativistic reality, where things depend on the context, such that it could flexibly allow the researcher to explore in-depth reality of the case and understand its nature so that the research questions can be answered.

Regarding the components suggested by Maxwell (2005), Janesick (1998), Denzin and Lincoln (1998) and Yin (2009), the research design of this study is presented in **Figure 5.2**. This also demonstrates the framework of the research design based on the constructivism paradigm.

<b>Effectiveness of Health Impact Assessment in Thailand: Case study HIA of Potash Mining in Udon Thani Province, Thailand</b>	
<b>Strategy: Single case study approach</b>	
<p style="text-align: center;"><b>Goal</b></p> <p>To develop a conceptual framework for measuring HIA effectiveness and provide recommendations for the improvement of effectiveness</p> <p style="text-align: center;"><b>Objectives</b></p> <ol style="list-style-type: none"> <li>1. To review perspectives on HIA theory, practice, roles, and contributions to policy making and programme/ project development</li> <li>2. To study the effectiveness context of impact assessment and set the conceptual framework for measuring the effectiveness of HIA</li> <li>3. To apply the effectiveness conceptual framework to a HIA case study in Thailand: Potash Mine HIA in Udon Thani province, Thailand</li> <li>4. To use the findings from this study to advance HIA theory in terms of effectiveness perspectives</li> <li>5. To provide recommendations for the effectiveness improvement</li> </ol>	<p style="text-align: center;"><b>Conceptual Framework</b></p> <p>To evaluate the effectiveness of HIA based on factors influencing procedural, substantive, transactive, and normative effectiveness</p> <p><i><b>Procedural factors:</b></i> political framework, political context, financial resources, public participation, and lessons and experiences</p> <p><i><b>Substantive factors:</b></i> regulatory framework, mechanism in decision making context, stakeholders, and quality, accuracy, and understandability of impact assessment report</p> <p><i><b>Transactive factors:</b></i> effective management of resources in HIA process</p> <p><i><b>Normative factors:</b></i> perceptions about the conditions of particular context of the case (such as relevant policy and practice)</p>
<p><b>Research Questions</b></p> <ol style="list-style-type: none"> <li>1) <u>In what ways</u> (how) do people use HIA and <u>why</u> do they use it?</li> <li>2) <u>How</u> do we define the effectiveness of HIA and <u>how</u> can we measure it?</li> <li>3) <u>How</u> did HIA of Potash Mining in Udon Thani perform based on the effectiveness criteria developed in this research?</li> <li>4) <u>How</u> did the effectiveness conceptual framework work when applied to the case?</li> <li>5) <u>What</u> are the major factors influencing the effectiveness of HIA implementation referring to the case, and <u>why</u>?</li> <li>6) <u>How</u> can we improve the effectiveness of HIA in the Thai context?</li> </ol>	
<p><b>Constructivism Paradigm</b></p> <p>(Ontology: Relativism, Epistemology: Transaction, Methodology: In-depth Interview)</p>	
<p style="text-align: center;"><b>Qualitative research methods</b></p> <p><b>Research setting</b> Identify key informants/ a single case study</p> <p><b>Data Collection</b> Documentary analysis Interviews ( in-depth and semi-structured)</p> <p><b>Data Analysis</b> Thematic analysis (data coding, structuring, and verification)</p>	<p style="text-align: center;"><b>Validity</b></p> <p>Triangulation of sources and methods (Collecting information using a variety of sources and methods (Fielding and Fielding, 1986, Maxwell, 2005, Denscombe, 2003)).</p>

**Figure 5.2** Research Design after literature review



## **5.5 RESEARCH METHODS AND APPROACHES**

Research methods help the researchers gain the data, information and more understanding about what they are studying. Maxwell (2005) stated that there are four main components in qualitative methods: research relationship; site and participant selection (research settings); data collection; and data analysis. The functions of qualitative research method are '*contextual*', '*explanatory*', '*evaluative*', and '*generative*' (Ritchie, 2003, p.27). Also, justification of the connections of research questions, sources of data, and selected methods should be conducted when designing the research methods (Mason, 2002a). This means appropriate qualitative methods could provide a means for the researcher to explore the nature of reality, why the reality exists that way, how the existing reality works, and how to apply the findings in improving or developing the knowledge or practice. In addition, to obtain good research methods, Stake (2005) added that the case should be bounded, the objectives of the study should be conceptualised, and the key observations and interpretation should be triangulated.

This section draws attention to the research methods designed for this study to answer the research questions. It critically justifies the research setting of this study, data sources, data collection methods, data analysis, its generalisation/ validity and reliability.

### ***Research setting***

It is essential to understand the research setting so that the plan for data collection can be well decided. Searching for key informants and places for the field study is a key step to allow the researchers to access and obtain data related to the research objectives (Creswell, 1998, Maxwell, 2005). Holliday (2007) suggested the criteria to consider for research setting, including that an appropriate boundary for the study should be recognised so

that it could be possible for the researcher(s) to manage the research activities, also, the setting should be accessible as well to allow an investigation of the relationships between data.

Considering the research questions and design of this study, the boundary of the case was set as Thailand, where key informants can be accessed in Bangkok, Nonthaburi, Udon Thani, and Khonkhaen. Regarding case study selection, the case was decided based on suitability, purposiveness, accessibility, and experience derived from the case. The key informants are determined to be representatives from HIA practitioners, government sectors (HIA facilitators, authorised decision makers), communities, non-governmental sector, and the project developer. These key informant groups were defined based on stakeholders participating in the HIA process for Potash mining during 2004-2006 and those who might have been or should have been involved with the project development in Thailand to date.

Relationships between research questions and methods used were suggested by Mason (2002a). The points to justify should focus on the availability of appropriate data sources and methods; their potential in answering the research questions; the ways to know the answer to the research questions; which of the research question(s) the data sources and the methods could help find the answer to; and the related background to the data sources and methods. Based on this suggestion and those reviewed above, the research questions in this study are investigated in connection with the methods considered for this research as presented in **Table 5.5**

**Table 5.5** Connection analysis of research questions, data sources, methods

<b>Research Questions</b>	<b>Data sources</b>	<b>Methods</b>	<b>Justification</b>
<b>1) In what ways do people use HIA, why?</b>	All groups of the key informants	Interviews	Interviews provided data for the researcher about the purposes of HIA when people want to apply it regarding their contexts, experience, and perspectives.
	Articles, official documents, newspapers, websites	Documentary analysis	Documentary analysis provided general and specific background on HIA practice in Thailand as well as the background of this case study.
<b>2) How do we define the effectiveness of HIA and how can we measure it?</b>	All groups of key informants	Interviews	As the purposes of HIA might be different when people look at HIA, interviews helped the researcher explore how people from different sectors define HIA.
	Articles, literature, relevant regulations	Documentary analysis	Analysis of published articles, literature and relevant regulations brought about more understanding on HIA definition suggested in different contexts and perspectives.
<b>3) How did the HIA of Potash mining in Udon Thani perform based on the effectiveness criteria developed in this research?</b>	Representatives: • HIA practitioners • HIA participants • Government sectors • Non-governmental sector • Project developer	Interviews	Interviews based on the aspects of the effective framework (procedural, substantive, transactive, and normative) provided data about the experience that the interviewees gain and perceive about the HIA process
	HIA report	Documentary analysis	Findings in HIA report provided relevant data to the case
<b>4) How did the conceptualised effectiveness framework work when applied to the case?</b>	Representatives: • HIA practitioners • HIA participants • Government sectors • Non-governmental sector • Project developer	Interviews	The responses from the interviewees reflected their understanding about the criteria while their comments could suggest how the criteria framework is appropriate to this context.
	Articles, literature, relevant regulations	Documentary analysis	Analysis of published articles, literature and relevant regulations provided relevant data to consider with the effectiveness framework
<b>5) What are the major factors influencing the effectiveness of HIA implementation/ application referring to the case, and why?</b>	Representatives: • HIA practitioners • HIA participants • Government sectors • Non-governmental sector • Project developer	Interviews	Interviews conducted with the research participants from different sectors reflected levels of concerns about HIA and key factors that might lead to HIA application or implementation in decision-making.
	Articles, official documents, relevant regulations, websites, newspapers	Documentary analysis	Document data provided the evidence of concerns throughout various sectors about the HIA practice and application or its performance on decision-making.
<b>7) How can we improve the effectiveness of HIA in the Thai context?</b>	Representatives: • HIA practitioners • HIA participants • Government sectors • Non-governmental sector • Project developer	Interviews	Interviews allowed the researcher to learn different views among the research participants in terms of how HIA could work when HIA is taken into account at all levels of decision-making. This revealed their ideas and perception based on their experience on the HIA.
	Articles, relevant regulations	Documentary analysis	Analysis of the documents and literature supported the findings gained from the interviews in terms of building a history for the improvement of HIA effectiveness.
	Research findings	Data analysis based on all methods used	Findings analysis led to building practical recommendation for the improvement of HIA effectiveness in this context and its similar ones.

### *Data Collection methods*

Referring to the justification of the linkages between the research questions and research methods detailed in **Table 5.5**, documentary analysis and interviews were the main methods used in this research. This can be connected to the consideration suggesting that data collection in a case study approach relies on multiple forms/ methods (such as interviews and documents) taken from multiple sources that could provide a wider opportunity for researchers to gather sufficient data (Creswell and Maietta, 2002, Denscombe, 2003, Creswell, 2007, Miller and Salkind, 2002).

### *Documentary analysis*

Documentary analysis is conducted to generate more understanding about the reality/ knowledge (Ritchie, 2003). Critically examining the documents could identify the historical changes of the studied reality (Smith and Bowers-Brown, 2010). The documents could be gathered from various written sources (Denscombe, 2003). To access the sources, initially, using the internet could help the researcher gather information from the websites of organisations (Denscombe, 2007). Furthermore, data can be obtained by direct contact with relevant organisations or individuals (Boeije, 2010). The forms of documents could be relevant public/ official documents, field journals, field diaries, conducting checklists, and reviewing health records (Creswell, 2007). It also could be letters, meeting minutes, and any existing evidence in documentary form (Boeije, 2010). Yin (2009) added that administrative documents (such as progress reports) and formal research of the same case are also interesting to consider as documentary data. Using documents as '*trace measures*' could help provide the basic information which could serve as cross-validation supporting other methods in collecting data as well as helping researchers create supportive direction for gathering the data (Robson, 1995).

Yin (2009) argued that documentary data could have both strengths and weakness. In terms of strengths, the researcher(s) could review the documents as many times as they want, they also can find evidence in the form of names, references, and its features while the documents seem to cover a broad range of data. Nevertheless, he stated that it might not be easy to gain and access the documentary data and might introduce bias when the data collection is not sufficient and when the authors of the documents might have generated their own biases. On this account, the researcher should consider carefully when using documents as a data source (Mason, 2002d). To gain knowledge from this source, it is important to recognise that the documents might be generated within unique contexts such that it should be viewed as '*constructions rather than excavations*' (p.111). This is because different settings could be interpreted by the public as different patterns (Atkinson and Coffey, 2004). This means the researchers should evaluate the documents thoroughly prior to using them as data in their research. However, documentary analysis is considered beneficial when it is applied to researching the relevant experience history of people in the case where communications are generated among them (Ritchie, 2003).

Documentary analysis can help the researcher to gain more understanding about the case that can support other data collection methods, therefore, this research gathered relevant documents associated with the case from various sources. The documentary data were obtained from the internet, individual respondents, the local library and relevant governmental organisations by both official and personal contact. The data were written in both Thai and English in the forms of official meeting minutes, EIA report of the case, written articles, relevant regulations, research theses (for masters degree from universities in Thailand), research reports, books, newspapers, and official letters that relevant sectors communicated about the case. These data were evaluated based on their '*authenticity*', '*credibility*', '*meaning*', and '*representativeness*' as suggested by Denscombe (2007). Atkinson and Coffey (2004) also stated that it is important that the researcher(s) should

understand the pathway of document production, purposes, distribution, and its usage. Therefore, concerning the suggestion about documentary analysis coupled with the context of this research setting, the documents used in this study were evaluated carefully prior to analysis along with the findings gained from other methods to maintain accuracy as much as possible. In addition, the documents used in this study were cited and included in the references section of this thesis.

### *Interviews*

Mason (2002b) suggested that interviews in qualitative research are the dialogues between people interacting, informally, in research setting contexts, with a specific theme related to the research topic. It is a “*purposeful conversation*” which provides an opportunity that allows the data exchange between the research respondent and the researcher (Ruane, 2005, p.149). The conversations are conducted by the researcher, who needs to have skills in communicating with people, to explore the knowledge from the interviews (Arksey and Knight, 1999). Yin (2009) considered that the interviews are supposed to lead the conversations rather than asking questions. The researcher(s) or interviewer(s) would ascertain the meanings and knowledge from the interviews based on the conversational structure and the research aim(s) (Kvale, 2007). Therefore, it is essential that the researchers would need to have good technique and skills to conduct the interviews base on the points they have provided (Denscombe, 2007). For example, they should be able to have sufficient interpersonal skills as well as being a good listener that it could help the interviews run smoothly, harmoniously, and be comfortable for the interviewee (Ruane, 2005). Moreover, Creswell (1994) recommended that that the researcher(s) should think about providing interview guides, core questions, and good preparation for note taking or recording of the interviews.

Yin (2009) emphasised that interviews could help when exploring information about the case study. This is because gaining the data from the interviews could identify perspectives, feelings, emotions and experience among people whereas, in some conditions, the issues might be sensitive such that in-depth information can be delivered through the interviews (Denscombe, 2007). Arksey and Knight (1999) considered that qualitative interviews could lead to implicit things becoming more explicit because the interview could help reveal *“the context of thought, feeling and action”* such that it *“can be a way of exploring relationships between different aspects of a situation”* (p.32). Likewise, it was considered that ontology of the reality which relates to individual perceptions, perspectives, knowledge, and experience can be learned, epistemologically, based on the interaction in the interviews (Mason, 2002b). Kvale (2007) added that in the real world situations, where human beings live their lives, interviews could be seen as a potential approach to investigate reality from people’s knowledge and experience. When people were asked to talk, it could help determining the components of their setting so that knowledge can be constructed based on interpreting their perspectives when saying things (Mason, 2002c). It is also essential that understanding gained from the interviews should be based on the characteristics of the stories, the way the stories were generated, and how the researcher(s) can justify and theorise the stories appropriately and wisely (Miller and Glassner, 2004).

Interview styles could be classified into three types as fully structured interviews, semi-structured interview, and unstructured interviews (Robson, 1995). Regarding this, the fully structured interview provides fixed wording of questions in a set order. It seems that more control by wording of the question structure is required in the structured interview such that it might frequently be used in quantitative surveys where the data are expected from larger numbers of a population (Denscombe, 2007). Meanwhile, the semi-structured interviews provide a set of questions but the structure could be adjusted and be flexible where the words in questions could be changed

(Robson, 1995). The idea about the questions remain explicit in conducting semi-structured interviews for the researcher(s), however, the flexibility would allow the interviewer exploring deeper information based on more developed ideas of the interviewees, so that more significant answers regarding the issues can be generated (Denscombe, 2007). In contrast, unstructured or in-depth interviews allow the interviewer to explore information from the conversation on the area of interests (Robson, 1995). This type of interview relies on the interviewees' perspectives that have developed based on their own idea while the researcher initiated the issues for them to response to (Denscombe, 2007). In-depth interviews might take longer to conduct (Bouma and Ling, 2004). The latter two types are widely used in qualitative research approaches (Bryman, 2008), where both of them are considered a "*continuum*" such that the scale of practice could be shifted to one another depending on the level of preparedness of the researcher that would allow the interviewees to express their views (Denscombe, 2007, p.176).

There might be some weaknesses considered in using qualitative interviews. Arksey and Knight (1999) noted about anonymity that some questions or issues arising in face-to-face interview could probably cause an embarrassing situation between the talkers. Yin (2009) reflected that bias could happen when the questions are not clear enough or when the interviewees want to satisfy the researcher, as well as inaccuracy could be experience when the interviewees might have difficulty in remembering the information. Conducting interviews can be a time-consuming process (Denscombe, 2007), but regarding this, Arksey and Knight (1999) advised that time and money for interview arrangements might need careful consideration in planning. Mason (2002b) mentioned that good planning is essential for qualitative interviews in terms of deciding key informants, gaining the access, and preparing good interviews. Similarly, Denscombe (2007) cautioned that the interviews could fail if there is not enough good planning, preparation, and interacting skills. However, these weaknesses can



be prevented by providing a good plan and good preparation prior to conducting the interviews. To achieve a good result, Boeije (2010) suggested that the questions provided for the interviews should fit with the research purposes, topic and be written using understandable language. To secure anonymity, the willingness of interviewees to give their consent to take part in the study as well as the rights they have in choosing their words for on- or off- record are also essential (Denscombe, 2007, Boeije, 2010).

Referring to the justification in **Table 5.5**, the interviews allowed the researcher to explore various views of people from different sectors when looking at the effectiveness of HIA, in the context of this case. Kvale (2007) investigated that the social construction of knowledge can be obtained when conducting interviews in real- world research. In terms of epistemology of the paradigm applied in this research, constructivism, considering the paradigm concepts suggested by Guba and Lincoln (1998 and 2005), it is suggested that the interviews are the bridge between the knower (researcher) and knowledge (reality) so that the findings gained from the interviews can be interpreted, or constructed, to theorise the knowledge by the knower. Regarding different perspectives on the HIA and its effectiveness in this case, the context could be studied via face-to-face conversations with stakeholders for which interviews seem to be the most appropriate approach. Therefore, semi-structured and unstructured interviews were applied as part of the data collection methods in this study. Regarding this, transcripts of the interviews were sent for approval from the participants prior to the data analysis step.

Creswell (2007) emphasised that researcher(s) should pay attention to the actions of stakeholders involved with a case within a bounded system, accessing key informants, considering the data forms, the data sources, purposive sampling of the recording information, issues found in the field research, and the data storage.

### ***Accuracy: validity and reliability of collected qualitative data***

Boeije (2010) considered that assessing the accuracy for the research findings could reflect the extent to which the research quality is justified. Seemingly, validity and reliability have been considered as a core of measurement in quantitative research with a positivistic lens (Punch, 2005, Kvale, 2007). However, validity and reliability are also the concepts used in considering the accuracy level in social research (Denscombe, 2010). Bryman (2008) emphasised that validity and reliability are important in ensuring the quality of the social research. The validity and reliability have also been mentioned using terms like credibility and trustworthiness in qualitative research (Kvale, 2007).

Validity is considered as a concept that could make sure that the qualitative research findings are credible (Arksey and Knight, 1999). Kvale (2010) justified validity as *'the truth, the correctness, and the strength of a statement'* (p.122). Validity in social research is considered a concept that could make sure that when something is being investigated, it is being exactly the thing targeted to be investigated (Arksey and Knight, 1999, Kvale, 2007). Mason (2002) said, *"If your research is valid, it means that you are observing, identifying or 'measuring' what you say you are"* (p.39). This means validity is a concept suggesting that the researcher knows what he or she is exactly doing or studying about something. It could be seen as a state suggesting the quality when something is evaluated based on the aims and the connected conditions (Brinberg and McGrath, 1985). Denscombe (2007) summarised that the validity concept is *"the extent to which research data and the methods for obtaining the data are deemed accurate, honest and on target"* (p.335).

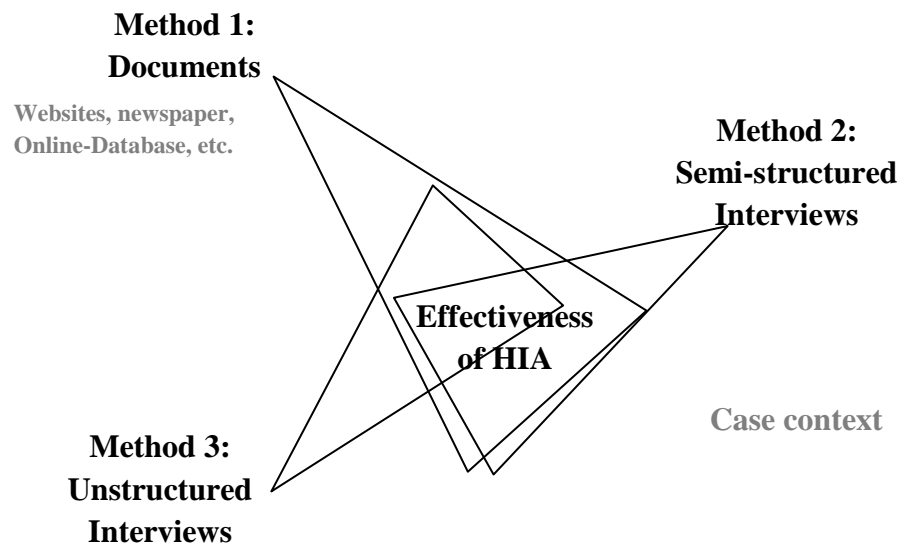
Holliday (2007) proposed that good justification of choices of social setting, research activities, research themes and focuses, and researcher's dedication are the sources of validity that could help shape the research methodology

and ensure its validity. Mason (2002) emphasised that validity of methods used and interpretation of findings are essential in maintaining the validity of the research.

On the other hand, considering reliability, sometimes it could be questioned in qualitative research (Chadwick et al., 1984). Mason (2002) considered that reliability is related to accurate research methods to which a researcher needs to pay attention when using them. Kvale (2007) commented that reliability is applicable to “*the consistency and trustworthiness of research findings*” (p.122), in other word, for example, in the interviews, the same findings will be obtained when the interviewees are asked again at different time or by different people. Denscombe (2010) added that reliability concerns the consistency that the research methods used could generate the same findings and the researcher can make sure that the findings are not interfered with by the methods being applied.

### ***Triangulation***

In order to provide accuracy for the findings in this research based on the concepts of validity and reliability, triangulation technique are applied in this study. Bryman (2004) defined triangulation as an approach comprising multiple sources or methods in gaining data when researching a unit of social realities. Using multi-sources and multi-methods, to facilitate triangulation, in data collection could produce broader perspectives of data on a single study point (Fielding and Fielding, 1986, Denscombe, 2003, Maxwell, 2005, Chadwick et al., 1984). This helped improve the validity and credibility of the study result (Denscombe, 2003, Maxwell, 2005) **(Figure 5.3)**



**Figure 5.3** Multi-sources and multi-methods in triangulation  
 Based on Fielding & Fielding (1986), Denscombe (2003), and Maxwell (2005)

Denscombe (2010) justified that the data accuracy can be evaluated based on the comparison of findings gained from multiple methods and sources which can be considered based on a triangulation approach. Documentary analysis and interviews were considered as multiple methods used in gathering data from multiple sources in this study. In terms of documentary analysis, the documents were identified from multiple sources prior to the assessment of the credibility of the information by considering organisations and authors that generated the documents based on the criteria suggested by Denscombe (2007) and Atkinson and Coffey (2004). In terms of the interviews, semi-structured and unstructured interviews were conducted with categorised groups of the key informants. Kvale (2007) stated validity as a quality of researcher's skills in terms of ability to justify things, examine things related to the issues studied, question things, and interpret the findings gained from justified methods. Arksey and Knight (1999) added that validity can be improved by building trust with the respondents, providing precise questions set based on research questions, and conducting the interviews with appropriate skills, for example, trying to ask only

relevant questions and trying to encourage the interviewee to explain or clarify more about the points being made. These suggestions were taken into account during data collection in the field research. Furthermore, to maintain accuracy of the data and respect an ethics concern, the interview transcripts were sent to the informants for them to check and agree that the data can be used in this study. This could allow the interviewees to take time to consider what they said during the interviews. This could help ensure that the data are well refined based on the approval of the research participants.

Therefore, triangulation, for example in this case by using documentary analysis and the interviews, could allow researchers to ‘clarify meaning’ and ‘verify repeatability’ based on the ‘multiple perception’ (Stake, 2005).

### ***Data collection approach***

#### ***Key informants sampling***

Selecting key informants for the interviews in this research was mainly considered based on a purposive sampling strategy, assisting by using a snowball-sampling strategy to gain more numbers of the interview samples. Denscombe (2007) and Creswell (2007) commented that purposive sampling can be applied with deliberate concern that the selected key informants could have been potential sources of the information about the case, regarding their experience, roles, and knowledge. This means some of the key informants were selected based on the literature gathered for this case study. In the review stage, referring to the report of the HIA case, provided by Pengkam et al. (2006), the stakeholders identified in the HIA report were obtained based on public consultation in the scoping stage of the HIA, in which various relevant sectors took part. The stakeholders of the Potash Mine project were specified as governmental sectors, private sectors, and the local population. Therefore, initially, the key informants could be identified for the interviews in this research by purposive sampling based on

stakeholders involved in the HIA process. The informants selected from different sectors for the interviews in this research could have had related roles and experience to the case, and could provide wide range of the opinions. In addition, these key informants had their working networks and knew more people in this field so that some of them had suggested more interviewees to the researcher. This practice is called the snowball method when the approached informants, at the beginning, suggest additional informants for the researcher to approach as a data source (Boeije, 2010). It can be added that snowballing could help the researcher gain more potential informants to interview and it can work well alongside purposive sampling technique (Denscombe, 2007, Arksey and Knight, 1999).

In this study, the groups of key informants were considered based on Penkam et al. (2006) whereby the stakeholders were identified based on public consultation in HIA scoping for this case. The representatives from governmental sectors, private sector, and local population were the main groups to interview. These groups were identified in detail as presented in **Table 5.6**

**Table 5.6** Key informants considered for semi- structured and unstructured interviews

<b>Governmental sectors</b>	<b>Private sectors</b>	<b>Local population</b>
HIA facilitators	Project development team of Potash Mining Project	HIA practitioners
Statutory consulting sectors - Representatives from the Office of Natural Resource and Environment		Community members
Decision makers at national level		Independent sectors
Decision makers at local level		Non-Governmental Officer
Others (snowballing cases found)		Other (snowballing cases found)

In terms of the number of the research participants to interview, Punch (2005) advised that the respondent numbers to be interviewed can be

considered based on the plan that the researchers use for sampling, which is always based on their research questions and objectives. Denscombe (2007) added that because selecting research respondents in qualitative interviews tends to rely on '*non-probability sampling*' (p.189); fewer respondents are used when compared to quantitative surveys; again, the research aims were stated as a priority when considering the number of the interviewees. Kvale (2007) also emphasised that the research aim would help identify the number of people to be interviewed; however, he suggested that the interviews should be conducted with sufficient numbers of subjects such that the researchers could find the answers for their research questions. Cashmore (2007) interpreted this in his thesis when designing the numbers of the research participants based on '*conceptual saturation*' (p.89) where the in-depth data required is sufficient for the analysis. Arksey and Knight (1999) suggested the researchers should continue the interviews until they could establish the point where new perspectives are not found anymore. They also suggested that when sampling is justified, it is appropriate to recognise the limitations imposed by the resources available in terms of "*time, money, access*" (p.58) as well as the research aims and focus. Therefore, the range of the interviews was initially designed for 25-30 cases within three months. This number was expected to achieve the appropriate richness of information for the study when the insights of the finding are analysed later on. However, as a result of purposive sampling and snowballing sampling technique, the point where it was felt that the data had reached saturation of required information for the study was finalised when thirty cases in total were interviewed in this research.

#### *Accessing key informants*

Accessing the key informants was planned in advance by using the contacts via e-mail addresses or telephone calls prior to the interviews taking place later on. Based on this approach, one of the key informants who has a key role in HIA development in Thailand, suggested the researcher should

attend the “HIA conference: Urban development and extractive industries: What can HIA offer?” on the 7<sup>th</sup> April 2010 at the WHO Headquarters in Geneva. This conference allowed the researcher to meet several key informants from Thailand who have key responsibilities about considering HIA development and application at the national level. This opportunity helped the researcher introduce the research topic to them, during the coffee breaks, and primarily ask for permission to interview them at a later occasion when the field research was conducted in the following two months. In addition, telephone calls were conducted for people that did not attend the conference, and whose contact details could be found on the websites of their organisations, for example, other HIA practitioners. After the initial contacts, official letters, interview guides, and a questions theme were sent to the interviewees via post or e-mail (The questions theme was trialled by interviewing a volunteer who has a similar study background to the researcher and knows both the Thai and English language.) Therefore, when the data collection process was started in the field, interviews for eight interviews were arranged in advance. Then, more interviews were arranged based on the snowballing sampling approach so that the researcher could contact all other groups of the stakeholders. Difficulty was experienced on some occasions when the targeted cases were too busy; however, attempts were made to reschedule to help the researcher completing the interviews for this study.

The activities in the field, for example, travelling and using venues for the interviews subject to a risk assessment and an operational plan has been provided for their safe operation.

### ***Data analysis***

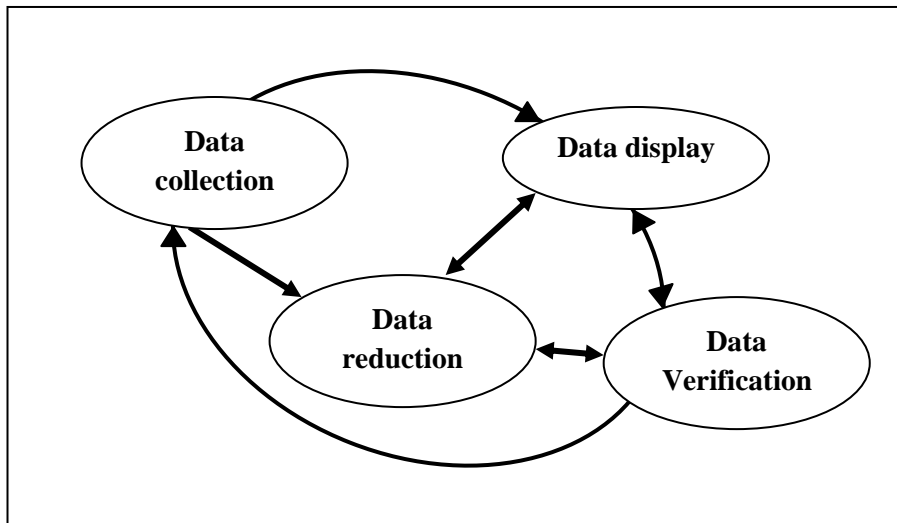
Analysis of data in case study research should be qualitative rather than quantitative (Gomm et al., 2000). This is due to the case study focusing on in-depth features of the case as mentioned before. Creswell and Maitetta



(2002) suggest that the data analysis process in a case study should consider the case in detail and describe it regarding the evidence or chronological steps developed.

Data analysis has been defined as a process which the researchers performed based on '*interpretative philosophy*' or a process that they investigate and interpret the findings to build a knowledge (Gibbs, 2002). Boeije (2010) defined qualitative data analysis as "*the segmenting of data into relevant categories and the naming of these categories with codes while simultaneously generating the categories from the data. In the resembling phase the categories are related to one another to generate theoretical understanding of the social phenomenon under study in terms of the research questions*" (p.76). This suggested that analysing qualitative data should be done neatly and carefully to be sure that the key themes of the findings connected well with the research questions of the study. Denscombe (2007) added that it is essential to consider logically when analysing data for knowledge production based on the findings gained.

Miles and Huberman (1994) suggested that qualitative data analysis comprises three essential steps: data reduction; data display; and data verification (**Figure 5.4**). Data reduction means transforming the data into codes to generate structure or a matrix of key data, leading to data verification as the final step (Miles and Huberman, 1994). Regarding this, Punch (2005) added that data reduction could be performed at all times in the data analysis process, for example, from editing to the coding step and finally in the final step of data conceptualisation. Likewise, for data display, he also argued that it could be done at any points, provided that the data have been organised already, prior to concluding the data at verification stage.



**Figure 5.4** Components of data analysis (Interactive model)

Source: Based on Miles and Huberman (1994)

Similarly, Denscombe (2007) proposed five main steps in qualitative data analysis: data preparation; building familiarity with the data; data interpretation; data verification; and representing the data. He explained that at the data preparation stage, data could be obtained in different forms, for example, texts and interview transcripts that should be backed up and organised, so that the researcher can read and interpret the data by building codes, categories and themes in the following steps prior to the verification of the data based on concerns about data quality. In addition, it was stated that the data should be well prepared and organised based on concerns about documentation of data, working well with data, conceptualising the view points, and displaying the data (Creswell, 2007, Miles and Huberman, 1994)

These suggested concepts of data analysis were applied to this study. The data obtained in this study were mainly documents and interview transcripts. The data were initially organised using Microsoft Excel for data management , and then, NVivo was used subsequently. This is because NVivo provides flexibility and wider range of functions that enable a researcher to use it practically (Gibbs, 2002). Open coding was conducted in the first place prior to recoding when the data were re-read again. Then the

codes were categorised and put into different themes concerning their connections as well as the research question set for this research. Finally, data were refined to allow their representation in Chapter 6 in the form of summarising tables detailing key informants, matrix findings based on effectiveness framework (for example **Table 6.3**), and quotes of key findings gained from the informants (**Appendix 4**) presents an example of the coding that was undertaken).

In this study, approved dialogues from the research participants were analysed. Initially, data analysis was supposed to be performed along with the data collection process. However, regarding time constraints, the focus during the field research was mainly focusing on finding interviewees and making interview arrangements, therefore, all data obtained could not be analysed immediately. Nevertheless, important issues obtained from the findings within the field were noted, and have been clarified from the informants when more information was needed.

## **5.6 ETHICAL CONSIDERATION OF THE STUDY**

As interviews were used as the main data collection method in this study, ethical consideration was important so that the interviewees can participate in the research with their rights protected. The human right to privacy, the right to be informed, and right to be protected from harm are key concerns in social science research (Fontana and Frey, 2005).

Therefore, informed consents were requested prior to conducting the interviews. The consents were considered based on the ethical guideline on social science research suggested by the Forum for Ethical Review Committees in Thailand (Forum for Ethical Review Committees in Thailand, 2007). In addition, information sheets were provided for the participants before they agreed to be interviewed (**Appendix 1, 2**).

## **5.7 SUMMARY**

The framework for the research methodology presented in this chapter was designed based on the framework of effectiveness of HIA reviewed in the previous chapter. In addition, the details described and discussed on the research process are considered based on the constructivism paradigm as selected in this study. This paradigm is considered appropriate for the objectives of finding out how HIA works in the Thai context. In addition, the following steps of the research: identifying research strategy; research design; research methods; and ethics consideration are reviewed and designed based on the paradigms suggested.

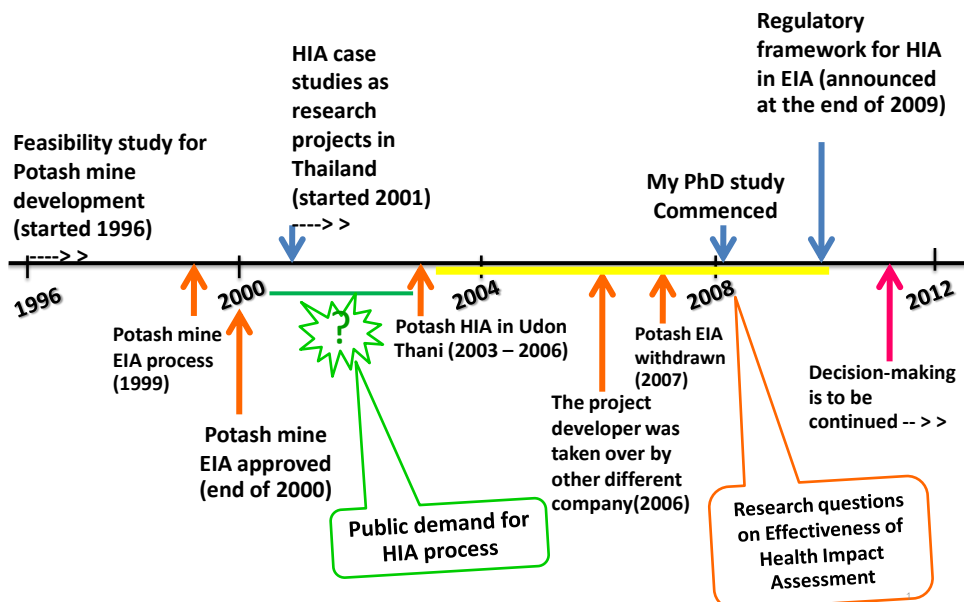
A single case study was considered appropriate to be a research strategy for this study. It could provide interesting findings that will contribute to HIA development in Thailand in the future. Meanwhile, a qualitative approach involving semi-structured and unstructured interviews was used in the process of data collection. The data were then organised by using NVivo software. The data were coded manually assisted by NVivo prior to thematic analysis via the steps of data reduction, data verification, and data display.

## CHAPTER 6

### RESULTS ANALYSIS AND DISCUSSION

#### 6.1 Introduction

This chapter presents the findings of the research and attempts to reflect on differences in perceptions among stakeholders towards the effectiveness of HIA in the Thai context, based on the conceptualised effectiveness and research frameworks created in this study. Stakeholders' interview transcripts are analysed based on their background differences as a basis for investigating their perceptions on HIA effectiveness. These stakeholders included community members, HIA practitioners, government agency representatives, non-government officers/ researchers, project developers, and a researcher. **Figure 6.1** summarises related events to this HIA process in terms of its EIA, initiation of the HIA, and commencement of this research.



**Figure 6.1** Timeline of Potash mine development related to relevant EIA and HIA processes

In addition to the introduction to the case study in chapter 5, more details gained from the stakeholder views based on the interviews are added as part of the context setting for this Potash Mine project development. These views are about the Potash mine HIA that was undertaken during 2003-2006 (public scoping for HIA in 2003 and comprehensive HIA in 2004-2006) when there was no regulatory framework for HIA practice and implementation. In addition, secondary data comprising related documents, for example, a previous EIA report, related articles on this case, and suggestions made based on discussions among relevant sectors at that time are analysed in parallel.

Views from 30 interviewees related to the HIA process along with the contested consequences are presented and analysed in terms of the effectiveness dimensions: procedural; substantive; transactive; and normative. Their perceptions on the HIA are analysed and discussed, linking with the effectiveness criteria set, so that a clear understanding of the HIA effectiveness and applying the criteria framework in this context can be obtained as an outcome in this chapter.

## **6.2 Stakeholders**

The stakeholders in this study include people that were concerned about the impacts from the Potash mine development and representatives from related organisations (governmental and non-governmental) that had roles and responsibilities related to project development. They were the HIA practitioner team, community members, a researcher, representatives from governmental organisations, and people from the non-governmental organisations. Purposive and snowballing sampling strategies were used for key informant sampling in this research (**Chapter 5**). The numbers of the interviewees for each group are presented in **Table 6.1**

As discussed in **Chapter 5**, the numbers of interviewees were considered sufficient when thirty interviews were completed; this was also considered based on comments suggested by Punch (2005), Denscombe (2007), Kvale (2007), Cashmore (2007) and Arksey and Knight (1999) concerning research questions, research plan, research resources and saturation point of the data. In terms of representativeness of samples, although fewer key informants were approached when compared to quantitative research, perspectives gained from these people has represented a wide spectrum of views while richness of information was obtained with this number. Meanwhile, a number of the respondents occupied more than one role as stakeholder, for example, HIA practitioners and some representatives from local government organisations are also local people and could also be considered as community members. Some of these people did not completely oppose the project development, therefore, perspectives reflected from them were based on their knowledge and perceptions of the project development across the spectrum of their involvement.

Face-to-face interviews were conducted to explore how these people had perceived and thought about the effectiveness of this HIA process. Semi-structured interviews were used in groups targeted initially, whereas unstructured interviews were used when additional stakeholders were met by chance during the field research. This is because these five interviewees (as presented in **Table 6.1**) were introduced by initial key informants, using a snowballing approach, and they preferred to give the interviews through conversation at that time. For these cases, the interview process regarding research information sheets and consent forms was explained to them prior to gaining their permission to conduct the interviews.

However, although the semi-structured theme of the interview was sent to the interviewees in advance, not all the questions could be answered because of their different levels of involvement in this HIA. The levels of stakeholder involvement are known to depend on the public participation

methods, and institutional roles compatibility (Hartley and Wood, 2005, K p u, 2005, Nadeem and Fischer, 2011, Petts, 1999).

**Table 6.1** Categorisation of interviews

Group		Informant Code	Unstructured interviews	Semi-structured interview	Total
Practitioner team		PHAP #11	-	3	3
		PHAP #12			
		PHAP #16			
Practitioner team/ becomes HIA facilitator at national level later on		PGHF #9	-	1	1
Community members		CMEC #17	4	3	7
		CMEC #18			
		CMEC #19			
		CMEC #21			
		CMNP #25			
		CMNP #26			
		CMNP #27			
Project developer team		PDPT #24	-	1	1
Governmental organisations	HIA facilitators	GSHF #1	-	4	4
		GSHF #2			
		GSHF #6			
		GSHF #7			
	Statutory consulting organisations	GSEP #3	-	4	4
		GSEP #5			
		GSEP #8			
		GSEP #30			
	Decision makers	GSOI #10	-	4	4
		GSOI #15			
		GSOI #20			
		GSOI #22			
	Others	GSOH #4	-	3	3
		GSUD #23			
GSRE #24					
Independent sectors		NGOF #13	-	2	2
		NGRF #14			
Researcher		RSPT #28	1	-	1
<b>Total</b>			5	25	30



The HIA practitioner team (PHAP and PGHF) comprised officers from academic institutions, governmental organisations, and non-governmental organisations. Prior to conducting the HIA, they participated in the HIA scoping process in a health assembly organised on 17-18 May 2003, in Udon Thani, regarding concerns about the Potash mine development. Then, they volunteered to form a team to conduct this HIA with a group of community members (PGHF #9). It also had been mentioned that they had no experience of conducting HIA before. In order to conduct the process, they reviewed international guidelines available at that time and tried to start by raising questions related to what could happen if the project were to be operated. They ran the process based on a 'learning by doing' approach (Jha-Thakur et al., 2009) that led them to obtain the necessary answers for their research questions. Because of this process, one of the team members has changed her career from a college faculty member to work as a HIA coordinator at national level. This can be an example of an outcome gaining from the impact assessment process as suggested by Cashmore et al. (2008). It could be said that knowledge and skills gained from this process has helped strengthen the capacity of human resources involved in the process.

Community members interviewed in this study consisted of those who participated in this HIA process (CMEC) and those who did not (CMNP). Both groups were stakeholders living in the area where the project was planned to be located. Their opinions towards the project development tended to be different in terms of opposing and supporting the project development. The group against the project had participated in the HIA process with the HIA practitioners whereas the supporting group hardly got involved with the process. However, based on the interviews, both groups of the community members tended to have the same doubts about the project direction and impact mitigation measures and there seemed to be a lack of trust among them in decision-makers or authorised governmental organisations about this development. Lack of trust towards the authorities has also been found in other proposed project developments in Thailand in

the past, such as the Pak Mun Dam Project and the Hin Krut Power Plant Project (Awakul and Ogunlana, 2002, Chompunth, 2011, Tongcumpou and Harvey, 1994).

The present project developer (PDPT) took over the project from the previous company in 2006 and made a decision to withdraw the EIA in 2007 (**Figure 6.1**). This was due to the company's desire to mitigate the conflict problem in order to restart the process with the expectation of gaining public acceptance. At present (2012), the company is currently focusing on the process of applying for a permission of mines operation prior to the impact assessment process. However, the company has not been able to lead a team from the authorised decision-making organisation to access the area for boundary measurement yet. This is because of community opposition against the project development whereby a group of community members always chase the team away from the area. Meanwhile, the representatives from the company claimed that they have not reached the step of the HIA process or the new EIA process for this project yet. This suggests that the Potash mine HIA conducted by the research team and the community members, which was selected for effectiveness measurement in this research, is still the best vehicle to determine the discourses among organisations.

Representatives from government authorities included representatives from the HIA facilitating unit (GSHF), statutory consulting organisations of the project development (GSEP), decision-makers (GSOI), and other related organisations (GSOH, GSUD, GSRE). The HIA facilitators were working as part of the Healthy Public Policy Programme (HPP) run by the Health System Research Institute (HSRI) at that time. The programme provided relevant knowledge on HIA practice and sponsored research from a fund established for conducting HIA in Thailand as a series of researched case studies to build knowledge in this aspect between 2000 and 2006 when the Potash HIA was a case as part of these research themes. The HIA

facilitators mentored the practitioner team in this HIA process. Other related governmental organisations at national levels: statutory consulting organisations and decision-making organisations, tended to have a very loose connection and involvement with this HIA process. Based on the interviews in this research, they asserted that they had little knowledge about this HIA process while no HIA regulation existed at that time.

In terms of officers from independent sectors, one of them worked in a community as a counsellor for the community members while another officer was a researcher and HIA facilitator. The first NGO officer was the first person who accessed the community initially in 2000 and let the members know about the Potash mine development and its first version of the EIA (CMEC # 017). This led to social movement and questions about the project and the approved EIA prior to participating in the HIA process with the practitioner team. On the other hand, the other interviewee in this category was an independent researcher who worked with the HIA facilitating unit at that time. He did not directly get involved with this HIA but he is one of those who have been involved with HIA development in Thailand since it was introduced to the country. Therefore, his perspective could reflect this HIA process as an observer who has seen several initial HIA cases including this case.

Finally, a researcher interviewed was a postgraduate student from a university in Thailand who conducted research related to the issue between community members and this project development.

The stakeholders interviewed in this study have different backgrounds in perceiving the effectiveness of this HIA process as summarised in **Table 6.2**

**Table 6.2** Background among stakeholders in Potash mine HIA and their perceptions on the HIA process

Stakeholders	Who are they?	Roles in general
Practitioner team	University lecturers, Governmental officers Non-governmental officers	<ul style="list-style-type: none"> <li>● Conducted the HIA process for Potash mine development at community scale</li> </ul>
Community members	Farmers, agriculturalists	<ul style="list-style-type: none"> <li>● The group having experience in participation in HIA process</li> <li>● The group not having experience in participation in the HIA process</li> </ul>
Project developer	Engineering company	<ul style="list-style-type: none"> <li>● Is attempting to develop the project</li> </ul>
HIA facilitators provided by HPP, HSRI	University lecturers, Independent researchers	<ul style="list-style-type: none"> <li>● Facilitated public meeting related to Potash mine project</li> </ul>
Statutory consulting sectors	Staff from Environmental Impact Evaluation Bureau, Office of Natural Resources and Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment	<ul style="list-style-type: none"> <li>● Environmental Impact Evaluation Bureau is an organisation under ONEP. Its main responsibilities are to identify project types/ scales that need to undertake EIA, consider EIA report prior to proposing to expert committee for an approval, monitor and provide a certificate for EIA practitioner (consultant company), monitor project operation based on mitigation measures in the EIA, provide suggestions on environmental management and impact mitigation for project developers that are in the private and public sectors, provide training on issues related to EIA, act as a secretary for the EIA expert committee, and support related tasks as assigned</li> </ul>
Decision makers	Staff from Department of Primary Industries and Mines, Ministry of Industry	<ul style="list-style-type: none"> <li>● Department of Primary Industries and Mines is responsible for mining resource management and development in the country with a concern on the balance of socioeconomics and environment. It has major roles on providing mining development policy and strategy, monitoring the operation of primary industries, strengthening capacity in mining industry development, providing opportunities for mining industry investment, and providing knowledge on effective mining management strategy based on research process</li> </ul>
Independent sectors	Independent researcher,  Non- governmental officer	<ul style="list-style-type: none"> <li>● HIA facilitator</li> <li>● Follow up at the overall mine issues for use in driving healthy public policy</li> <li>● Delivered knowledge about the problematic potash mine EIA, community rights, and related regulations to the community</li> <li>● Mentored the community members in social movement activities</li> <li>● Involved with the HIA process as a mentor for community members (environment conservative group)</li> </ul>

### **6.3 Case study context**

While there was no regulatory framework for HIA in the past, this HIA was selected for this study based on five main reasons. Firstly, there was emerging public expression on the right to enjoy good health prior to the HIA process. Secondly, there was public participation in the HIA process. Thirdly, this HIA was conducted as part of the HIA case studies series for HIA development in Thailand that most people have known or have heard about before. Fourthly, there was an EIA conducted prior to the public concerns and questions about this project so that relevant lessons from the EIA process might be interesting to link with lessons from the HIA process. Finally, this project development is ongoing in the decision making process and there is interest in what will happen next and this study might be able to use its findings to inform involved stakeholders such that effective decisions can be made. In addition, this case was selected based on the criteria suggested that an appropriate case study should be suitable, purposive, and accessible (Denscombe, 2003, Cashmore, 2007, Silverman, 2005, Stake, 2005).

Originally, the Potash mine project in Udon Thani was planned as an underground mine operation. The mine was expected to operate 315 m below an area of 850 km<sup>2</sup> with a production capacity of 6,000 tonnes · day<sup>-1</sup>, approximately. The feasibility study for this project was conducted in 1996 prior to EIA during 1999-2000 (TEAM Consulting Engineering and Management Co. Ltd., 2001). However, at that time, the regulatory framework for underground mines operation was not included in the Mining Act, as the Act was going through a revision process. Therefore, a proposal letter for an exception by the previous project developer was submitted to authorised government agencies to allow them to conduct an EIA. The authorised government agencies were under two main ministries: Ministry of Natural Resource and Environment (considering EIA approval) and Ministry of Industry (considering permission for the project development).

These documents were attached with the first version of the EIA report, which has been withdrawn by the present project developer. The responses between the two government agencies were as follows:

1<sup>st</sup> government agency with authority for approving the EIA suggested that *‘prior to the EIA process, a measurement of the area for the stake claims by the 2<sup>nd</sup> government agency and an agreement from the Thai engineer should be completed first’*

.....

2<sup>nd</sup> government agency suggested that *‘It seems to be very difficult or impossible to measure for the claim stake while the mining act is in a revision process and has not come into force yet’*. Then, this government agency suggested that *‘the project developer is not able to do any operation related to the claim staking and getting project approval by the Thai engineer at this stage as there is no Mining Act provided for underground mine operation, the agency agrees that the project developer should directly inform the facts on both issues to the 1<sup>st</sup> government agency’*.

However, at that time, it seems that the project developer might not think that a clear guideline and regulatory framework for the EIA process should be a major concern. So, later on, the developer attempted to appeal for a compromise from the 1<sup>st</sup> government agency in conducting the EIA for the project without stake claims and project engineer approval for the mine operation. The developer had committed to fulfill the two basic regulatory criteria after the EIA process with additional reasons that the EIA was used to inform the public, World Bank, and related stakeholders for more understanding about the project. Then, finally, the 1<sup>st</sup> government agency gave the compromise to the project developer and approved the EIA in December 2000. Although the EIA was withdrawn later on in 2007, this history ties in with the suggestion that EIA might be considered only as a

tool for mitigating negative impacts rather than a judgement criterion for decision making (Tongcumpou and Harvey, 1994).

Accordingly, considering the EIA process of this case, it could be suggested that there are initially, four main problems. Firstly, lack of coordination between government agencies could lead to ineffective outcomes of decision-making. The communication between them implies that government agencies might not have had direct contact about the process regarding legal regulation, as the previous project developer was required to transfer messages between them. Secondly, a hectic process to develop a project without carefully considering suggestions from government agencies and the available regulatory framework could lead to serious conflict problems in the long-term. Thirdly, knowledge and understanding about impact assessment tools implementation among relevant organisations and stakeholders, for this case it was EIA, was not explicitly the same. Finally, public participation process conducted in the EIA process was not sufficient evidence by the fact that public opposition to the project emerged as a consequence. These points would link to the context aspects in this case when the HIA process was conducted.

Prior to the EIA approval in 2001, public opposition to this project emerged. This led to concerns over both environmental and health impacts from the project development and, as a result, public scoping for HIA was conducted in a public meeting that was organised as a health assembly in 2003 (Pengkam et al., 2006a). This led to the evaluation of this EIA by an ad hoc committee to investigate Potash issue conflicts and provide recommendations for relevant organisations to this case. The committee considered that there were several parts that should be clarified in the EIA. The EIA team had tried to answer those questions but the attempt to gain public acceptance was not successful (GSHF#1, #2, PGHF#9). This could be due to the community members not trusting the project developer as

there was a lack of public involvement in the EIA process in the first place (Tongcumpou and Harvey, 1994, Chompunth, 2011).

A comprehensive HIA for this case was conducted in 2004 with financial support from the Health System Research Institute (HSRI) and Department of Health (Ministry of Public Health) during the initial phase of HIA development in Thailand (GSHF #1, #2, PGHF#9). A group of researchers and community members in Udon Thani province conducted this HIA when no regulatory framework for HIA in Thailand existed before 2007. The HIA process was designed based on the HIA experience and guideline suggested by Canada (Pengkam et al., 2006a) and adapted to be compatible with the Thai context (PGHF#9). The selected guideline was implemented in order to maintain equal standards for Potash mines in both Thailand and Canada as the previous project developer at that time was a company from Canada (GSHF #1, #2, PGHF #9, PHAP #11, #12). This HIA has been claimed to be a community HIA (CHIA) subsequently (PGHF #9). This has led to different points of view in valuing this HIA among its stakeholders.

As has been introduced in Chapter 5, the HIA process of this case comprised stakeholder analysis, project valuation, HIA scoping, basic data study, mining process analysis, health risk assessment, relevant policy analysis, and options to implement it in the decision-making process (Pengkam et al., 2006a). The result of the HIA process suggested that the Potash Mine project tended to affect four aspects of health impacts of the population; physical, mental, social, and intellectual. This led to providing options for the impact mitigation and measures (presented in **Table 5.3**, chapter 5). Referring to these options, there are two changes observed to date. Firstly, the approved EIA of the Potash mine was withdrawn in 2007 by the latest project developer (GFHF #1, #2, #9, GSEP #3, #5, #8, PDPT #24). This decision was interpreted differently between stakeholders. The practitioner team and HIA facilitators assumed that this HIA process might have influenced the decision to withdraw the EIA to some extent (GFHF #1,



#2, #9). In contrast, the project developer seems to disagree with this assumption as they claimed that they would like to express a willingness to conduct a transparent process of impact assessment based on public participation and regulatory framework provided prior to the decision making process for this project (PDPT #24).

Regarding a suggestion to undertake a SEA for Potash salt in the north-eastern region proposed in this Potash mine HIA (presented in **Table 5.3**, chapter 5), it seems that the suggestion has been taken into account. This is because a financial fund has been granted for a SEA study and the process has been mentioned recently (GSOI #15, GSEP#30). However, questions from some interviewees have arisen as to whether this SEA will help or not.

Referring to data collected in the field research from both interviews and documents, the context of this case can be categorised into four main dimensions: governance authority and communication between government agencies; distrust between stakeholders; policy and plan for Potash mines development in Thailand; and the regulatory framework for HIA. The latter three dimensions could link to the suggestions advised by the ad hoc committee for Potash and salt industry policy development of the National Economic and Social Advisory Council (NESAC) based on the meeting resolution, no.14/2551, on 31 July 2008 delivered to the Prime Minister and his cabinet in January 2009. The meeting resolution required that the government should provide clarification for mines industry development in three aspects: Potash policy and measures; development of public participation and environmental governance; and legal regulatory measures. Regarding the Potash policy and measures, the committee suggested that the state should specify the goal and plan based on the public participation process. In addition, knowledge on underground mining and the Potash industry should be developed based on pilot scale research prior to expansion to the industrial scale. In terms of conflict problems in the Udon Potash mine project, unanimity on the project development based on overall

public deliberation should be emphasised, as this is the most important factor. For public participation and the environmental governance aspect, the process should be based on transparency, decision-making tools implementation, strategic local resource management, and the provincial development plan along with the country development direction. This committee also suggested that the Mining Act should be revised based on public participation in the decision-making process mentioned in the Constitution Law.

Concerning the first dimension in this study context, lack of effective communication between related governmental organisations tended to be a cause of several serious consequences. The quoted dialogues between government agencies and the developers as described above implies that they had not discussed sufficiently about the regulatory issues surrounding the process for applying to have an operating permit for the mine. Even with no legal regulation ready for the process at that time, both government agencies should have exchanged their opinions and carefully considered the process for the previous project developer who needed to follow their suggestions. This could reflect that lack of communication between governmental organisations can lead to problematic practice and consequences (GSOI #10). This context dimension tends to influence effectiveness of any impact assessment tools, for example, the approved EIA of this case. Van Buuren and Nootboom (2009) emphasised the importance of close collaboration as a key support for the assessment planning process, and Caussy et al. (2003) suggested that intersectoral collaboration could help to indicate the level of procedural effectiveness of impact assessment processes, for example, HIA in their study.

The second dimension is distrust and conflict among stakeholders. Land owners claimed that they could not trust the project developer and even government departments as they had not been informed and asked for their opinions about the project development at the beginning (CMEC #17, #18,

#19, RSPT #29). Meanwhile, the project developer casts doubt on the information that the community members have, which has led them to oppose the project (PDPT #24). In other words, the information provision process has been questioned as to whether it really could build an accurate understanding about the project development and its impacts among stakeholders or not (CNMP #27, GSOI #10). In addition, it was found that distrust of laws and their enforcement related to public participation emerged (PHAP #16, CMEC#17) and this might lead to conflicts and misunderstanding between all stakeholders because of insufficient regulation on profit sharing between stakeholders (GSOI#10).

*“ ..distrust and conflicts among stakeholders tended to stem from two main reasons, distrust on laws and lack of effective communication about the facts between NGOs, academic institutions, the project developer and communities. All sectors should be open minded and be clear about profit sharing from this project, however, the problem is that there is no legal regulations on levels of compensation for those who might be affected by the project operation, which might not be fair enough...” (GSOI #10).*

In addition to the findings reported by Tongcumpou and Harvey (1994) and Chompunth (2011) that distrust towards relevant organisations emerged in stakeholder groups because of a lack of public participation in EIA process, this study found that existing laws relevant to the development at that time were also questioned and that the public expressed a lack of faith in them.

Consequently, the HIA process for this case was conducted because of the distrust issues towards relevant sectors and laws. The HIA was supposed to be used as a social tool when a group of community members claimed that the policy on mine development for this project was not based on public participation and laws; they thought they should be informed what would

happen in their community and underneath their land and houses (PGHF #9, NGOF #13, CMEC #17).

*“I am wondering if Thai legal regulation can be really relied on or not, in relation to the Potash mine, even though the mine has not happened and the environment has not been destroyed yet, we, community members, are hurt and panicked because of anxiety about its impacts...if the laws could really be trusted..would these kinds of problems, e.g. conflicts and anxiety, happen?...”* (CMEC #17).

.....

*“...HIA is just one of the tools for social movement used for disclosing broader impact perspectives and creating a cooperation movement with wider groups of stakeholders...”* (NGOF #13).

.....

*“..HIA is one of the social tools that communities can use, leading it to take part in the decision making process when the policy or project are developed, it's not only the tool for policy makers, instead, policy makers just implement the evidence generalised from social and public participation in making decisions...”* (PGHF #9).

It could be said that this HIA process was initiated with an intention to use it as a source of evidence to control the EIA process of this project. This is related to the finding presented by Tongcumpou and Harvey (1994) that public opposition with provided evidence, related to the project development, tended to be able to control the EIA system in Thailand whereas the formal control of this process was lacking.

Thirdly, in the context related to policy formation, the Potash mine development policy was unclear to the stakeholders. Community members suggested that the state agencies, not the project developer, should explain

this policy, its consequences in terms of both positives and negatives, and mitigation measures to the public (CMEC#17, CMNP #25, #27).

*“... All related public sectors, not the project developer, should explain to us clearly about the project development based on cooperation and participation from all sectors. If the project happened, what are the consequences and impacts in terms of health and environment? Can you accept that? If the water was not drinkable, would you buy drinking water for us?, how much volume of water is consumed per capita per year? Would you pay for that? What would you do if our local produce was not eatable because of the pollutant contamination?... These kinds of things should be considered. If all these concerns can be protected, you should show me the plan how you would be responsible in case the impacts might happen. Anyway, I think they don't want to bother about these kinds of problem....” (CMEC #17).*

In addition, clarification about the policy for the Potash Mine should be delivered through involved state agencies or the government (NGRF #14, GSUD #23).

*“As an external view myself, I have noticed that the policy process since 2003 has not seemed to be active enough...nothing has come out as a clarification. I would suggest related sectors should think how this should be more active so that we could get the answer about the policy for Potash development. Politicians in this country tend not to refuse but not promise to do...” (NGRF #14).*

Meanwhile, it was stated that the main factors influencing the achievement of this policy are agreement from the public, state, and the project developer (PDPT #24).

*“There are three components that could make this project happen; community, state (government/ related government organisations), and project developer. However, I think the state tends to be the most important mechanism, which could make it happen. We hope to see more cooperation between governmental organisations because that is a professional line. The question we have now is what happened between year 2003 to 2009? We can’t see the future now”* (PDPT #24).

This suggests that policy clarification for Potash mine development in Thailand is a key concern that all relevant stakeholders have questioned so that they can think of what should be done next, regarding this development process.

Finally, the context dimension on the availability of a regulatory framework for HIA is a crucial component that should be considered, when measuring the effectiveness of HIA. However, there was no regulatory framework for HIA provided at that time whereas health issues seemed to need more attention for healthy public policy formation during that time such that HSRI provided funding for HIA research on the basis of generating HIA case studies. This led to different perspectives and responses from stakeholders towards the HIA outcome. Later on, from the interview, this process was categorised as a community HIA (PGHF #9) conducted based on learning-by-doing practice and integrating available guidelines into the Thai context (GSHF #1, #2, #6, PHAP #11, #12, #16, PGHF #9). Therefore, it might not be counted as a priority in the decision-making process. However, this HIA has generated a story about public concerns on health, public participation activities, public use as a tool in social movement, public learning to use it in measuring the impacts, and public capacity building based on learning-by-doing practice. Therefore, this study aims to determine its effectiveness and its influence towards the decision-making process and relevant sectors so that the findings can provide knowledge to

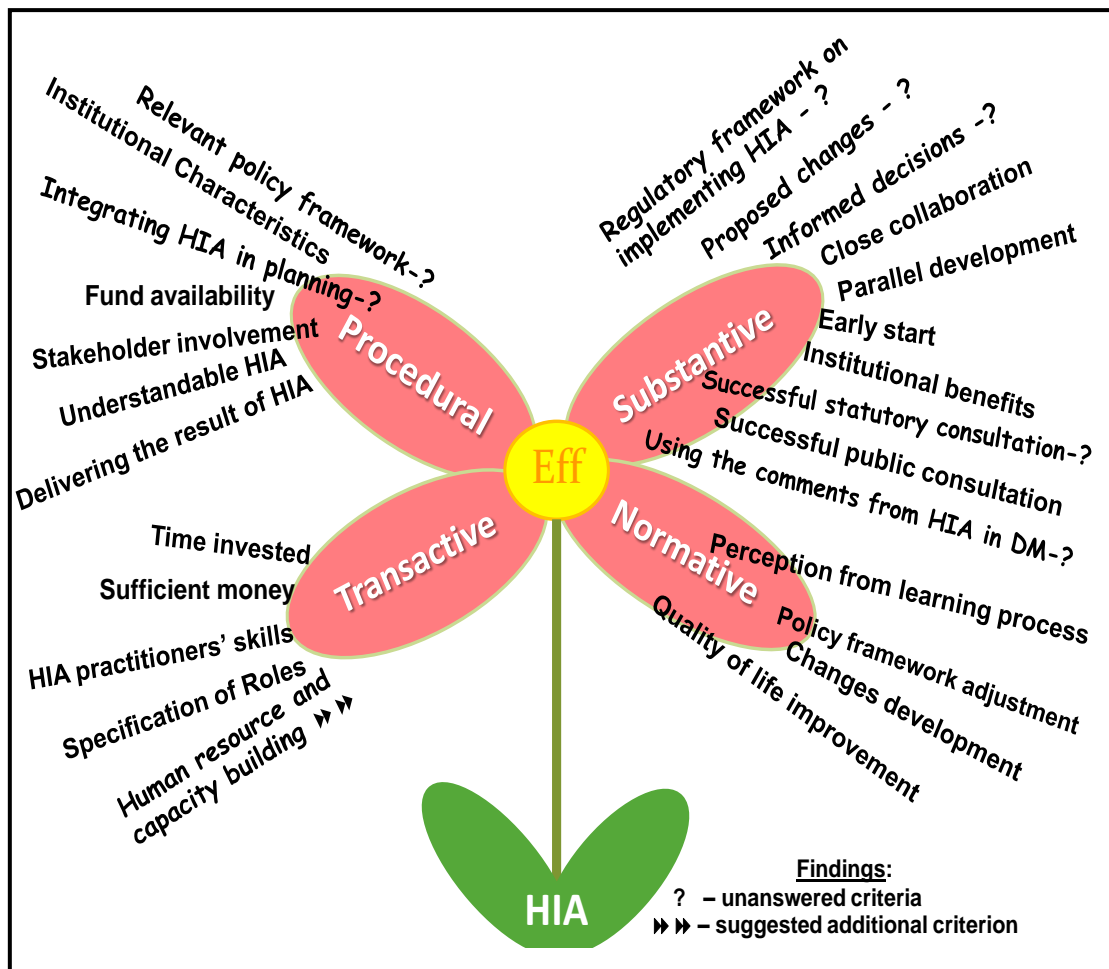
develop HIA effectiveness and the criteria for measuring the effectiveness of various HIA cases in future.

## **6.4 Effectiveness criteria and individual perceptions on the HIA**

### **6.4.1 Criteria set for the effectiveness measurement**

In terms of measuring the HIA effectiveness, the designed criteria as presented in chapter 5 as a ‘**flower of effectiveness**’, based on theory and reviews for effectiveness measurement of impact assessment tools, were applied to collect the perspectives among the interviewees on this HIA process and the result is presented in **Figure 6.2**. Each petal of the flower stands for an effectiveness category where the criteria are supposed to be essential nutrients for the petals.

The results suggest that not all of the criteria can be used because of a lack of information. This is because of the lack of legal regulatory framework on implementing HIA in decision making at that time when some groups of the interviewees tended to rely on formal regulation for this process. The response gained from the interviewees in this study implies that regulatory frameworks tend to be very important for measuring effectiveness of impact assessment processes in the Thai context. Similarly, for SEA matters, it has been suggested that a legal framework for SEA is required in order that all relevant sectors can take actions actively in Thailand (Wirutskulshai et al., 2011). It has been suggested that a regulatory framework for HIA is required at all levels; national, international, and global (Birley, 2007). This is because a legal framework could bring about more significant effectiveness of impact assessment process as has been seen in other impact assessment process like social impact assessment as an example (Ahmadvand et al., 2009) while the suggested principles can be fundamental in considering how to determine procedural effectiveness (Baker and McLelland, 2003).



**Figure 6.2** Findings suggested when applying the HIA effectiveness criteria conceptualisation to the case refer to Chapter 4, Table 4.4

Therefore, criteria related to the availability of a legal framework in measuring procedural and substantive effectiveness (? labelled in **Figure 6.2**) could not be used in this case completely. However, it is necessary to include this criteria set in this study in order that broader perspectives on legal frameworks and relevant issues for HIA in Thailand can be reflected in parallel with measuring effectiveness. This can be supported by the suggestion provided that the ‘*more than one view*’ concept is important in considering substantive and normative effectiveness (Bond and Morrison-Saunders, 2013).



For transactive and normative categories, it seems that interviewees that got involved with the HIA process felt more comfortable in their ability to respond to the questions. The findings also suggested that another criterion (labelled with ▶▶▶): the availability of human resource and capacity building; should be added in the transactive category. This is related to other studies that emphasised that human resource and capacity building are crucial factors strengthening the effectiveness of impact assessment processes (Harris et al., 2009, Schirnding, 2005, Inmuong et al., 2011, Cameron et al., 2011, Kang et al., 2011, Harris and Spickett, 2011).

Referring to the findings from the interviews, data analysis based on coding and themes in terms of procedural, substantive, transactive, and normative effectiveness was conducted. The result of the interviewees' perspectives are presented in **Table 6.3**

**Table 6.3** Interviewees’ opinions on Effectiveness criteria toward this HIA process

EFF.	Criteria	Case																															
			GHHF 1	GSHF 2	GSHF 6	GSHF 7	PGHF 9	PHAP 11	PHAP 12	NGOF 13	NGRF 14	PHAP 16	CMEC 17	CMEC 18	CMEC 19	CMEC 21	GSOI 22	GSUD 23	CMNP 25	CMNP 26	GSEP 3	GSOH 4	GSEP 5	GSEP 8	GSOI 10	GSOI 15	GSOI 20	PDP 24	CMNP 27	GSRE 28	RSPT 29	GSEP 30	
Procedural	P1	Relevant policy framework and procedures for HIA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	P2	Institutional Characteristics	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
	P3	Integrating HIA in planning process	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	P4	Availability of financial funds for HIA practice	✓	✓	✓	✓	P	P	✓	✓	✓	✓	P	P	P	P	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-
	P5	Involvement of stakeholders in the process	✓	✓	✓	✓	✓	P	P	✓	✓	P	✓	✓	✓	✓	?	P	P	P	✓	P	P	P	P	P	P	P	P	P	?	P	P
	P6	Capacity of HIA to present a sound and clear understandable evidence for the decision-making process with valid prediction and argumentation	P	P	P	P	P	P	P	P	P	P	P	P	P	✓	P	P	?	P	✓	P	×	P	×	×	P	?	?	?	P	P	P
	P7	Delivering the report to participants	✓	✓	✓	P	✓	✓	✓	✓	✓	P	✓	✓	✓	✓	P	P	P	P	-	P	-	P	?	?	?	?	P	P	P	P	✓
Substantive	S1	Regulatory framework on implementing HIA in decision-making	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
	S2	Incorporation of proposed changes - HIA was taken into account in the final version of the project	P	P	P	×	P	P	P	P	P	P	P	P	P	P	?	?	P	×	P	×	P	×	P	×	P	×	?	?	P	P	
	S3	Informed decision-making	P	P	P	×	P	P	?	P	P	P	?	?	?	P	?	?	?	-	×	P	×	P	P	P	?	?	?	?	P	P	
	S4	Close collaboration	P	P	P	-	P	P	?	P	×	×	×	×	×	×	×	×	×	×	×	-	-	-	-	-	-	-	-	-	-	-	-
	S5	Parallel development	×	×	×	×	P	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	S6	Early start	✓	✓	✓	✓	✓	P	✓	✓	✓	✓	✓	✓	✓	✓	-	-	✓	-	-	-	-	P	-	-	-	-	?	-	-	✓	-
	S7	Institutional and other benefits	✓	✓	✓	✓	P	P	✓	✓	✓	✓	P	-	P	✓	P	✓	P	P	-	P	P	-	P	P	P	P	?	-	?	P	P
	S8	Successful statutory consultation	-	-	×	×	-	-	-	-	×	×	-	-	-	-	-	-	-	-	-	×	-	×	×	×	×	?	?	-	×	-	-
	S9	Successful public consultation	✓	✓	✓	P	✓	✓	✓	P	P	P	P	P	P	P	P	P	P	P	✓	P	P	P	P	P	?	?	?	?	✓	?	P
Transactive	S10	Understandability/ Comments in using HIA in decision-making process	✓	P	P	P	P	?	?	P	?	P	-	P	?	-	?	-	-	-	✓	P	P	P	?	?	?	?	-	?	-	?	
	T1	Time	P	P	✓	✓	✓	✓	✓	✓	✓	✓	✓	P	P	P	P	-	?	-	-	-	-	-	-	-	-	-	-	-	-	-	
	T2	Financial resources	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	T3	Skill	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	-	?	-	-
Normative	T4	Specification of roles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	-	?	-	?	-	
	N1	Adjustment of relevant policy framework concerning the normative goal achieved in term of changes of views	P	P	×	×	×	P	P	P	×	×	×	P	?	P	?	P	?	-	P	P	×	P	?	P	?	?	?	-	?	P	P
	N2	Learning process, perception, lesson learnt from HIA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	?	P	P	-	P	P	P	P	P	P	?	?	?	?	?	P	-
	N3	Development or changes in relevant institutions	✓	✓	×	P	✓	P	P	P	P	P	-	P	P	P	?	P	?	-	✓	P	P	✓	P	P	?	?	?	-	?	P	P
N4	Health /Quality of life improvement	P	P	P	P	P	P	-	P	?	P	P	P	P	P	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-

**Remarks:** meet criterion: ✓ Yes; × No; P – Partially; – no answer/ not involved in that part (but he or she was identified as a stakeholder);  
 ? –unclear, not sure, not enough evidence to justify.  
 Shaded cells identify informants that did not directly participate in the HIA process , but they were involved through their roles of being stakeholders in relevant sectors

#### **6.4.2 Procedural effectiveness**

To evaluate this effectiveness category, factors of effectiveness were focused on the political framework for HIA and its context, financial resources, opportunity for public participation, and credibility and informativeness of this HIA.

##### ***P1: Existence of relevant plan, policy framework for HIA***

Firstly, the existence of a policy framework for HIA (P1) was used as one of the criteria to measure procedural effectiveness. It was found that this HIA meets this criterion partially. This is due to there being no policy framework for HIA practice provided explicitly before 2007 when the latest Thai Constitution and National Health Act came into force. Issues concerning health impact are found implicitly in the National Environment Conservation Act B.E. 2535 (1992) in Part III section 46-51 on the regulation for conducting environmental impact assessment (EIA). However, for this HIA process, the practitioners stated that they used international guidelines, particularly Canada's, combined with 'learning by doing practice' to bridge the gap found in the context of this case. The reason that the Canadian guideline was taken into account was because the project developer at that time was a Canadian company, therefore, the practitioner team and community members preferred the company to follow the same standard in both countries. Moreover, regarding the interviews, the findings suggested that not only should the relevant framework and guideline for HIA be considered as the criterion, but also the relevant regulatory framework of the project type (GSOI #10, #15) (for this case, Mining Act B.E. 2510 (1967) as amended by B.E. 2545 (2002)) and the compatibility of the policy framework within its particular context should be taken into account (NGRF #14, GSUD #23). This highlights that particular contexts and relevant regulatory frameworks are crucial factors that could influence the impact assessment arena as noted by Kolhoff et al. (2009).

Subsequently, criteria set to measure the influence of the political context towards the effectiveness were the institutional characteristics (P2) and integrating HIA in the planning process (P3).

***P2: Institutional characteristics***

For P2, the institutional characteristics comprise institutional infrastructure, institutional collaborations, and institutional roles. Institutional infrastructure means existence of facilities provided for environmental and disease monitoring networks at that time. In addition, the institutional collaborations include the cooperation within and between the related governmental organisations, under the political context, when institutional roles rely on the missions, assigned by government regarding policies related to the institutions.

The results suggest only two-thirds of the interviewees perceived that the system meets the criteria partially. In terms of infrastructure for data sharing provision, at provincial level during the HIA process, there was good cooperation on data sharing within the research team who were from related sectors in Udon Thani providing health and environmental data for this HIA process (PGHF #9, PHAP #11, #12, #16, GSHF #1, #2, #6). However, it was asserted that a health database for the assessment process, was still lacking, and should be provided and developed (GSHF #10).

For institutional collaborations and their roles, one of the interviewees said that they had participated in this process on behalf of themselves, not of their organisations, although they had provided existing baseline data for the process, related to their organisations' roles for the HIA process at that time (PHAP # 16).

*“.....I am a government officer and Udon Thani is my hometown, I took part in this HIA process as I would like to help as much as I can. I participated in this as an Udon Thani citizen rather than a representative from my organisation. This is because my boss said that the HIA process was not a major mission we have to do as we were not assigned by the upper administrative line” (PHAP # 16).*

This may imply that governmental organisations tended to be very careful when engaging in any process with public interest or conflicts of interest. This could be related to the findings by Chompunth (2011) stating lack of legal regulation for public participation could have led to less active participation from relevant governmental organisations. Nevertheless, it also could be observed that there was a lack of regulatory framework supporting their roles formally in getting involved with this process such that these sectors might not be able to take action directly. This relates to the analysis made by Callway and Ayre (2005) that a clearer political framework might be required to support involved partnerships in stakeholder processes.

Furthermore, referring to the interviews, from the views of some representatives from government organisations and the project developer, they did not realise that this HIA was part of a regulatory process. Some of the interviewees did not know in detail about the extent of data sharing as they thought that the HIA had not been a hot issue at that time. Therefore, they considered that there was no data sharing between their sectors and the HIA practitioner team as well as a lack of database provided for the health impact assessment (GSEP #3, GSOH #4, and GSOI #10, #15).

*“...I understand that few activities on data sharing related to this case were realised at that time. This might be because HIA was very new then....I participated in the event related to this HIA process once, at the final phase but I didn't know in detail about the whole process....I have heard that several sectors took part with the*

*process, so, I think the study result might cover major concerns to some extent...” (GSEP #3).*

.....

*“...I haven’t heard about this HIA before. I have just seen it when you sent me (the HIA report file). I think the boundary of the assessment seems to be too broad as nothing has been located yet...and I think a more effective related database should be provided for the assessment...” (GSOI #10).*

This could point out that existence or nonexistence of regulatory frameworks for HIA could crucially influence the collaborations between sectors in taking actions or sharing data based on some of the interviewees’ perspectives. Likewise, as suggested in other studies, for example, concerning health in SEA, that providing a legal framework could help relevant sectors collaborate and contribute their roles to decision making more effectively (Fischer et al., 2010).

Whereas there has been a lack of sufficient cooperation between related governmental organisations, another concern suggests that political policy, which could possibly be influenced through public pressure, tends to influence HIA implementation at policy level (GSOH #4).

*“I have been in this sector (HIA division, Ministry of Public Health) for two years, so, for the Potash HIA, I might not have much particular information...however, to reflect about the HIA, I think political policy tends to influence driving HIA at policy level crucially... In the past, each sector tends to have their direction of particular missions and has its own boundary. For these sectors, I mean Ministry of Public Health, Ministry of the Environment and Natural Resource, and Ministry of Industry, which are related to each other. We haven’t worked together based on multidisciplinary appropriately to solve the problem as much as it should be, so, when*

*there is a force from social movement as we might have seen in many cases, it could probably lead to something particular about these concerns that the government might need to consider carefully” (GSOH #4).*

This means public pressure has a key influence on making decisions in policy formulation or adjustment and led to more cooperation between relevant sectors. This seems to be a control system for EIA in Thailand as it was said that ‘*judicial control*’ does not exist explicitly such that public opposition has tried to dominate to control the system (Tongcumpou and Harvey, 1994). In addition to public pressure, publicity from the public media also helped strengthening the concerns on the health impact from the project development (GSHF #1, #2, #6). This is another finding in the Thai context that when the conflict issues became public, more concerns would emerge and might lead to decisions that are more careful. Similar to other findings in the past that stakeholders, the public, and mass media could influence policy making, however, inconsistency of policy making in Thailand because of fluctuating political streams and power negotiation seemed to remain as barriers in solving the problems (Rerkpornpipat, 2007).

It was noted that gaining crucial and accurate information relating to policy and project development, to build good understanding, should be essential in all related sectors for effective decision-making (GSEP#3, GSOI#10, GSOI#15, PDPT #24, CMNP #26, 27).

*“...I haven’t seen this HIA report before, we haven’t done this, I am wondering on what basis and legal standard that the HIA relies on, while there was no legal regulations for HIA at that time coupled with the reason that the EIA has been cancelled, so, how could we believe on this HIA? By the way, there is one more thing I would like to add, I think delivering information to the public based on fact*

*about the project is very important, otherwise, misunderstanding and panic could occur...” (PDPT #24).*

.....

*“...what I am concerned about is how the community members can access all the information that is related to decision making. I want them to know what is going on in their communities in terms of what and how their leaders have made a decision for them and I want them to understand the information as well as their roles in having participation before the decision has been made. ...” (CMNP #27).*

### ***P3: Integrating impact assessment in planning process***

Furthermore, HIA integration in the development plan (P3) is another criterion to consider in the political context. Based on interviewee responses, this HIA seems not to meet the criterion; it was not considered to integrate directly in the planning process because the HIA process was not compulsory at that time. To date, other impact assessment processes such as SEA, seems far from implementation in decision making in the absence of a legal framework (Wirutskulshai et al., 2011). However, this HIA case has become an example case in public meetings when the topic of mines development and impacts are discussed (GFHF #1). At least, it was suggested that this voluntary HIA could be considered in parallel with a new compulsory HIA, which is supposed to be conducted in future for this case, if the conditions to study stay the same (GSEP#5). This seems to be an expectation that this HIA process could serve as the decision-making process for this project development in future.

### ***P4: Availability of financial funds***

Considering the next criterion on financial resources for HIA practice and research (P4), these were available in Thailand during this HIA process. The facilitators and HIA practitioner team did not realise that this was a



problematic issue. In addition, in part of the community group that participated in the HIA process, they also had funds for their group activities when they needed them. This fund was established based on cooperative rice farming in the community (CMEC#21). However, this fund has been established since the approved EIA was a key issue of the conflict and they have relied on this fund for following activities in social movements related to the Potash mine development project. It can be suggested that financial funds for the HIA process tend to meet the criterion partially based on the perspectives of those who got involved with the process.

***P5: Involvement of stakeholders***

In terms of the criterion on public participation in terms of stakeholder involvement (P5), the HIA process tends to meet this criterion partially. This is due to conflicting feedback among the interviewee groups. Half of them thought the public participation happened only partially while almost half of them thought the participation was successful. Regarding this, there were three levels of public participation in this case; local community level, provincial community level, and related sectors at national level. For the community level, the participation tended to engage with some groups of community members, but not all. Key community members were involved with the practitioner team in terms of investigating the area in the HIA process. They practiced and learned together in parallel via this HIA process (GFHF #1, #2, #6, #7, PGHF #9, NGOF #13, NGRF #14, and CMEC #17, #18, #19, #21).

*“When the ‘health impacts’ topic was introduced relating to this project development, everyone seemed to be willing to take part with the scoping process including the project developer....Even though opinions among community members were divided into 2 sides at that time, for those opposed to and supporting the project*

*development...we invited the project developer, and they also joined the meeting....” (GFHF #1).*

Similarly, participation at the provincial level tended to meet the criterion partially. Even though many stakeholders joined a public meeting for HIA scoping of this case in May 2003, some interviewees noted that they were not invited, for example, the project developer (PDPT #24) whereas some other interviewees said that the project developer had participated (GFHF#1, #2).

*“We can make it clear that on behalf of the project developer, we have not reached the point of conducting HIA for this project yet. For this HIA, we were not invited to take part with the process, we did not get involved at all” (PDPT #24).*

This could suggest that the communication and cooperation about this activity might not have been clear enough among the stakeholders.

Concern was raised by a government stakeholder that social movements could lead to greater public disagreement regarding the proposal (GSOH #4).

*“In the social movement process, I think it is important to realise about correct understanding that all sectors should make that all of them can agree and accept final solution when things are considered together” (GSOH #4).*

The comments above emphasises the statement on importance of correct and specific communication between the groups of stakeholders involved in the assessment process (Fischer et al., 2009) that should be taken into account.

For this criterion (P5), in terms of participation from national level sectors to this HIA process, the interviewees from these sectors (governmental organisations at national level) had little knowledge that this HIA was conducted. However, when they found out later, they considered that the participation was partially done at community and at provincial level while some of them casted doubt on the extent of transferring the knowledge related to the project development. Meanwhile for actions from national level sectors, they hardly got involved with the process (GSEP #3, #5, #8, #30, GSOH #4, GSOI #10, #15, #20).

*“We didn’t take part with this HIA process directly as we have got knowledge about this case when a knowledge management (KM) workshop was conducted and this case was introduced as one of the examples for the HIA process... I think HSRI intended to use this case as a pilot tool for HIA development based on public participation” (GSOH #4).*

.....

*“I had no idea that there was this HIA process at that time, so, we hadn’t taken part with the process then. However, if I would consider about the public participation in this process, I think it was at a level of quite little cooperation and participation between community members, government organisations, project developer, academic institutions, and NGOs in terms of knowledge transfer about the project development” (GSOI #10).*

Regarding these responses from some relevant government organisations at the national level, it seemed unclear about institutional roles in terms of which sectors should have introduced public participation to the communities where the project was to be based prior to the decision making. Based on the first version of the EIA for this project, the consultant company was found to be a key facilitator to conduct public participation in the EIA process. Considering back to that point, it might be interesting to

reconsider when the public participation should be conducted for this project development between before the policy making or during the impact assessment process.

When considering the context of this case as mentioned in section 6.3 again, the legal basis for this project development was unclear since the beginning as it was said that the Mining Act was in undergoing a process of revision while the project developer was allowed to conduct the EIA. Then, opposition to the first version EIA occurred mainly due to the lack of public participation as a main reason. Later on, this HIA process was conducted as a research process by researchers, community members, and a HIA facilitator unit with little contribution of key roles, communication and cooperation between key relevant institutions at national level. Referring to this, the representatives from relevant organisations at national level claimed that there was no regulatory framework for HIA so that they did not take part with this HIA process. In addition, concerning the lack of regulatory framework provided for HIA, related governmental organisations at the national level might not consider that it should have been their missions to consider this HIA process.

On the other hand, knowledge transfer based on cooperation of involved relevant organisations or key role organisations with this HIA tend to be a main concern, which should have been done well in order to get more effective public participation for this HIA process. At this point, it cannot be denied that the earlier public participation from all sectors was taken into account in the impact assessment process, the more opportunity there would be for the public participation to be effective as emphasised by Nadeem and Fischer (2011). Also, trust between decision makers and community members seems to be very important for effective public participation in the HIA process (Kwiatkowski, 2011). Early public participation could help building trust because any doubts about the development can be removed at this stage (Elling, 2005, Au and Lam, 2005).

Moreover, some of the interviewees from the government organisations were not involved with this HIA process before while they tend to have particular roles in connection with this case at present. For example, making a connection with the community to build an understanding about the project development (GSOI #10), and developing the regulatory framework related to the impact assessment process and mining operation (GSOI #10, GSEP #5, GSOH #4). This might suggest that the HIA process, particularly on public participation activities, might have an impact to some extent leading to the development of new roles within the decision-making system.

***P6: Capacity of HIA to present sound, clear and understandable evidence***

The capacity of HIA to present clear evidence used in the decision making process (P6) was another criterion to measure procedural effectiveness. The feedback suggested that two thirds of the interviewees agreed that this HIA could partially represent clear evidence for decision makers whereas the project developer and some community members that were not involved with the process, considered that there was not enough evidence to justify the HIA capacity when governmental agencies stated that no regulation on implementing HIA existed. For the ability of the HIA to provide evidence for the decision-making process, they thought that the result of the HIA process could be useful as a driving force influencing decision makers to reconsider the project development to some extent and it was believed to be part of the driving force in the enactment of the National Health Act B.E. 2550 in 2007. (GSHF #1, #2, #6, GSEP #8, #30, PGHF #9, NGOF #13, NGRF #14, CMNP #26, #27, GSEP #30).

*“The HIA scoping summary (released before the HIA report) tended to be preferred by the Minister of Natural and Environmental Resource at that time. He tended to understand the result of public concerns in that stage as he had counted this as a priority for use as*

*an evidence to support decision making in taking some actions that slow down the project development at some level ” (GSHF #1).*

.....

*“After the scoping of this HIA the Minister of Natural and Environmental Resources decided to slow down this project but I understand that the project developer did not want this becoming public, so, the company just decided to withdraw the EIA of this project then. Actually, we did not want that way...we just wanted them to do it completely. Later, it seems that the project developer wants to start the assessment process again” (GSHF #6).*

.....

*“I think the content of this HIA might not cover all impacts but, anyway, it tends to be useful for decision making” (CMNP #26).*

.....

*“I think it might be a driving force to some extent to make SEA for Potash happen soon” (GSEP # 30).*

In addition, this HIA was used as evidence in the social movement to declare that their health might be affected by the project development. Through the HIA process and using it, the opponents (community members that opposed the project development and participated in the HIA process) developed networks to share relevant data and cooperate with those who opposed other project developments (NGOF #13, CMEC #17, CMNP #27).

*“This HIA process might have led to organising central data systems and gaining cooperation from new networks in social movement. When we consider health impact, people from health sectors and the middle class in the city tend to pay attention to this topic so that broader perspectives of impacts were taken into account. However, the HIA might be a tool combining with other relevant factors” (NGOF #13).*

This suggests that these opponents used this HIA as evidence to claim for their rights and express the evidence of health impacts; they took part in the process themselves.

In contrast, the project developer argued that this HIA was not able to claim its credibility at any level as there was not enough justification, clarification and acceptable standard for them to accept it.

*“From our perspectives, the HIA process has not arrived yet. We haven’t got any final decision to solve problems on the impact assessment process for this project... In case the new process of impact assessment should be conducted again, authorised sectors should assign us to do, as we are always willing to follow the guideline provided by laws” (PDPT #24).*

Likewise, three interviewees from the governmental organisations at national level did not think that the HIA process would meet this criterion (P6) because there was no regulatory framework provided for HIA implementation in decision making for the project development (GSEP #5, GSOI #10, #15). Regarding these facts, some interviewees seemed to be uncertain whether this HIA process would actually be taken into account (PHAP #16, CMNP # 17, #25).

*“I think HIA is important for decision making, as we know, mining operation can lead to adverse impacts, to whatever extent. However, I am not sure if the decision makers would take it into consideration..they might..I am not sure” (CMNP #25).*

It could be assumed that this criterion might not have been appropriate enough for this context if the interviewees were decision makers. Regarding the data gained in terms of lack of legal regulatory framework for HIA

implementation at that time, the decision makers might not have enough baseline standards to reflect their perspectives about this HIA.

***P7: Delivering the report to participating stakeholders***

Finally, delivering the HIA report to participants (P7) is another criterion considered for measuring procedural effectiveness in this study. The results suggested that the majority of the interviewees agreed that the HIA process tends to meet this criterion to some extent. They were delivered the HIA findings via the report, presentation, workshop, and community radio station (GSEP #3, #30, GSOI #4, CMNP #27).

In contrast, some interviewees from the government organisations claimed that the HIA report was not delivered to them, as it had no legal regulatory basis, so that they tended to have quite little knowledge about it (GSEP #5, #8, GSOI #10, #15, #22,). The decision-making sector insisted that a new HIA should be conducted based on regulation for HIA at the present time (GSOI #15).

*“I don’t know how they have conducted the HIA, I haven’t read it. I haven’t seen it before...I don’t have any comparison about the Potash case as no one has done this before. Actually, I have to say, I have quite little knowledge about health. For the EIA case, if it was approved by the authorised organisation, health impact content might be in there, and we would follow the agreement approved... However, the reason I haven’t considered it is because there would be a scoping process conducted by the project developer based on the regulation at present (section 67 of Thai Constitution), public participation would be conducted by the project developer. Then, I would review what the project developer has done whether it would be completed based on laws or not. At that time, I might consider this HIA comparing with the new version conducted by the project*



*developer. However, I will have to accept the version which was conducted based on public scoping and public review” (GSOI #15).*

There have been questions about the way the information from the impact assessment process should be delivered to decision makers such that they could perceive it and they can use it in making the decisions (NGRF #14).

*“We have discussed before about how we can deliver the HIA as evidence to decision makers. Putting the HIA report on their desk is easy but the difficult thing is how to make them understand and perceive it. What is the most effective way to deliver the study result to them? This has been questioned along with following relevant seminars” (NGRF #14).*

This observation might be useful for relevant organisations to take into account in order to achieve the most effective outcome from conducting HIA or any impact assessment processes.

For the project developer, they have not seen the HIA report but they tended to have doubts about this HIA process based on the legal basis that it relied on and they claimed that it was a responsibility of the project developer to conduct a HIA for this project development.

*“Academic groups might have done this HIA during that time in parallel to propose to the government when a provincial ad hoc committee was set up to solve the Potash mine problem. We did not get involved with this process.....we haven’t seen the report paper. However, we have a question that on what basis was the HIA relied on while the EIA, which is major evidence, has been cancelled. I think HIA and EIA should relate to each other, therefore, when the EIA was withdrawn, how could we be sure that the findings from this process would be rigorous and sufficient. In my view, I think it is a*

*responsibility of the project developer to provide HIA in order to present the production process and provide mitigation and protection measures” (PDPT #24).*

About this issue, one of the practitioner team explained that the findings of this HIA have been delivered indirectly to the project developer (PGHF #9).

*“For the project developer, we might not have delivered the findings to them directly but we presented the findings in different meetings that they might have joined. I have to admit that when we debated about this project development at various meetings, we might not have said that it was a HIA but we said about the impacts on water resource. Via these meetings, I think, the findings have been delivered to the project developer indirectly (as the HIA was not conducted based on legal regulations- author). NGOs also might have used the findings of this process as evidence in social movement at that time” (PGHF #9).*

Regarding the facilitators and practitioner team, they stated that the results of the process were informed to the public in various ways, for example, delivering the argument via mass media at both local and national levels which led to emergence of social movements related to this development (GSHF #1, #2, PGHF #9). It was noted that, later, social dynamics related to this HIA process tended to influence the decision-making process in the Thai context (GSHF #2).

*“We might not have delivered the full report to all sectors but we used the findings from this process in driving policy in different places and times. We did not wait until the assessment process has been completed, instead, new findings were always gained during the process and these findings were delivered to society all the time. When any commission, members of parliament, representatives from*

*governmental organisations, or anyone visited the area, the community members could be able to explain the findings and what they had learned and done in the HIA process” (PGHF #9).*

However, additional comments were added that even though the HIA report had been delivered, monitoring related to this HIA process might help learning whether there is any impact from the impact assessment or not.

*“We informed the findings from the HIA process to community members and they used their local radio station to distribute this in the community...I think I also proposed this HIA report to the former provincial governor. I have to admit that I haven’t followed up on what kinds of actions have been made but I felt that the government sector might not have paid enough attention to it as there was no legal regulations for HIA implementation at that time” (PHAP #11).*

Considering about delivering the result of this HIA process, as there was no regulatory framework supported, formal delivery of this HIA report did not happen. Rather, the information delivery was mainly via public mass media in the forms of newspaper, television, radio stations, and public consultations organised by the practitioner team. It could be said that all relevant sectors could have been aware of the information delivered through these communications as well as through public pressure when protests were held. This information delivery, by public media and public pressure, when conflicts occurred or questions about impact assessment process had been asked, seems to be an effective way to force decision makers to give answer to the public in Thailand (Rerkpornpipat, 2007, Tongcumpou and Harvey, 1994).

To sum up about the criteria set for measuring procedural effectiveness, it could be said that legal regulation tends to have a crucial weight influencing stakeholders from all sectors concerning the procedural effectiveness of any

tools, for example, the HIA process in the case of this study, in decision making in the Thai context. This might imply that all sectors might prefer to have proper guidelines to follow so that they might feel more comfortable to get involved with the process regarding their roles. However, it might not be appropriate enough if a legal regulation might have been provided in advance based on lack of research, evidence, and experience of implementing the tool in this country.

Based on this concern, it could be argued that the legal regulatory framework criterion might not be appropriate for determining procedural effectiveness in all cases where HIA practice is being developed and initially introduced. This is because the perceptions on this effectiveness category expressed among stakeholders, except the HIA practitioners and facilitators, suggested that the majority of them tended to rely mainly on legal regulation while they seemed to know quite little about what HIA should be in the Thai context. This implies that when there is lack of knowledge about HIA, the perception about the existence of this HIA tends to be lacking too.

#### **6.4.3 Substantive effectiveness**

The criteria set for measuring substantive effectiveness were created based on four main factors: the existing related regulatory framework when the HIA process was conducted; consequence from the public participation to the HIA process; decision making context; and the influence of the HIA report in the decision making. Regarding this, ten criteria were set to measure the effectiveness of this HIA, as criteria S1-S10: availability of framework on implementing HIA in decision making (S1); incorporation of proposed change (S2); informed decision making (S3); close collaboration (S4); parallel development (S5); early start (S6); institutional and other benefits (S7); successful statutory consultation (S8); successful public

participation (S9); and understandability/ satisfaction with the HIA report in the decision making process (S10).

***S1: Regulatory framework on implementing HIA in decision-making***

Firstly, concerning the regulatory framework to implement HIA in decision-making (S1), the results clearly indicate that this HIA fails to achieve this criterion. This is due to there being no regulation on implementing HIA in decision-making at that time so that decision makers and related statutory consulting sector seemed to know little about this HIA process (GSEP #3, GSOI #10, #15).

For interviewees that are community members, they said that even though there was no legal regulation on implementing HIA in decision making, they suggested that this HIA could be an example for other cases that might be affected by other project developments. They also believed that this HIA was a part of a driving force leading to gaining some attention from decision makers to consider this project more carefully based on real needs of the public (CMEC #18, #21, #25).

*“Because of the lack of regulation for implementing HIA, this HIA has not been accepted formally. So, we wanted this HIA case to be an example for other following cases so that it could be part of a driving force for a public issue that finally the decision maker needs to consider. I felt that we could push findings from this HIA process to the public stage so that other people that might be affected by any project development might want to study it as we have done. I think, at least this HIA was part of the driving force and I am proud that I got involved with this process” (CMEC #18).*

.....

*“How would you reform Thailand? In what ways? Will poverty disappear? I don't want the government to give me money. If we said*

*we want a reservoir, you should come and ask us and let us help to decide whereabouts to dig it” (CMEC #21).*

Again, as there was no regulation, while concerns on implementing HIA tend to be essential, a question on how HIA can be introduced into the decision making process has been raised by other interviewees from related government organisations (GSUD #23).

*“I don’t think this HIA has been implemented in the decision making process yet. From my perspective, I absolutely agree with using HIA in this process because it can be done based on multidisciplinary and this is good for the public to ensure a good decision making. However, I still have a question that in what way that HIA can be introduced to the decision making process? Will we identify this project (Potash mine) as a project which causes severe impacts or not, and who is authorised to identify it and how, because some people might think that the impacts from this project might not be severe while another group might argue that it would be absolutely severe. This is still unclear for me” (GSUD #23).*

In addition, interviewees from non-governmental organisations believed that the policy for this project development has been decided already before any impact assessment process (NGOF #13).

*“HIA could not lead to any change of the decision. This is because it has been decided already to develop the mine since the industrial development policy has been made, it has been decided...this is what we understand” (NGOF #13).*

The practitioner group also added that this HIA tended to gain quite little attention from the decision makers because of unclear understanding about the HIA philosophy among decision makers and related sectors. This seems

to be because regulation for applying HIA in the decision-making process was lacking at that time such that it could have led to lack of interest in, and knowledge, about HIA. Nevertheless, originally, the aim for HIA development in Thailand was expected to be that it should be a process that could provide options for project development, however, most decision makers tended to see it as a tool providing mitigation measures to develop projects (PGHF #9, PHAP #11).

*“It would be good thing if the government would be concerned about the concept and philosophy of HIA instead of only looking at it as a tool in decision making. For the HIA concept, HIA should be able to provide options for the development rather than just to provide mitigation measures. This is essential to make it clear to the public” (PGHF #9).*

Meanwhile, one interviewee said that actually attempts at proposing HIA to the government for applying it into legal regulation have been taking place since 2005, but it might not have been mentioned enough so that this agreement might have been forgotten until 2007 when the National Health Act came into force (NGRF #14).

For this criterion, regulatory framework on implementing HIA in decision making (S1), the findings have shown that existence or non-existence of a formal regulatory framework influenced the possibility of implementing HIA in decision making as well as the ability of the interviewees in responding with their perspectives. While there were no legal regulations for HIA at that time, it seems this criterion might not be appropriate for measuring a voluntary impact assessment process like this HIA. However, using this criterion in this case had gained relevant perspectives that could lead to establishing substantive effectiveness criteria when there was no legal regulation supporting the impact assessment process. For example, perspectives reflected that relevant policy and decisions on Potash mining

development had been made before the EIA process (NGOF #13). This implies that political context, which influenced policy making for mining development in the past, could have largely influenced decision making rather than the impact assessment process. This finding is related to the comments suggested that it is necessary to consider ‘*politics and power*’ to build more understanding and knowledge when measuring substantive effectiveness of impact assessment tools in terms of implementing the tools in policy and decision making (Cashmore et al., 2010).

### ***S2: Incorporation of proposed changes***

Secondly, for incorporation of proposed changes (S2) in terms of considering HIA in the final version of the project, the result reflects three different perspectives suggesting that the HIA process could meet this criterion partially as consolidated below.

First, the perspectives the interviewed decision makers and project developer implied that this HIA cannot be taken into account on the final version of project development (PDPT #24) while the statutory consulting sector did not have any knowledge whether the findings from this HIA process had been used in decision making for proposed changes or not (GSEP #3, #5).

*“For the new EIA process for this project, there would certainly be health impacts as a part of the assessment. For this HIA which was conducted in the past, might be considered in cases where the data and the impacts stay the same. Otherwise, we would not be able to rely on it as it’s not up to date. HIA can be implemented but I don’t believe that it could be able to give the answer more than EIA. As the maximum, it could probably provide the answer at the same level as EIA because it has been introduced into the constitution via the similar way as EIA, whereby mitigation and protection measures are*



*to be provided from the process. The only thing added is letting the community take part more in the decision making process” (GSEP #5).*

This is both because the HIA was not recognised as a regulatory process and because the conclusion for this project development has not been finalised yet whereas the decision making sector has been concerned about a contract made originally between the government and the previous project developer prior to the mining survey (GSOI #10, #15).

*“Finally, the decision might be able to be made the way the community members want it to be...but in another point of view..for me, as a government sector, I just want them to understand that there is a contract between the government sector and the project developer. This means we need to provide the chance for the development regarding our missions. I want to explain that, in the past, we invited investors from abroad to come and survey for the Potash mine in Thailand. Many of them failed and went back...just only in Udon Thani that they could find the mine resource. The contract has been signed since 1984..until now...even boundary measurement for the operation still could not happen because of an opposition from the community...As long as all sectors have their own answers in their minds, I don't think either EIA or HIA would help solve this problem. I think all sectors should discuss about 'profit sharing' from this project in order to make it clear” (GSOI #15).*

However, some interviewees from the decision making sector implied that the result of this process could be considered when a new impact assessment based on the legal framework can be started again in terms of comparison between this HIA and the new formal version for this project development (GSOI #20, #22).

*“We would certainly look at this HIA when there is more progress about this project, the more we have background data, the better for the decision to be made” (GSOI #20).*

Second, some of the interviewees could not tell whether the HIA would be able to influence changes in decision-making. This is because they were not sure how or in what way HIA can be implemented or influence the changes without any legal basis as well as clarification about Potash mine policy (GSHF #7, GSUD #23, GSRE #28).

It has been emphasised that Potash policy might need to provide more clarification in terms of its scope and strategic plan that should be able to provide broader options for the public to consider (GSHF #7).

*“People might want to ask questions to policy makers about how you would scope Potash policy? Would you use all of the Potash resource?... So far, I felt that there seems to be limitations in terms of how to scope the Potash policy. Actually, this area tends to be a community structure while Potash development tends to rely on policy structure. Therefore, when this development would be localised at community level, there tends to be only a ‘yes’ or ‘no’ answer without many options to consider because we haven’t seen and studied the overall structure of the development at national level before. For the potash case, it could be said that the case tends to become an interaction of its policy from top level to community policy. What can we explain about this at the national level?” (GSHF #7).*

.....

In addition, perspectives among relevant decision-making sectors tend to be different in terms of their missions and disciplines, which might lead to different priorities of their concerns (GSUD #23).

Finally, twenty interviewees commented that public opinion from this HIA process could possibly have influenced the decision makers to some extent in carefully considering this project development (CMEC #17, #19, GSHF #1, #2, #6, PGHF #9). Nonetheless, political crisis in Thailand during 2007-2010 might be another factor interfering with policy development in the country including this project development (CMEC #17).

*“We have to consider that actually, none of the decision makers or policy makers has absolute authority in making decisions. Authority in making decisions tends to distribute across different organisations. If we wait until politicians and decision makers get ready for incorporation of proposed change from this HIA process or any other HIA, I think they will never get ready. So, we have tried to persuade them in parallel with gaining the public voice to force them based on evidence and regulatory process. This strategy tends to fit with the Thai context. After they agree to take this concern into account, we would explain to them to build more understanding about HIA implementation in the development” (GSHF #6).*

.....

*“Even though the decision makers haven’t said that it was because of this HIA, I believe that the outcome of this process has influenced their decisions. At least, it shows that they haven’t decided yet and they agree to consider the impact at strategic levels by conducting SEA to see options for the development and then decide later. As a practitioner, I felt that it is a small piece of victory...it is a success of using the data and findings.” (PGHF #9).*

.....

In this context, it has been shown clearly that the lack of a regulatory framework might have influenced the incorporation of the proposed changes suggested in the HIA report, or it might have been an excuse when no action was performed. This is because findings in other studies such as measuring SEA effectiveness, where the regulatory framework was provided, still found that the public were uncertain about the changes in the programme after the SEA process (Theophilou et al., 2010). This could reflect that incorporation of the proposed changed regarding impact assessment process might need sufficient attention and consideration from decision makers to take action and assure the public that their concerns are taken into consideration.

In addition, there had been questions about the clarification of the policy from most of stakeholders. Referring to the perspectives expressed about unclear policy on Potash mining development in Thailand, this criterion (S2) might help decision makers to step back and reconsider about the clarification of this policy again. The decision makers could reconsider political options provided for supporting environmental objectives (Stoeglehner et al., 2009), and relevant laws linking with mining development policy so that more clarification of the policy, for all stakeholders to understand, can be obtained.

### ***S3: Informed decision-making***

In terms of informed decision-making (S3), fifteen interviewees felt that this HIA could result in informed decisions partially whereas the others did not think it could influence decision makers leading to informed decisions or the decisions have not been made because of this HIA.

For those who felt that informed decision making might have been influenced partially by this HIA process, it was due to the progress of the project development seeming unclear to date which might be influenced by

the public pressure expressed through the HIA process (PHAP #11, NGRF #14, CMEC #17).

*“I don’t think it is because the decision makers listened to the voice, instead, they would be rather scared of the public action. If the public opposition to the project has not occurred, this project would have been approved for the development already. So, for now, we can see the informed decision as managing by not managing it”* (PHAP #11).

However, many questions were raised about the lack of clarification on policy direction, legal regulations, SEA for Potash development, and relevant routine operation processes (PHAP #12, #16, NGRF #14, CMEC #17, #19).

*“After the public scoping for HIA, we found a lot of hidden problems which led to the establishment of an ad hoc committee to review the approved EIA and found problematic issues that should be reconsidered about this project development. Then, a public platform for discussion emerged. ....For the SEA topic, I have been one of the subcommittee working for SEA consideration under the Department of Primary Industries and Mines, Ministry of Industry. It has been trying to discuss and interpret what the strategy is. Understanding between them about this is still unclear. However, I have the following question about the policy process in the country. Does policy really exist?...as some topics provide the policy while some don’t. So, it is necessary that we have to make it clear about the policy prior to finding options for the development from the SEA process”* (NGRF #14).

This could suggest that an SEA process is expected to be an option to find an agreeable policy and option between stakeholders, nevertheless,

clarification about SEA knowledge and its implementation is still lacking to date. Referring to the interviews, it was revealed that the decision-making authority (Department of Primary Industries and Mines: DPIM) is in the process of consulting with ONEP (the relevant authority for impact assessment) about SEA guideline development for this project (GSEP #30) and the budget for SEA practice has been granted (GSOI #10). However, referring to the news and information on relevant websites, for example, [www.thia.in.th](http://www.thia.in.th), [www.greenworld.or.th](http://www.greenworld.or.th), [www.isranews.org](http://www.isranews.org), [www.esaanvoice.net](http://www.esaanvoice.net), [www.appc.co.th](http://www.appc.co.th) and [www.dpim.go.th](http://www.dpim.go.th), it is still unclear whether agreement between key organisations conducting this SEA process has been reached because conflicts between stakeholders have not been finalised to date.

Considering the effect of this HIA, decision makers said that HIA tends not to influence the decision making process because there was no regulatory framework that they can rely on as well as most of them insisted that the HIA report was not delivered to them (GSOI #10, #15). However, the practitioner team argued that they had tried to deliver the findings from the HIA process more than one way, for example, via newspaper, TV news, articles, local radio, related social movements and so on (PGHF #9, PHAP #11). Therefore, at least, public perception about the Potash mine project could have been delivered to all related government organisations even though they did not recognise that this resulted from the HIA process. Due to there being no formal process based on legal regulation for introducing HIA into decision making, the report of this HIA was not considered in the routine operation processes of relevant government organisations.

At this point, considering these two different perspectives on HIA as a potential influence on incorporation of the proposed change and informed decision-making, it could be said that interpretation of the effectiveness of HIA between both groups tended to rely on the background of the stakeholders and their context and the principles they rely on. As

Nelimarkka et al. (2007) found that understanding and attitudes about HIA effectiveness tended to be influenced by the organisations where the relevant stakeholders worked. In addition, the findings suggest that related institutions might need to strengthen their missions and cooperation based on deliberative multidisciplinary.

#### ***S4: Close collaboration***

For collaboration between the project developer and the HIA practitioner team (S4), the project developer insisted that they had not been involved in this HIA process as they were not invited (PDPT #24). Some HIA facilitators and practitioners mentioned that there was partial collaboration between the project developer and the practitioner team (GFHF #1, #2, #6, PGHF #9, PHAP #11, #12, NGRF #14, RSPT #29).

*“The latest project developer had never communicated about this project to the public until around 2007-2008 when finally we could exchange perspectives on a public platform..but this might be after the HIA process already” (NGRF #14).*

.....

*“It could be said that the collaboration tended to be a counter movement at that time in terms of action and reaction between the opposed community members and the project developer” (RSPT #29).*

However, one of the HIA team admitted that the collaboration with the project developer at that time was not close enough because of limited attitude (PGHF #9).

*“When looking back, I felt that the collaboration between the project developer and us was really bad. I have to admit though that it was bad because of our attitudes. We felt bias about coordinating with*

*them, not being biased about data analysis. I felt that we weren't brave enough to invite them to join us as a team to study this HIA"* (PGHF #9).

It has been suggested that in the public participation process in the Thai context, deliberative discussion should be introduced in order to get appropriate options based on understanding between individuals (GSHF #7), reflected by one interviewee who is one of academic scholars.

*"In order to mitigate the conflicts, I think Thai society needs to learn to be a deliberative community based on understanding individual rationality. We can't reconcile without knowing each other based on understanding the individual rationality. We need to be concerned about thinking rationality rather than thinking product"* (GSHF #7)

Regarding the different perspectives gained from the interviewees, who are from different backgrounds (including academics, private-sector people, government officers, non-government officers and community members), it could be summarised that the collaboration between them was not at a satisfactory level. This is because not all stakeholders to the project development took part in the HIA process at that time. It could be suggested that stakeholder identification for this HIA might have been incomplete. *'In a dialogue of stakeholders, representatives not only state their views, but listen to each others' views for the purpose of developing mutual understanding, including each others' value-base, interests, goals and concerns. Dialogue requires the willing participation of all participants; even one person whose primary orientation is towards getting her or his way can destroy the dialogue'* (Hemmati et al., 2002). Furthermore, Callway and Ayre (2005), reflected that ineffective involvement of different stakeholders seemed to be a key problem in the public participation process. Therefore, it seems that this HIA would not achieve this criterion.



### ***S5: Parallel development***

Similarly, for a criterion of implementing this HIA in a parallel development (S5), it could be stated that the HIA was not taken into account because no regulation provided for its pathway as well as a lack of clarification about the policy direction for the development. For this HIA process, the interviewees' perspectives suggested that none of them thought it was considered in parallel with the project development plan (GSHF #1, GSEP #3, GSOI #8, #15, PHAP #11, NGOF #13, CMEC #21, GSUD #28).

*“In theory, this HIA should have been done prior to the development plan...but the plan had been developed without any impact assessment before. So, for this case, it was almost too late..but at least, finally, this HIA was conducted before the project construction could start. I think this HIA process could highlight public concerns that all sectors might need to step back and might consider it more carefully”* (GSHF # 1).

.....

*“The decision has been made that the Potash mine would be developed, however, only HIA could not lead to the change of decision making. We've forced them to listen to us by conducting the HIA process as one of the components in exchanging information”* (NGOF #13).

However, the interviewees thought that the evidence gathered from this HIA could be part of the policy driver for this project development at some point (GSHF #1, PGHF #9, PHAP #12, NGOF #13, CMEC #21).

*“I think we got clear points from the HIA process so that it could be part of the evidence that the involved participants also used it as a policy driver after the process. This evidence could help them negotiating with authorised decision makers and leading to more*

*concerns on this case problem solution. Also, they used it to question the Ministry of Industry about this project development too.” (PGHF #9).*

.....

*“This HIA can be used as an evidence confirming for the government that we have assessed the impact already...your project might lead us to inconvenience” (CMEC #21).*

This means the related decision for the potash mine development in Thailand might have been made before the clarification of its plan.

In addition, it was found that there is an underground mine pilot scale in Chaiyabhum province, which has been constructed but not yet trialled for actual operation, referring to the response stated by one interviewee from the decision-making sector as follows,

*“There is a pilot scale underground mine in Chaiyabhum province, which has been supposed to be a commercial one in future. The facility for the operation has been completed but has not been operated yet because the Ministry of Natural Resource and Environment has not opened the area for us to start the operation. Community members from Udon Thani have visited there before, however, they still insisted that they didn’t want a Potash mine to be operated in Udon Thani” (GSOI #15).*

This response indicates that agreements between authorised organisations have not been achieved such that there tends to be insufficient evidence provided to demonstrate the confidence for the public when a larger scale of underground mine is operated.

This finding suggests that this HIA process is far from meeting this criterion (S5) for three main reasons. Firstly, settled agreement between decision-

making sectors has not been achieved. Secondly, the research and development plan for underground Potash mining in Thailand has not been completed. Finally, there has been no regulation provided for implementing HIA in parallel with decision making for this project type to date concerning the latest legal notification approved by the government cabinet (Ministry of Natural Resource and Environment, 2010). Originally, there were 18 project types requiring health impact assessment within EIA, identified by an ad hoc committee, but later the government cabinet reduced the number to 11 project types as a final version of the notification. Regarding underground mining, originally, all scales of the mines would require HIA in EIA but, later, when it was finalised by the cabinet, only underground mines designed without room pillars will require HIA in EIA. Therefore, the HIA has not been *formally* implemented as a parallel development for this case to date.

Furthermore, regarding the interviews, there are interesting perspectives mentioned about providing laws for integrating impact assessment tools in the development. It has been mentioned that the pitfalls of the legal regulation could lead to incompatibility when implementing the impact assessment tools.

*“...The governance was top down delegation in the past. During 70s-80s, the country was ruled by bureaucrats while Thai society has changed overtime. Legal regulation might not have been established based on serious concerns, which led to blackout and pitfalls. For example, policy and laws were provided 30 years ago while I felt that impact assessment tools we have at present might have been provided to support the policy in the past rather than solving the problems at present. Therefore, this tool was not prepared to solve the problem at present...” (GSHF #7).*

This implies that the impact assessment tools should be dynamic and more suitable when implemented in each particular context. Also, it seems that

the relevant laws should be updated appropriately as much as possible. This is due to the following comment suggesting that the revised Mining Act in B.E. 2545 (A.D. 2002) seemed not to be satisfactory for the stakeholders (PHAH #11, #16, CMEC #17).

*“The potash mine would be underneath our house because of the changed law that we would have the right on our own land only from the surface to 100 m depth. The state can allow anyone to use the lower part without asking the owner up there, so, we wondered if this Act would be really fair for us or not. Then, we wrote a letter to ask the Ministry of Natural Resource and Environment” (CMEC #17).*

These perspectives could reflect that the causes of the problems found in this case study could be initiated from inappropriate connections between the laws, unclear policy direction, and impact assessment tools in Thailand.

#### ***S6: Early start***

For the appropriate timing criterion when this HIA was conducted as an early start (S6) for the project development, although it was not conducted because of legal requirement by authorised government organisations for the decision making process, people involved with this HIA process thought that it was fortunate that this HIA was performed. Therefore, half of the interviewees agreed that the HIA meets this criterion (GSHF #1, #2, #6, #7, PGHF #9, PHAP #12, #16, NGOF #13, NGRF #14, CMEC #17, #18, #19, #21, #25, RSPT #29) while two others thought that it meets the criterion partially (GSEP #8, PHAP #11). The rest of the interviewees did not get involved with the process, so, they did not have enough information to judge this.

The points made in this category suggested that, originally, the villagers had not heard about the Potash mine project until an NGO officer approached the area and informed them about the development.

*“I was the first person coming to the village as I knew that the mine would create impacts on the community. So, I arrived here and gave them the information about the approved EIA of the mine, collected the community member group and facilitated them to set their own thinking frame for the social movement to ask the questions to all related sectors to this project development” (NGOF #13).*

This might imply that public participation might not have been weighted as the top priority by the policy-making sectors at that time. Therefore, the villagers just lived the way they used to without getting involved that much with the development.

*“I think before the social movement in this area, the villagers were trapped with fear; fear of laws, fear of masters. The facilitator who mentored them might have to get rid of these fears from their belief and tried to help them realise their own rights and fight for that” (RSPT #29).*

Later on, when they were informed about the project development, they got involved with the social movement against the approved EIA, then; they took part in this HIA process. The involved participants in this HIA said that it was not too late for them to start this HIA although there was no regulation provided for HIA implementation at that time.

*“Actually, this HIA process should have been done before the project development plan, however, social movements by NGO groups and community members led to the process investigation and finally the withdrawal of the approved EIA..and leading to this HIA*

*process. If there had been no questions about the project from the villagers and their participation, I think the project might have started the operation already” (PHAP #11).*

.....

*“About the timing...I think this HIA was conducted early enough that the result could influence the decision making for the project because we knew about this project and its previous EIA early enough. Also, the content from the Potash case was used as part of the consideration in the billing process for the National Health Act that HIA should be included in the impact assessment process in Thailand” (PGHF #9).*

.....

*“I think the HIA conducted during that time (2004-2007) was fairly good in terms of timing because it led to more involvements among related sectors to balance the power...It was good because we could get different perspectives on this development” (CMNP # 25).*

Referring to the result, more than half of the interviewees were satisfied with the timing of the HIA and felt that it had started early enough to have an impact to some extent for decision makers. This is related to observations stating that the benefits gained from getting involved in an early public participation process could help stakeholders eliminate their doubts about the development (Elling, 2005). It also can explain that effectiveness perception on the impact assessment process could be increased when people got involved with consultation and cooperated (Theophilou et al., 2010).

For this criterion, the finding suggests that public views tend to influence the timing of when to start the impact assessment process rather than a formal routine system for development provided in policy making. It was also found that using this criterion could help explore the factors that might influence the starting point of impact assessment processes. It could be

concluded that for this context, the factors include the lack of public knowledge of the policy or project development and subsequent pressure.

### ***S7: Institutional and other benefits***

In term of institutional and other benefits (S7), the majority of the interviewees agreed that the HIA tends to meet this criterion (sixteen partially, eight fully). These reflections are from different groups of the interviewees with different perspectives.

The practitioner team and HIA facilitators said that the cooperation generated at that time tended to be mainly at the local and provincial level based on support from the HIA facilitator central network (GSHF #1). This could draw the attention of the public and lead to their active participation, including supplying related data they had generated, and lead to a social learning process via this HIA practice (GSHF #6). In addition, this HIA process could also be part of the HIA case research series for knowledge production in HIA development (GSHF #7).

*“I think the HIA process has led to more concerns on human beings as a focus for development in different perspectives that might affect human health. For example, impacts on their physical health and mental health, how we can provide mitigation measures for the adverse impacts and how positive impacts can be increased. I think this has led to the formulation of a conceptual framework and thinking method to develop the framework for HIA. For the Potash HIA, it was one of the cases we have tried to learn and produce knowledge from. I think when we provide a guideline, we would need to digest the knowledge from experience we have. This is a main point that we are trying to research in order that we can operationalise in a practical and pragmatic way. It might not be never ending” (GSHF #7).*

For the practitioner team and HIA facilitators, they seemed to be satisfied with the connections and benefits in terms of knowledge gained from the HIA process.

On the other hand, from the views of the government organisations involved with decision making, whereas they did not get involved with the HIA and did not explicitly play their roles, they felt that this HIA process could be valuable experience for other cases and that more concerns and cooperation between sectors based on a multidisciplinary approach might be introduced. They also realised that more communication between governmental organisations and the public should be encouraged and improved (GSEP #3, GSOI #10, #16). Relevant to this feedback, it is essential to realise for communication improvement that the degree of communication from planners (decision makers) should be appropriate and common at all levels (policy, plan, and programme) (Fischer, 2003). Moreover, it is also necessary to deliver the decisions to all relevant stakeholders or their representatives (Nadeem and Fischer, 2011) so that they can have an opportunity to reflect their views.

This criterion (S7) could reflect that the roles of HIA facilitators tend to be essential in motivating and drawing attention from the public to take part in the HIA process. It also leads to the emphasis that the research cycles of the HIA process and its relevant factors is very important so that higher levels of understanding about HIA practice can be developed. Reflection on experience and communication practice between relevant sectors/ or stakeholders are also essential findings that this criterion allows the researcher to explore. Feedback from stakeholders could help measuring a HIA process (Gunning et al., 2011) which can be used for further development in terms of conducting the HIA process itself and its implementation. Even though this HIA was not required legally, it is believed that the perspectives and perception collected for effectiveness



measurement, by applying the criteria set conceptualised in this research, can be a fundamental part of evaluating impact assessment outcomes in future.

### ***S8: Successful statutory consultation***

For successful statutory consultation (S8), most interviewees tended to be unsure when considering this criterion. This is because there was no regulation on implementing HIA in decision-making at that time such that related sectors that might have roles specified in regulations had not taken part in this HIA process.

However, there were some observations that the consultations emerged in the form of an ad hoc committee or council team during and after the HIA process (PHAP #11, NGRF #14). For example, there was a council team that has a role in providing suggestions for the government in administrating the country called the National Economic and Social Advisory Council (NESAC) which paid attention to the Potash mine issue and deliberated in a public meeting prior to a formal suggestion proposed to the government in 2009 (NGRF #14). Referring to the document reviewed about the suggestion provided by the council, this council provided suggestions on Potash mining and Eastern industry development for the government in 2009, regarding official document no. ศท 0001/41 (in Thai) dated 12 January 2009, as mentioned in the case study context **section 6.4** of this chapter. Later on, it seemed that the recommendation might have been partially taken into account as an SEA for salt and Potash industrial development in north eastern of Thailand is in progress.

Therefore, for this criterion, it might not fit well with this HIA process based on the interviewees' perceptions. This is because there was no regulation for implementing HIA in decision making such that the existing statutory sector did not take part in any consultation. However, the HIA

process might have had some influence in that the NESAC had considered a solution for the Potash mine issue by providing a set of suggestions proposed to the cabinet as found in the documentary review.

In short, this criterion (S8) might not apply to this HIA process and its context. This is because the findings suggested that establishing an ad hoc committee or council team tended to be a solution that the government or relevant sectors tried to provide and might expect to use them as consultation bodies instead of statutory consultation. However, the situation is that the lack of relevant regulations might not be able to guarantee that the consultation provided by these bodies will be completely taken into account. In addition, it has been cautioned that having an ad hoc committee for solving a particular problem could not guarantee that the problem would be solved as it is not based on any formal basis and this might be influenced by the political context (Hall, 2005).

#### ***S9: Successful public consultation***

For the successful public consultation (S9) criterion, the results show that this HIA could meet this criterion partially, at least. This is because social movements on this issue prior to the HIA process tended to be able to express their voice loudly enough so that several related sectors could hear and consider it. The findings showed that interaction between the public in this HIA process comprised public communication, consultation, and participation. Again, it can be said that public demand led to public participation in this HIA process. The finding conveys the story similarly to the findings obtained by Chompunth (2011) and observations noted by Tongcumpou and Harvey (1994).

Referring to this HIA process, HIA facilitators and some representatives from government organisations agreed that the participants in this process were gathered from various sectors. This process provided an opportunity

for them to express their ideas when the public consultations were organised as well as when some of them took part in the assessment process and they could learn more about HIA from the process (GSHF #1, GSEP #3, GSUD #23).

*“In my view, I think the participation in this process might not have affected the decision making explicitly, rather, it tends to strengthen the information that the community members had so that when we mentioned about the impact, they could explain it clearly based on their experiences gained. The community members had got an opportunity to express their idea...and it seems that the decision maker took it into account during the HIA scoping process.. However, it depends on individuality of the decision maker too”* (GSHF #1).

The finding also reflected on the previous impact assessment process conducted and suggested that the consultant company might have been misled about public participation leading to conflicts occurring as a consequence.

*“It seems that, generally, the consulting company are unlikely to have used actual data in assessing the impacts, instead, they tend to use reviewed data rather than conducting actual surveys within the project area. This leads to faulty analysis and deflects the finding from the actual conditions. Similarly, for public participation activity, it seems that not all sectors could take part in the process. Academic human resource on impact assessment is necessary to deliver the knowledge about this to villagers so that they can choose what the best options are for them”* (GSRE #28).

Meanwhile, some representatives from decision-making sectors cautioned that NGOs might need to be certain that knowledge and information are correct when delivering to community members (GSOI #10, #15, #20).

*“NGOs need to be concerned about delivering correct knowledge to community members” (GSOI #10).*

In addition, in order to find the solution about the conflicts, they suggested the stakeholders make an agreement about profit sharing from this project development (GSOI #15, #22).

*“In order to make it finalised, profit sharing should be agreed between stakeholders” (GSOI #10, #22).*

In contrast, some interviewees expressed their views that deliberate discussion based on individual rationality and maturity might be essential to bear in mind for public participation processes in Thailand (GSHF #7, NGRF #14). This is due to the conflicts having been seen in previous public participation in many other cases tended to demonstrate arguments between opposite sides rather than debates and intellectual deliberations.

*“I think, in the Thai context nowadays, we are lacking a deliberative culture in public participation activities in terms of learning to understand ways of individual thinking, and applying it in reality. Instead, we’d rather tend to experience participation in the sense of trying-to-win the other side which leads to conflicts in public participation as we might have seen in many cases.... So, it tends to be easier to conduct community HIA in an area without any conflict before between stakeholders... We might need to prepare human resources and management for this development. We might need to develop it in the Thai style. We might need to think about how we can have structure for deliberation based on goal, strategy,*

*rationality, and maturity. This is because in social theory, individuals created their own assumption, so, maturity is very important in deliberative democracy” (GSHF #7).*

This might reflect on public participation in the form of counter movements between two sides of stakeholders because of lack of trust. For example, in this case, a researcher who studied about social movements in this community previously shared his view as follows:

*“We need to understand the background of community members in terms of their ability in accessing the information, and their analytical thinking of the content. They might need to build this ability in order that they can take part in public participation. It is not the thing that could be achieved within one day. All related sectors need to take action on this process. Previously, public participation never happened in the area. Most macro scale projects tended to ignore it as well as the government sector might have tried to avoid this process. This is what the community members felt that they did not get enough opportunity take part with the development” (RSPT #29).*

Based on this view, the formal process of public participation in the first version of EIA might not appropriately provide chances for stakeholders to take part in the process transparently, initially. This might be because governmental organisations, the project developer, and the EIA practitioner might not have tried hard enough before conducting this process regarding the original background of this case so that distrust from the community emerged consequently, and might still remain to date. It was suggested that decision makers will need to express sincerity in implementing public participation in Thailand (Wirutskulshai et al., 2011).

To sum up, the interviewees tend to express their views variously about this HIA project on this criterion (S9). It can reflect crucial points in considering how to achieve effective public participation in terms of ranges of stakeholders, opportunity provided for taking part in the process, key things to consider (deliberative discussion, building trust, and information/knowledge delivery), and re-evaluation of relevant organisations' roles. The majority of the interviewees agreed that this HIA process could meet this criterion partially.

***S10: Understandability of, or satisfaction***

Finally, for substantive effectiveness measured based on the criteria set, understandability/ satisfaction with the HIA report in decision-making regarding its quality and accuracy (S10), is a factor to consider. There are two main perspectives on this aspect. The first group estimated that the content presented in the report might be able to deliver concerns on health to the decision-makers (GSHF #1, #2, #6, #7, GSEP #3, #5, #8, GSOH #4, PGHF #9, NGOF #13, PHAP #16, CMEC #18). Therefore, they thought that the HIA has met this criterion partially. In contrast, the others have not seen the report before so that they cannot assume if the decision-makers would be satisfied or not. The latter group also includes representatives from decision-making authorities.

For this criterion (S10), the measurement was done based on the interviewees' views overall about the report quality and accuracy in their perceptions. Therefore, the responses tend to rely on their opportunity to look at the report and their background as the level of understanding and perception from the report might be different. In addition, as there was a lack of regulatory framework for implementing HIA in decision-making, this criterion might not be applicable for interviewees that were from relevant government organisations or decision makers that follow the regulations relevant to their missions.

In brief, for substantive effectiveness of this HIA, the criteria set provided might not be wholly appropriate. This might be due to there being no regulatory framework for HIA implementation provided during the time it was conducted. Therefore, some interviewees seemed to hesitate in giving the answer about its effectiveness in achieving healthy outcomes clearly. However, from the findings, it is suggested that, at least, the outcome of this HIA process was not abandoned on the shelf as it was used after the process was completed. Even though sometimes it might be mentioned while sometimes it might not, the interviewee perspectives suggested that it was implemented as part of the evidence for policy making related to this project development. This implementation tended to affect all stakeholders in both direct and indirect ways even though they might agree or disagree with this HIA process.

#### **6.4.4 Transactive effectiveness**

Criteria set for measuring transactive effectiveness were considered based on resources used and the way to use the resources in the assessment process. Based on the literature, the created criteria comprised time consumed for the whole process (T1), financial resource provided and spent (T2), skills of the practitioner team (T3), and specification of roles within the practitioner team (T4).

Based on the data gained from the interviews, it seems that in addition to the HIA practitioner team, stakeholders that took part in the HIA process could estimate how this HIA could meet these criteria rather than those that did not. This is because those who did not get involved with the process tended to have little knowledge about it such that they could not respond in detail about what and how the resources were used in this HIA process as similarly mentioned in the result of the other effectiveness categories.

### ***T1:Time***

Firstly, in terms of time consumed for the whole process (T1), it took 2 years for this HIA while, originally, it was planned to take one year. However, the HIA practitioner team members were satisfied with the time they spent as they tried to collect points of view from villagers by conducting focus groups as much as they could (PGHF #9, PHAP #11, #12, #16).

*“It was 2 years for the whole process which I think is appropriate because we all were new with HIA practice at that time. So, we started the process step by step in order to get cooperation from relevant sectors in the province which led to more systematic practice and cooperation among the sectors.”* (PHAP # 12).

.....

*“While the time frame was not designed to be as long as we had actually run the process, we spent 2 years on this HIA and I think it was appropriate. We did not fix the period for the process but, instead, we tried to find out until the data reached saturated point and tried to answer the questions we initially raised based on the ecological knowledge set we got during the process. This led to confidence in using the findings to drive the policy on potash mining at different levels from project to national level”* (PGHF #9).

It also suggested that time consuming components of the process tended to depend on gaining connections from relevant sectors, engagement methods, techniques used in public consultation. This is also supported by views from related government organisations and HIA facilitators that gaining knowledge to develop HIA would require experience of applying the findings to practice in the real world (GSHF #7, GSUD #23).



*“During that time, this HIA was in the development phase for HIA in Thailand that we tried to collect key points from several HIA studies and research...We need to learn from the experience from time to time that will be never ending” (GSHF #7).*

The period for conducting this HIA was a year longer than original planned. However, it can be concluded that the flexible time frame of this HIA process allowed them to obtain credible evidence to apply in driving the relevant policy confidently. Besides, public consultation methods and techniques including success in accessing stakeholder connections tend to influence the time duration in conducting the HIA process. For those who got involved with this HIA process, it was recognised that this HIA can meet this criterion (T1) partially. This can link to the suggestion made by Baker and McLelland (2003) that public participation applied within the assessment process based on providing efficient resource could lead to transactive effectiveness.

In terms of time taken for HIA or other impact assessment processes, it has been suggested by other research studies that the processes need sufficient time to conduct (Inmuong et al., 2011, Theophilou et al., 2010).

### ***T2: Financial resources***

Secondly, for financial resources (T2), the practitioner did not think that money was the problem even though the budget for the HIA was only 100,000 baht (approx. £2000 GBP).

*“I don’t think the limited budget was the problem, instead, academic knowledge for the process was more of a concern in conducting this HIA at that time” (PHAP #12).*

The team members conducted this process without being paid for their transportation or their expenses during the field research. They spent the budget only for the public hearing arrangements when the expenses were needed to provide for the participants. In theory, this tends to be a very tight budget for this activity.

*“We did not put the money as the first priority in conducting this HIA process; we thought that the process was our responsibility to deliver. Therefore, we tried to use the money for public activities when related meetings were organised rather than to gain the money ourselves” (PGHF #9).*

In fact, the budget tended to be quite tight for conducting related activities, for example, public consultation arrangements, survey activities to assess the impacts, etc. The practitioner team focused more on building understanding within the assessment process among involved stakeholders rather than worrying about the budget.

*“I think the budget is important but it’s not the most important factor for the process, instead, making this process understood in the community and public tend to be far more important. For this HIA, if you would ask if the budget was sufficient or not, I would say it was not. However, we didn’t think that was the problem as we got involved with the process voluntarily because we were concerned that it was our business to conduct this HIA process. We wanted to protect our hometown” (PHAP #11).*

Regarding their good will that they did not mention about the budget priority, it might be understood by others that this budget amount was enough for conducting an HIA process. This is interpreted based on the responses from other interviewees about this criterion (GHSF #1, #2, GSUD #23).

*“I think the practitioner team might be able to tell in detail if the budget was enough or not, for me, I think it might have been sufficient so that the practitioner team might not have to spend their money for their own activities in the process. The involvement was based on their interests in the process” (GSHF #1).*

This criterion, financial resources (T2), reflects the fact that even though the budget was not considered as the first priority among this practitioner team in conducting the HIA process, it tends to require more attention to consider that the budget should be provided appropriately in relation to actual expenses required in the HIA process. The necessity of providing a sufficient budget for HIA process was also suggested by Inmuong et al. (2011).

Considering the effectiveness of HIA in this category (T2), it could be said that the outcome gained based on the budget spent and management made this HIA meet this effectiveness criterion based on the views of those most involved. Again, it could be said that the public involvement from various sectors in conducting this HIA process could help tackling the barrier of limited budget provided. This finding is supported by Baker and McLelland (2003) who indicated that public participation as a component in assessment processes could influence the level of transactive effectiveness.

### ***T3: Skill***

Thirdly, concerning human resources and their skills (T3), the views reflected those who got involved with the process and those who did not. The former group comprised HIA practitioners and HIA facilitators whereas the latter group were the decision-making sector and the project developer.

The academic teams were provided to supervise the HIA practitioners (GSHF #2) as the practitioner team was not sure about how to conduct the HIA in the first place (GSHF #6, PGHF #9, PHAP #12). This was interpreted as a cultural problem when people lack the confidence to do new things that they have not done before, in this context, as stated in the following quote,

*“There is a problem in this culture when doing something new that we haven’t known the way to do it before that some people might not be confident enough when they conduct the process as they were worried that it might go wrong. Therefore, as a facilitator, we needed to encourage them to learn from what they have done, as we can’t actually state that this is right and that is wrong...we just can’t state that way. So, we all needed to do and learn along the process”* (GSHF #6).

The practitioner team admitted that they had little knowledge about HIA at the beginning, however, they tried to start from the ‘learning-by-doing’ concept and raising questions to answer in the HIA process (GSHF #1, PGHF #9, PHAP #11, #12).

*“We started from the minus point when conducting this HIA; it was the first time we have learned about HIA as no HIA course was taught in any academic institutions before. I learned to know that there is always a starting point for anything we want to learn. I guess, we might be the very first group in Thailand that learned to use and implement HIA under this case..we learned to know from doing it”* (PGHF #9).

From this experience, they could gain more understanding and confidence in implementing the findings (PGHF #9, NGOF #13).

*“Later on, when this HIA was conducted as a research project, we tried using the HIA in driving policy which was the first time that a HIA was implemented as evidence in a social movement process”* (NGOF #13).

In addition to learning based on practice, opportunities in attending relevant conferences at both national and international levels tended to enhance their understanding and widen their perspectives on HIA; conducting HIA in different places could bring about different findings as, seemingly, it largely depends on the particular context (PHAP #12).

Contributions from stakeholders that took part in this HIA could also emphasise that the skills in the HIA practice tend to be based on the extent of understanding of relevant information and taking part in the relevant activities to the HIA process.

*“Fortunately, community members (environmental conservative group) that participated in the process had learned about the Potash mine project before, so they tended to have skills in finding the answer about the impacts of this project to some extent”* (PHAP #11).

In addition, interests and attitudes that the practitioner team had were praised and identified as essential elements which enhanced their skill levels in conducting the HIA process,

*“I think the practitioner skills in conducting this HIA was ready for the HIA process at that time. I am saying this based on their interests and passions to find the answers about the impacts of this case at that moment. This element tends to be crucial for conducting the HIA and we want the practitioners to have this element in their mind when they learn to do something”* (GSHF #6).

In contrast, in the latter group that did not get involved with the HIA process, questions were raised in terms of uncertainty about the impact assessment coverage and scope in this HIA, as an evidence to consider prior to decision making in the project development, in case the practitioners might not have got relevant experience conducting HIA before (GSOI #10, PDPT #24).

*“I can’t criticise if this HIA is good or bad but I have doubts about how we could believe that information gained from the process is correct. Anyway, in case we might believe that it is correct, this would be another point” (GSOI #10).*

This criterion (HIA practitioner skills: T3) reflects two main different perspectives influencing or relating to the skills of the HIA practitioner team. The first group believe and have proved that practical skills could be built based on the ‘learning by doing’ principle whereas the latter one tends to have doubts about this. This also could link to the limitation that there was no HIA regulation during the time when the HIA was conducted so that the interviewees that did not take part in the HIA process might not have perceived how this HIA was done so that they could not judge the skills that the practitioner team had.

#### ***T4: Specification of roles***

Fourthly, for specification of roles (T4), the views in detail were mainly obtained from the practitioner team. As they volunteered to take part in this HIA process, so, what they have done was based on their speciality related to who they are and the organisations they worked for. They stated that they worked together as friends based on voluntary cooperation (PGHF #9) and that they could do it well based on their roles (PHAP #11) because they were clear in their roles in terms of project manager, public sector

coordinator, NGOs, and academic team (PHAP #12). Therefore, they think their roles were appropriate enough (PHAP #16).

*“We were a team as friends when working, the HIA was the thing we wanted to know so then we cooperated to find the answer. We delegated based on voluntary cooperation and this didn’t make us feel that it was a pressure to take part. We just tried to apply the knowledge and experience we had got to provide options for our hometown based on our multidiscipline. We wanted to mitigate the stress and conflicts about this project development”* (PGHF #9).

.....

*“Even though none of us were HIA experts at that time, we cooperated well in terms of delegating roles in the HIA process. For example, who should contact with the villagers and who should communicate with them based on understandable language, or who should be a moderator, etc. Everyone getting involved with this HIA practice tended to understand well about their roles, I think”* (PHAP #11).

Considering specification of roles in this HIA process, the HIA practitioner team agreed that this HIA could meet this criterion. In addition, the findings based on this criterion reflect that delegation based on voluntary cooperation seems to be a key factor leading to providing appropriate roles for the team members in this case so that they could work together without stress and high pressure. This can be supported by the idea suggested by Cameron et al. (2011) that when people in a community get involved with an impact assessment process that they can take part in, the experience they gained tends to strengthen their ability and activities within the process effectively. However, the finding of this case sounds different from other impact assessment processes conducted formally, for example, SEA processes conducted by environmental authorities with sub contracting of consultants in the two UK cases, evaluated by Theophilou et al. (2010) that their

findings suggested that the process led by environmental authorities tended to get more positive results than that conducted by external consultant companies. This finding was supported by Stoeglehner et al. (2009) stating about planners' ownership influencing the effectiveness of the SEA process. Nevertheless, the findings from this research (measuring the effectiveness of the Potash HIA) could add that voluntary cooperation and community ownership can provide opportunities for the practitioner team to allocate their roles more flexibly and openly in the assessment process, including when reflecting on their roles.

***T5: Availability of human resources (additional criterion based on findings)***

Finally, based on the findings, availability of human resources (T5) was an additional concern that should be considered for HIA development in Thailand. This is because most interviewees in most sectors said that they did not have enough human resource to do this job.

At community level, it was suggested that relevant sectors should provide a system that allows the villagers to have capability to take part in public consultation and participation activities in terms of preparing their knowledge and ability.

*“It is essential that local villagers across the country will need to be ready to get involved with participating in learning processes like HIA or EIA or any process requiring public participation. In order to be ready for the participation process, they might need to have a process that allows them to contribute their knowledge and concerns to the assessment process effectively” (PHAP #11).*

Meanwhile, at operational level related to decision making, interviewees from relevant stakeholders admitted that they had a large workload to



handle, and some of them said that they needed to learn more about HIA or that more human resource in this field is needed (GSHF #2, GSEP #5, #8, GSOI #15, GSRE #28).

*“Implementing HIA in decision making and development have not been achieved in all ministries. This is due to limitations of human resource capacity and availability” (GSHF #2).*

.....

*“We have been dealing with more missions and more workload related to HIA and EIA. We do not tend to be happy about these new things as we haven’t got enough human resources to deal with more issues” (GSEP #5).*

.....

*“We have to admit that we are very busy as a governmental organisation. I realise that we might need to learn more in order to support the knowledge on our mission that might require HIA as part of decision making so that cooperation between relevant organisations could be better” (GSOI #15).*

There are points of views emphasising that relevant government organisations really need to have knowledge about HIA so that they can introduce it to the public based on the particular context (PHAP #11) whereas some were concerned that the country has not been able to provide human resource for this mission seriously (GSHF #6, NGRF #14).

*“In Thailand, we have not been able to provide human resource for this seriously. I have to say that the most important resource for the HIA process is human resource. If the interest on HIA can be built tangibly, it is possible that more organisations would provide more human resource to get involved with HIA process development actively” (GSHF #6).*

In terms of national levels, relevant government agencies at national level should pay more attention to updating knowledge in impact assessment to achieve potential of expertise as well as strong actions based on national and international good practice (NGRF #14).

*“I don’t think the IA system in this country has performed well enough. It seems to focus only on IA at the project level. To reach a higher level, we might need a strong action from relevant sectors as well as their strong potential in expertise. I notice that consultant sectors tend to be stronger in terms of expertise. For example, from the IAIA conference, consultant sectors always participate in this conference whereas ONEP, which is a sector that copes directly with this mission seems not to realise that it should take part in this conference. This is one thing I would like to highlight” (NGRF #14).*

However, when cross-referring to the response from another interviewee, it was found that there was a lack of financial support provided for the staff to attend the international conferences.

*“Some financial support for human resource development has been provided for some staff to attend training courses within the country but it seems to be rare for attending conferences at international level, except when someone is appointed as a representative of the country to take part in international meetings” (GSEP #3).*

Regarding this additional suggested criterion, human resource development seems to be a priority to enhance the overall effectiveness of HIA in the Thai context. Key things to consider in capacity building, based on the findings, are suggested to be building the interests of HIA, balancing workload and system in government agencies, and financial support for human resource development.

Referring to the response gained from the interviewees, it means capacity building for human and institutions is required at all levels, from local level to national level. This is similar to findings and suggestions found in other related research studies that highlight that capacity building is very necessary in health policy development, impact assessment development and improving its effectiveness (for example, Harris et al., 2009, Badr, 2009, Kang et al., 2011, Harris and Spickett, 2011, and Inmuong et al., 2011). The capacity building for human and institutions should be enhanced in all relevant sectors, both public and private, in terms of policy and strategy development, and coordination (Callway and Ayre, 2005). Harris and Spickett (2011) suggested that providing HIA practitioners and advisors is necessary in systematic capacity building. Furthermore, Capacity building at national and local level should be strengthened based on '*local knowledge and expertise*' that the linkages between environment, activities among sectors and development should be provided so that multidisciplinary practice can be collaborated (Schirnding, 2005). For example, the result from the People Assessing Their Health (PATH) process implemented in Canada and India found that community-driven HIA can be an effective option to enhance capacity building (Cameron et al., 2011). This suggests that it is crucial to consider the particular context when building capacity for community members.

To sum up, using transactive effectiveness criteria allows the research to get more understanding of how the resources had been used in this HIA process and found that the most important resource for this context is human resource rather than financial resource. However, this is a very particular context when the HIA was requested based on public demand. People that got involved paid more attention to the study process, rather than the amount of money, while they volunteered to do work and tried to manage the budget they had. Although the uniqueness of this case might not represent overall effectiveness of HIA processes in general, it could be said that human resource with voluntary cooperation could be one of key factors

in improving the transactive effectiveness. Obviously, it would be different if it were a regulated HIA that a consultant company was assigned to run the process of the impact assessment. Regarding the findings, it could be argued that transactive effectiveness should not be narrowly defined as “*least cost in the minimum time possible,*” suggested by Sadler (1996, p.39). Rather, based on the category criteria and the findings that consider time, money, skills, specific roles, and human resource availability, transactive effectiveness should mean “*the extent to which resources provided for the process are used and managed wisely; based on good judgements; in a particular context*”.

#### **6.4.5 Normative effectiveness**

Normative effectiveness was measured based on four main criteria; adjustment of relevant policy framework concerning the changes of views (N1), perception and lessons from this HIA (N2), changes in relevant organisations (N3), and improvement of health and quality of life (N4).

##### ***N1: Adjustment of relevant policy framework***

Firstly, in terms of adjustment of relevant policy framework concerning the normative goal achieved regarding changes of views (N1), the results presented two different perspectives on the impact of this HIA process.

The first half of the group (includes HIA facilitators, practitioners, decision-makers, community members, and the researcher) assumed that lessons and activities happening in the HIA process might influence some policy makers’ attitudes or perspectives to some extent, in terms of considering the relevant policy framework. In addition, this HIA process is a part of researching HIA practice for the development of HIA in Thailand. This research project for HIA cases has led to the inclusion of requirements to consider health impacts in policy and project development. The outcome of

the HIA process itself can demonstrate that people can use it to build their confidence to decide options for the developments, based on the impacts assessed, such that issues of health concern have been included in the laws.

*“This HIA might have brought about more concerns on health impact at several levels; community, individuals at local and provincial level and this might be able to deliver the sign that this project should not be approved” (NGOF #13).*

.....

*“Public communication via this experience might have built public confidence that HIA could be a good social tool. As we might have seen in the legislation drafting process later on, HIA concerns have been included in the Constitution and National Health Act, which came into force in 2007” (GSHF #2).*

This could imply that the HIA could have been a part of the policy process at national level as it has been included in laws (GSHF #2, PHAP #11). An interviewee from the statutory sector also added that it could be a good sign that health impacts have become a concern among a broader cross section of the population (GSEP #3). However, no updating of the policy framework on Potash mining has been seen to date (GSHF #1, #2, #6 PGHF #9, PHAP #11, NGOF #13, CMEC #19, GSUD #23, CMNP #25).

*“It seems there have been some changes implicitly, experience from several HIA cases including this case might have led to reconsideration about the project by relevant sectors” (PGHF #9).*

.....

*“I think the policy about this has not been changed because of this HIA process. However, it could be assumed that the result of the public scoping process might have led to a delay in the project development” (GSHF #1).*

.....

*“The project development seems to be stepping back because the social current against this development was so strong. Actually, I want to see the adjustment of policy framework but at the moment I don’t think we could reach that point yet” (GSHF #6).*

In terms of policy clarification, as has been considered in substantive criterion S2: Incorporation of the proposed changes and S3: Informed decision-making, this HIA might have influenced relevant decisions implicitly.

*“I think the Potash HIA case is an interaction of its relevant policy which might help us thinking about setting the scope for the policy formulation from community level to strategic level” (GSHF #7).*

In addition to strong pressure from the public regarding this project development and the use of this HIA process, the political crisis in Thailand since the latter period of 2006 seemed to be another factor influencing the unclear policy direction and unclear decision making on the project development (PHAP #12, CMEC #17).

*“I have heard that policy makers at provincial level tend to support this project development for economic improvement reasons. However, the political crisis happened later on leading to this issue being forgotten for a while. There is nothing clear that has been done about this project development yet” (PHAP #12).*

The political crisis in Thailand has been referred to in policy statements of the government since 2006 to date (The Prime Minister's Office, 2006, The Prime Minister's Office, 2008b, The Prime Minister's Office, 2008c, The Prime Minister's Office, 2008a, The Prime Minister's Office, 2011). It originated when political views arose as conflicts between the groups

supporting and against Mr. Taksin Shinawatarata (who was the Prime Minister between 2001-2006).

While the policy focus seemed to support sustainable development and concerns on human health affecting by environmental pollution in the previous years (The Prime Minister's Office, 2001, The Prime Minister's Office, 1997), environmental pollution impacts have been problematic. This was implied regarding 'unclear transparency' of the government performance, as summarised in the Tenth Plan of National Economic and Social Development Plan for 2007-2011, when the history of the previous plans were assessed. The 'unclear transparency' could bring about unclear policy for operational level of the country, and this could include the policy for Potash mines development in Thailand. While the relevant policy is unclear, it also could have affected the policy quality during that time. Therefore, it cannot be argued strongly that this HIA process influenced the policy makers in terms of adjusting the policy relevant to Potash mine development. In terms of policy quality, Van Buuren and Noteboom (2009) emphasised that the policy quality could be relevant when the effectiveness of impact assessment process, for example, SEA, is determined.

In contrast, the second half of the interviewees (including decision-makers, HIA practitioners, community members, and project developers) asserted that this HIA's impact cannot bring about any adjustment of the relevant policy.

The interviewees from the decision-making sectors emphasised that the resource has been discovered and the country tends to need this development for economic reasons, while they believed that there would be ways to mitigate adverse impacts that might occur (GSOI #10, #15, 20).

*"I think the country needs this project development for economic reasons. This resource could bring enormous amounts of money to*

*the country, imagine.., it costs 20,000 Baht per ton ( approx 400 pounds/ ton) while we tend to be able to produce 2 million tons per year...so, how much money we can get..or are you going to leave the resource that way? I think we might lose the chance if we don't use it. If the community becomes more populated, we won't be able to do it anymore. So far, we have proposed to the government that if this can't be agreed to happen, just decide to cancel it" (GSOI #15).*

Meanwhile, the interviewee from the statutory sector for EIA approval said that the adjustment relevant to the policy framework has not been made,

*"We haven't adjusted that much about any policy. We have been dealing with more missions and more workload related to HIA and EIA. We do not tend to be happy about these new things as we haven't got enough human resources to deal with more issues" (GSEP #5).*

This implies that the reason that the relevant policy has not been adjusted was due to lack of regulatory framework for HIA when this HIA was conducted, while there was a lack of human resource in government organisations, therefore, this HIA could probably not be considered formally.

However, at present, conducting strategic environmental assessment (SEA) has been considered to be funded with an expectation that its findings might help provide appropriate options for the development direction.

*"The Potash development project is one of the projects the National Environment Board considered on 9 December 2009 that related government organisations will have to implement SEA in considering options for the development. For the Potash case, the relevant sector has asked for our suggestions in using our guideline*



*to prepare a TOR for the SEA of Potash mining development”*  
(GSEP #30).

Regarding this coming SEA, stakeholders seem to be enthusiastic to take part in this process,

*“I hope we can conduct both EIA and HIA based on a strategic approach with cooperation between all sectors selected together”*  
(CMEC #17).

According to the HIA report and responses from community members and related government organisations, the SEA process seems to be an expectation among sectors that they could probably obtain appropriate options to consider prior to the decision being made. However, the project developer was not certain if this SEA would be a solution because they emphasised that the Potash development project has been considered at some levels for feasibility, while seven enterprises have applied for a permit to operate the project, therefore, the government might need to consider this carefully (PDPT #24).

Considering this normative category (N1: Adjustment of relevant policy framework concerning the normative goal achieved in terms of changes of views), it could not be said that the views of decision makers and relevant sectors have been changed completely. They, themselves, have not agreed that their perspectives have been changed. This is because they tended to focus on their organisation missions. This is similar to what was found in Finland that HIA effectiveness tends to relate to the organisations they were working for which influence their understanding and attitudes (Nelimarkka et al., 2007). It was stated in the past that lack of knowledge of environmental impact assessment among decision makers had led to emergence of the perspective that EIA was only a legal condition to achieve permission to develop the projects (Tongcumpou and Harvey, 1994).

However, at present, it seems that the decision makers have perceived and understood more about the importance of impact assessment processes. For example, the findings regarding this HIA suggest that they have perceived health impact concerns including the public voice relating to this HIA process. This refers to the responses obtained during the interviews, demonstrated as the findings in this chapter via the criteria set, which imply that public pressure, political context (for example, the political crisis happened in this context), and legal regulatory frameworks seemed to be key factors influencing their perception of normative effectiveness in terms of relevant policy adjustment. There are also studies suggesting that these factors could influence the effectiveness of assessment processes (for example, Van Buuren and Nooteboom, 2009, Jha-Thakur et al., 2009). Considering ahead as a longer term, these normative changes regarding more perceptions on health impacts from any development via the influential factors mentioned might be clearer.

### ***N2: Learning process, perception, and lesson learned***

Secondly, in terms of the perceptions about the HIA process criterion (N2), the results suggested that the interviewees involved with the process formulated their perceptions in terms of lessons learned from this HIA process and their perceptions about the outcome after the process. Besides, the interviewees that did not take part in the HIA process, formulated their views based on the knowledge they had about this HIA process.

For those who got involved, they stated that the HIA process could generate a learning process at all levels that could bring about knowledge gain based on actual practice in a particular context, which is different in various cases (GSHF #2, PHAP #11). It allowed people gathering to learn together and the human-centred development presented in this process has become more essential in conducting the impact assessment process (GSHF #1, NGOF #13, PHAP #16, GSHF #7).

*“The learning process actually happened. There was a group formation which led to a learning process about the impacts within the group. Leadership was generated within the group as well as more discussion among the group members. It can be said that this is a fundamental part of the democratic process”* (NGOF #13).

Community members that were involved with this process highlighted that they gained knowledge from participating in HIA practice and have become more concerned about health impacts from the development of the projects, and they have learned to implement the findings from the HIA process to protect their right to good health (CMEC #17, #18, #21).

*“I think considering health impacts is more necessary than environmental impacts. During the HIA process, we learned to know more about laws, health impacts that might be a consequence of the project development, and mitigation measures. The result from our activities could bring about evidence for us to raise questions to those involved with this project development”* (CMEC #17).

Regarding this process one of the interviewees stated that

*‘this HIA process was part of the processes that helped participating villagers strengthen their analytical skill in learning to know and understand about their own rights, area, community, and impacts from the development’* (RSPT #29).

Therefore, it was remarked that the community members had learned and gained lessons from participating in HIA practice so that they could present their opinions on the development to relevant government organisations (GSHF #1, #2, #6, NGRF #14, GSUD#23).

*“I think the villagers have become stronger in terms of their views and courage in expressing them based on their rights. It could be said that this HIA could build the learning process for them” (GSHF #2).*

.....

*“It seems that the community members were trying to defend their way of life based on evidence obtained from their perspectives and information exchange. They learned to know how they looked at the impacts from the project development as well as the project developer’s perspective about the impacts mentioned in the previous EIA. This led to debating based on evidence, which could bring about the generation of possible options for the development. These options could be about the project technology, area, or size” (NGRF #14).*

Subsequently, after the HIA process, the HIA practitioner team noted that they had learned that there were limitations found from conducting this HIA. First, in terms of HIA practice techniques, they learned to understand the meaning of public consultation and public participation and that it can be conducted in various and more flexible ways in order to find what the public think while providing all stakeholders with opportunities to share their views.

*“We have found the limitation that we had not tried enough to bring all stakeholders to get involved in this process. In the past, we just realised that all stakeholders should have participated in public scoping at the same time among them. So, if we have invited them while they didn’t turn up, we just can’t help. The process would have to go on. However, later on, we have got the lessons that, actually, public scoping is conducted in order to hear concerns from all stakeholders, and this might not necessarily happen at the same time among them. In addition, we have learned that based on learning by*

*doing, it would be never ending in researching to answer the questions. This means the HIA process tends to be a flexible process which allows us to investigate the truth from selected perspectives we can choose from the whole, depending on the priority of interest” (PGHF #9).*

In the meantime, they had learned that there were also limitations in terms of human resource availability and capacity building in this context or even in Thailand. This has been mentioned as an additional criterion in the transactive effectiveness category (T5) that the country might need to provide a plan for capacity building and human resource development for HIA practice and its development at all levels in the country (GSHF #6, PHAP #11).

*“We have found several weak points via the process we did. For example, there is a lack of academic human resource that has knowledge and interest about HIA” (PHAP #11).*

In addition, some stakeholders argued that this HIA could be influential at some points on relevant legislation and capacity building outcomes. Firstly, some of the research respondents assumed that this HIA process might provide lessons among other cases bringing about the inclusion of HIA in the laws, in the Thai Constitution and National Health Act (GSHF #6, PHAP #11). Secondly, this HIA process has led to one of the practitioner team to become a key person working with HIA development at the national level (GSHF #1, #2, #6).

*“Finally, we could feel about the impact of HIA that it could possibly be part of a rigorous change that HIA has been included in the Thai Constitution” (PHAP #11).*

.....

*“The HIA practitioner team, one of them has become a key person to drive HIA in Thailand at present. It could be said that this is a result from experiencing and learning by doing this HIA” (GSHF #6).*

This implies that the HIA process is a learning process, which could bring about normative change in terms of perception and lessons learned among those who have taken part in it. However, for stakeholders that did not take part with the process or the HIA was not in their interests, for example, some other Udon Thani citizen, they might not have learned much about this HIA (PHAP #12).

For those that did not participate in this HIA process, they considered that their perceptions related to HIA were that health issues should gain more attention when considering the impacts of the project development as well as in relevant regulations (GSEP #3, #8, GSOH #4, GSOI #10, #15).

*“Even though I did not take part in this HIA process, based on our responsibilities at present, we will have to pay more attention on health issues in EIA” (GSEP #3).*

.....

*“I don’t think I look at this point (health impact) differently. From an engineer’s point of view, we are much concerned about safety for the first priority which could cover the overall concerns of both health and environment” (GSOI #10).*

From the community members’ views, one interviewee perceived that whatever has been done, it could be used to negotiate for the compensation from the project development. This is due to it being believed that political power could control everything.

*“If this project can’t happen at present, it could happen someday in future. This is possible when there might be a political power that*

*can control most of the things and no one dares to object it. So, why don't we let it happen when we can negotiate for the compensation?" (CMNP #25).*

Finally, representatives from the project developer reflected on their perception about this HIA to the relevant government agencies that *"Governmental organisations should be strong enough to maintain the regulations that everyone needs to follow"* (PDPT #24).

The perceptions and lessons learned from this HIA process were reflected among those who took part in the HIA process and those that did not. This criterion (Perception on HIA: N2) could reflect their points of views differently regarding the positions where they were, and levels of their involvement to this HIA process.

Based on the involvement, the HIA process could generate learning processes at all levels based on human-centred development so that the knowledge gained could influence and strengthen the stakeholders' perspectives in public consultation. This agrees with the findings in HIA process studied by Gunning et al. (2011) that a broader stakeholders base can perceive and pay more attention to the benefits of HIA when they experienced 'learning by doing' themselves. Taking part in the HIA process could allow participants to gain more understanding and knowledge in their context (Inmuong et al., 2011). Individual expectation could influence the perspectives on effectiveness (Theophilou et al., 2010, Cashmore et al., 2010). In addition, learning based on practice also led the HIA practitioner team to find limitations in the HIA process in this context so that suggestions for further development of HIA practice in future can be made. Likewise, other studies have suggested that the experience that the practitioners gain can be used to reflect how HIA works (Gunning et al., 2011).

For those who did not get involved with the HIA process, it could be inferred that a lack of regulatory framework for HIA and less involvement with the HIA process might influence their perceptions on this HIA to some extent. Again, this can link to previous research that the individual attitudes tend to rely on the organisations they work for (Nelimarkka et al., 2007).

Therefore, this HIA could partially meet this normative criterion in terms of perceptions from this HIA.

### ***N3: Development or changes in relevant institutions***

Thirdly, regarding the changes among relevant organisations (criterion N3), the majority of the interviewees agreed that the relevant organisations have become more communicative between each other. The findings suggested two main points could be observed: cooperation between organisations; and adaptation of organisations' roles.

In terms of cooperation between organisations, it was found that the HIA process had led to more communication and cooperation at the local level between organisations in Udon Thani during the time when the HIA was conducted, while these activities have become less active since the process was completed (PGHF #9, GSHF #6).

*“For the Potash case, this HIA made all organisations communicate more, however, the progress about the project development seems to be ongoing after the HIA process” (GSHF #6).*

However, a new institution responsible for HIA was established after this HIA experience coupled with emerging concerns on health impacts in other cases. For example, the Mab Ta Phut case (Eastern Seaboard Industrial Estate where emissions from the factories led to environmental and health impacts problems) where the villagers came out to claim for their rights and



compensation (Sukkumnoed et al., 2001, Sukkumnoed and Sae Tang, 2002, Sukkumnoed and Tang, 2005, Nuntavorakarn et al., 2007, Nuntavorakarn et al., 2009). The Ministry of Public Health has established a new institution called the “HIA division” to get involved with HIA development in the country (GSHF #1). This could suggest that changes among relevant organisations could reach the national level. This HIA was mentioned as a part of the factors leading to more cooperation between organisations (GSOH #4, GSEP #5).

*“Experience learned from this HIA process has been conducted to be part of the basis for framing the direction for HIA in Thailand at present. We could see that there is a legal frame for us to follow and, in terms of working, we can’t do it alone, we need to collaborate with other organisations” (GSOH # 4).*

In terms of adaptation of organisations’ roles, relevant organisations agreed that health concerns would be considered in planning for the development (GSOI #10, #20, GSEP #3, CMEC #19).

*“I think decision makers have become more concerned about considering health impacts in the development. Also, for my part, I can see the way to implement HIA more clearly. It develops from a broader figure to more focused, from the constitution level to national plan level so that we can develop the guideline for HIA for the first time” (GSEP #3).*

However, this HIA case might be a small part leading to this change as the announcement of the Thai Constitution in 2007 seems to be the main factor influencing this change among organisations at operational and national level, as presented in the following quotes from decision-making authority representatives.

*“As there has been a regulation related to health impacts in section 67, part 2 of the Constitution, we agree that HIA should be conducted for this project type in future. We will have an operational plan to inspect and consider for engineering feasibility. The HIA is new for us but it is a good thing to do and I think it would lead to a good collaboration between organisations” (GSOI #10).*

.....

*“At present, we have tried to take care of mining resource based on social, environment, and community health concerns as we have been assigned by the director of the department” (GSOI #20).*

Regarding the project developer’s views, the representatives emphasised that they had tried to take the comments raised, by the public, on the first version of the EIA into consideration and the technology for mining operation has been adapted. It can be considered that public perspectives could possibly influence this change to some extent.

*“After getting the feedback from the previous EIA, we have considered adjusting mine design technology for less impact generation. I don’t think HIA was the main reason causing the delay of the project development, instead getting lost in chaotic perspectives about the project development impacts tends to be a main reason that cause people in the society to get lost in those concepts. For example, they prioritise that SEA should be the first thing to do while I think some processes could be done in parallel to prevent losing good opportunity. However, I hope in future, based on provided regulation, more public participation and cooperation would help obtaining a better process ” (PDPT #24).*

The quote *“I think some processes could be done in parallel to prevent losing good opportunity,”* reflects that they were concerned about business opportunity as the essential priority. Meanwhile, the quote *“I hope in future,*

*based on provided regulation, more public participation and cooperation would help obtaining a better process”* suggests they were willing to follow the regulations provided that it is available. Considering this, regulations tend to be a main concern for the project developer and could possibly be the strongest tool encouraging them to consider HIA. At present, the project developer intends to start the impact assessment process for EIA and HIA again, after the previous EIA has been cancelled while the HIA conducted before has not been acknowledged officially, however, the first priority they emphasised was that they are applying for a mining patent permit (PDPT #24).

For other interviewees’ perspectives towards the project developer’s efforts, they suggested that *“The project developer will need to study relevant regulations which might require more concerns on health impacts to follow, if the new assessment process might start again”* (GSEP #8). This is because the adjusted mining technology proposed has not been able to satisfy all the concerns on health raised in the HIA findings (PGHF #9). It has been seen that the project developer is trying to approach the communities to initiate public participation in the assessment process (GSEP #5).

In terms of other interviewees’ views on this criterion (N3: development of changes in relevant institutions), one of them said that communities will need knowledge support from the local academic institution,

*“I think that academic institution in Udon Thani (Rajabhat University) should take part in delivering knowledge to citizens in local communities more as it has researched about the things related to the province. Therefore, this information should be transferred to us so that we can consider the impacts in case there would be some kinds of project development proposed in our communities”* (CMEC #18).

Meanwhile, the communities tend to have potential in conducting health impact assessment in their own communities. This finding suggests that in addition to performing impact assessment processes by official institutions like consultant companies, local residents can be another option to take part in this process.

*“My attitude on conducting the impact assessment process has been broadened so that it can be done with cooperation from community members rather than just only conducted by the registered consultant company. This means we can help the community members to learn and find the most appropriate options for their way of life. They need a process that we might help them build based on their context” (PHAP #11).*

In addition, considering their roles in their organisations as university lecturers, they have applied the experience gained from this HIA case to the course they are responsible for (PHAP #11, #12).

*“In this part, as a lecturer, I have considered that the course I am teaching will need to add the HIA subject as a part of it” (GSHF #11).*

.....

*“When we had learned from this HIA process, we have brought the knowledge to apply with the roles we have in our organisations and we tried to introduce HIA in the circumstance that we can” (PHAP #12).*

However, one of the practitioner team who works in a different organisation said that

*“I had not presented to my boss as I was very busy with my main responsibilities at that time” (PHAP #20).*

This could suggest that, in this context, academic institutions seem to be more autonomous in knowledge production, application, and transfer in relation to HIA research and practice.

In addition, one interviewee commented that government organisations might need to adapt the delegation system which should be more flexible in practice, and that more appropriate human resource rotation was needed so that they can work more actively and continuously (GSHF #6, GSRE #28).

*“Referring to relevant other cases requiring HIA practice and concerns to date, it could be observed that private organisations tend to respond and take action more actively than government organisations in cases where they will have to do HIA. This means when the regulations say so. When they have learned to know it, it seems that they could see the benefits from doing and using it while most government organisations tend to be at a hesitation stage in considering HIA and implementing it. This is due to, I think, government organisations tending to work the same way they did in the past where delegation and command tend to be delivered from the top to the lower level of administrative organisation. So, in order to drive the policy in connection with HIA, we might need to persuade them (relevant organisations) via the framework we have along the networks we have as personal contacts. Also, the public voice tends to influence driving HIA in the country” (GSHF #6).*

Finally, in terms of development or changes in relevant institutions, some interviewees had an expectation that, in future, HIA would be implemented in all contexts: regulations and culture, while it was suggested that trust between all relevant organisations is a key thing to be concerned (GSHF #1, #2, GSRE #28).

*“So far, we hope to implement HIA in all contexts, in ways of life of people, so that it could be part of our culture that everyone could be concerned and commit to think of it in the country development. However, it might need to take time to get there” (GSHF #1).*

To sum up this criterion, development in relevant institutions (N3) regarding this HIA process, the results highlighted two main parts observed in terms of cooperation between organisations and their adaptation of roles. The findings reflect the context of institutional culture in Thailand that communication and cooperation between different sectors tends to be important factors that allow people to work together based on multidisciplinary approaches. The experience obtained during and after the HIA process showed that these sectors could not look beyond this point and the HIA process led to more cooperation between sectors. This could link to the findings studied by others that the HIA process could help develop organisational relationships when they collaborated (Gunning et al., 2011, Tugwell and Johnson, 2011). In terms of roles adaptation among sectors, it was found that there were three factors influencing the changes; public voice, locality potential, and expectation about HIA implementation in future. Public voice tended to play a key role influencing the relevant institutions in considering what they can do regarding health impacts from the project development. Meanwhile, the potential for the local community to conduct the HIA process was highlighted as a possible option that should be strengthened in Thailand. Regarding this, academic institutions at local (provincial) level were expected to contribute and transfer relevant knowledge to the locality for capacity building in local empowerment.

Stakeholder engagement in the process is suggested to be a basic requirement for effectiveness determination in impact assessment in general (Jha-Thakur et al., 2009). Finally, HIA is expected to be demanded in all contexts as part of Thai culture so that it could help building concern about wellbeing as the country develops. This partly seems similar to the finding that informed decisions can become more effective based on using HIA to build more understanding and knowledge for decision makers (Knutsson and Linell, 2007). Therefore, for those involved with this HIA case, they agreed that it could meet this criterion, at least, partially.

#### ***N4: Improvement of health outcomes and quality of life***

For the final criterion of normative effectiveness, health and quality of life improvement (N4), while half of the interviewees were not sure about this change because they did not get involved with the HIA process, the other half of the interviewees, that took part, suggested that this HIA is partially effective.

The reflection on this criterion could be explicitly observed in community members that took part in HIA practice. Originally, prior to the HIA process, the community members had formed a group called the environment conservative group in 2000 to learn to share and exchange their views independently under the guidance of a NGO officer and they became involved with this HIA case later on (NGOF #13, PHAP #11, PGHF #9, GSHF #1).

*“In this HIA process, they learned to consider themselves what they really want to see for their own quality of life and what they should reject” (NGOF #13).*

Before the HIA process, severe conflicts about the project development had emerged, however, when the HIA had been conducted, it seemed that the atmosphere became less intense.

*“The conflicts still remained but the degree of the confrontation was not as intense as before” (GSHF #1).*

Subsequently, the villager group developed activities in the village that are currently running regularly, for example, ‘Ruk Tin’ school (which means hometown lovers’ school) operated on Sunday to teach children in the village about their own culture and educate them with concerns about their own hometown (PGHF #9, PHAP #11, NGOF #13, CMEC #17, #21). In addition, they formed an organic farming group by making and using organic fertiliser instead of chemical fertilisers (GSHF #1, #2, #6, PGHF #9, PHAP #11, NGOF #13, CMEC #17, #21).

*“HIA process has led to a learning process where the villagers who participated have recognised that they should reduce using chemicals in their farming and turn to use organic fertiliser instead. This is the starting point of organic farming for them. They also became concerned on their health and their own communities more” (GSHF #2).*

.....

*“The community members that took part in the process have changed from using chemicals in their agricultural activities to conduct organic farming in order to show that they don’t want chemicals or Potash fertiliser and they don’t want a Potash mine. They also manage a cooperative rice field to provide a fund for their activities when they want to campaign or protest. They use their ways of life to prove that they don’t want this kind of development. They also use Sunday school to teach children in the community too. However, I can’t claim that only the HIA process had influenced and*



*changed them, rather, it might be part of the processes influencing them” (PGHF #9).*

.....

*“As we have opposed the Potash mine, it makes us consider introducing organic farming in our communities. We started from making a request to be trained by a development military unit in making organic compost. Then, we provided the compost for our agriculture. At present, we also have a biogas unit to generate biogas for consuming in the household. We are concerned about this so much” (CMEC #17).*

The interviewees from the provincial government sector said that this was related to the expected concept of the organisation when organic farming has been introduced.

*“Regarding the public participation in this process, we appreciate that part of the villagers have turned to maintain organic farming. This could link to our concept that we want them to walk this way and they have done this as a consequence of their learning process” (GSUD #23).*

In addition, the interviewees reflected that the villagers had learned to understand and re-evaluate the way they live, and maintain their quality of life, as they wanted it to be.

*“I am not sure to what level the quality of life is. If you asked if the HIA would raise the villagers’ quality of life to a better level or not, I don’t think it would do in that sense. Rather, it can be felt in the sense of conserving the environment of their land the same as it was before, or they become proud of themselves being the way they are, and they can explain how the environment can relate to their quality*

*of life. It means they can understand what their quality of life actually relied on” (GSHF #6).*

.....

*“Quality of life can be indicated by health determinants that the villagers had agreed. For example, they wanted a good society and hospitality between people, so, they agreed that their children should be brought up well. Rak Tin school (a Sunday school) was established to teach the children about their community traditions, democracy, living skills. The HIA process could be part of the lessons they had learned and led to this mechanism as well as the idea about organic farming” (PHAP #11).*

This criterion (quality of life improvement: N4) could reflect the normative change in the villagers group that they could achieve the way of life they choose, and they tended to be satisfied with the quality of it. This is related to the suggestion made by Simms (2005) that identifying quality of life could be varied in different contexts, it can't be concluded that rich society would have better quality of life than poor society. However, it seems that this criterion can be used to explore the answer of effectiveness only in the groups that had got involved with the HIA process as those who did not get involved could not respond to this criterion question.

To sum up about normative effectiveness of this HIA process, the overall findings have suggested that this HIA achieves the normative criteria partially. Ability to respond to the questionnaire for this effectiveness category tended to rely on levels of involvement in the HIA process. In terms of the relevant policy framework concerning the normative goal, this context might need a regulatory framework on implementing HIA as a support to setting normative goals among relevant government agencies or policy makers. In addition, public pressure, political context, and legal regulatory frameworks tended to be key factors influencing their perception in terms of relevant policy adjustment. For perceptions on HIA, human-

centred development has become more of a concern through this HIA as it was a learning process based on public consultation activities. Meanwhile, institutional culture in terms of communication and cooperation has become a key concern that all organisations agreed should be strengthened. Finally, in terms of quality of life, this finding has suggested that improvement of quality of life in this context should be in the sense of the ability of people to re-evaluate their way of life, understand it, and live it proudly in the environment that they can choose to conserve as they see fit. The ‘quality of life’ in this sense of the findings sounds different from that suggested by Quigley and Taylor (2004) which focused on an improvement of health, education, and employment at the local level.

### **6.5 Connections of the effectiveness criteria**

Referring to the findings from this case, it was found that all effectiveness categories tend to relate to and could depend on one another. Factors influencing the procedural effectiveness category, particularly, the policy and regulatory framework on HIA implementation, seems to be a basis influencing government agencies in considering implementing HIA as a tool in decision making. The findings suggested that the political context tends to primarily influence policy and regulatory framework development. Regarding this influential relationship, it is corresponding to the emphasis made by Birley (2007) that a government has a key role in providing legislative regulation. Therefore, it could be considered that the introduction of regulation could bring about the direction for HIA practice (in the procedural category) and HIA implementation in decision-making (in the substantive category) within the decision-making context (in substantive category), which is influenced by the political context. Evidence to this argument is provided by reflections from the interviewees that this HIA could not be taken into account in the decision-making process as it was not conducted based on legal regulations (PGHF #1, #2, GSEP #3, #5, PGHF #9, GSOI #10, #15, PHAP #11, GSUD #23). The regulation provided for

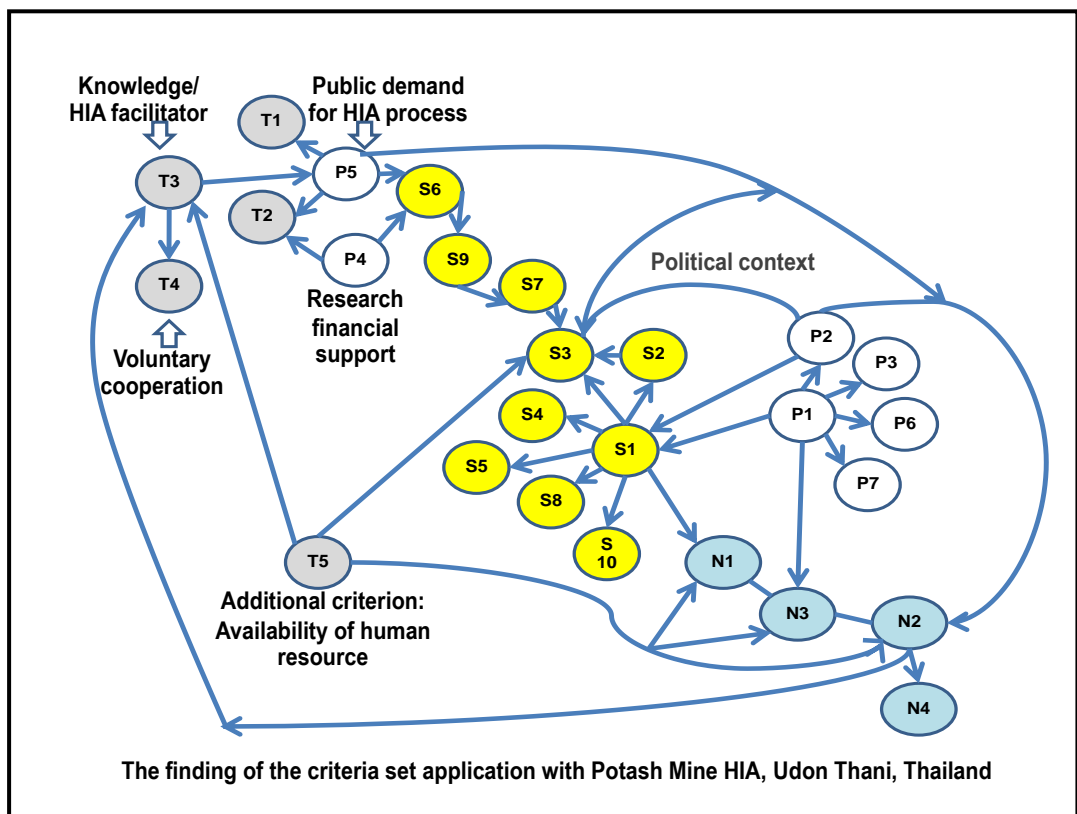
the impact assessment process was the first priority considered by authorities when taking action and fulfilling their roles. This is related to the emphasis mentioned by Kolhoff et al. (2009) that a relevant regulatory framework is an essential factor influencing the effectiveness of impact assessment. Furthermore, it tends to influence political commitment in relation to the planning process of the country that would need to consider legal regulations in parallel when considering the development plan (Wirutskulshai et al., 2011).

Transactive effectiveness, based on this research, is considered on the basis of how wisely resources are used. This could be explained by the concept of 'operations management' proposed by Boaden (2005) that effectively using human resources and available budgets/ assets should be considered (she defined 'an operation' as "*a process, method or series of acts especially of a practical nature*" (p.425)). The criteria set in this category comprise money spent, which is linked from the financial resource in procedural category (P4) (for this case, it was provided as a research budget), time invested for the HIA process, skills (T3), and specific roles (T4). The two latter criteria (T3 and T4) are related to the procedural effectiveness criterion (P6) about practitioner experience in producing an understandable HIA report. In addition, availability of human resource was raised as an essential element for conducting the HIA process. This is because it could lead to potential in capacity building, with greater knowledge gaining based on the lessons learned from the HIA process.

The normative category tended to be influenced by the policy and regulatory framework (in the procedural category). This is based on the finding that interviewees from the governmental organisations did not get involved with this HIA because of the lack of legal status. They did not feel that this HIA would influence their decisions if a supporting regulatory framework were not provided. This finding suggests that, in this context, 'regulatory framework for HIA' tends to crucially influence their (the interviewees')

logical thinking and formation of ideas about HIA practice and its application. This view is based on the concept of ‘normative theory’ considered by Heery and Noon (2008) on the basis of “a set of ideas that have been theoretically derived through a process of logical thinking” (2008, p. 313).

The connections between the different categories of effectiveness criteria can be explained as presented in **Figure 6.3**. Under the influence of the political context when the regulatory framework for HIA (P1) was lacking or unclear, it seems there are consequences, for example, based on the findings of the case study, the lack of regulatory framework could affect other criteria in the procedural, substantive, and normative categories.



**Figure 6.3** Connections between effectiveness categories

**Key:** Procedural effectiveness (P1-P7), Substantive effectiveness (S1-S10), Transactive effectiveness (T1-T5) and Normative effectiveness (N1-N4)

In the procedural category, the lack of regulations could lead to unclear institutional roles and collaborations (P2) and the HIA could not be implemented formally in the planning process (P3), or counted as valid evidence in formal decision making (P6), and the HIA results were not delivered formally to the decision making body (P7). These are all because of not having a regulatory framework for HIA. It seems that in the Thai context, providing laws for impact assessment processes is considered essential, for example, Wirutskulshai et al, (2011) emphasised that a regulatory framework for SEA is required as well as other relevant laws such as public participation in the process, so that the commitment from relevant organisations under the existing political context can be encouraged. Considering this statement, it could imply that the direction of decision-making could be based on the commitments that they would agree. Gunning et al. (2011) added that the commitments generated from stakeholders could help strengthen a strong collaboration between relevant sectors. Once the HIA process was conducted, the relationships between the sectors can be developed by the activities within the HIA process (Tugwell and Johnson, 2011).

The impact of the lack of regulatory framework (P1) on substantive effectiveness reflected clearly, in this case, on decisions on implementing HIA in the decision-making process (S1) as HIA would not be considered as beneficial evidence. This also could make a difference to normative effectiveness because it means less knowledge, less opportunity for changed perceptions and less capacity would be developed to perform active actions or roles among relevant institutions on learning to know and consider HIA (N1 affected by S1, N3 affected directly by P1). In implementing impact assessment processes in decision-making, for example, EIA, in order to raise awareness in decision-makers about environmental merits, Tongcumpou and Harvey (1994) argued that the decision-makers would need to fully understand "*the goals and roles of the EIA process*" (p. 289). In addition, as suggested for SEA implementation, Wirutsakulshai et al.

(2011) underlined that the legal status would help connecting all key involved organisations to work together.

Subsequently, when the HIA (in this case) was not implemented in the decision-making process, the justification for incorporating any proposed changes into the project was unclear (S2) leading to an inability to inform decisions (S3) clearly.

An additional criterion was suggested in the transactive category, the availability of human resource (T5), with the expectation that it could lead to normative change (N1, N2, N3), in terms of perception, knowledge, and capacity towards decision makers, governmental officers in relevant institutions, and HIA practitioners. The normative values created among the human resources of the relevant sectors could lead to informed decision-making (S3) when the proposed changes in impact assessment processes were taken into account at the final step of the project or policy development. The extent of which informed decisions are made also could be influenced by the characteristics of relevant institutions in terms of their infrastructures, collaborations, and capacity (P2).

Likewise, the regulatory framework for HIA implementation (P1 and S1) are the key factors leading to formal practice which could affect the performance against the substantive criteria: close collaboration between HIA practitioners and project developer (S4); parallel development of the HIA with the development (S5); the extent of statutory consultation (S8); and the extent of satisfaction and understandability of the HIA quality in the decision making process (S10).

Public demand led to the emergence of public participation which is considered as a criterion in the procedural category (levels of public involvement, P5). The level of public involvement could affect the performance in the substantive category, in terms of the early start of the

HIA process (S6), bringing benefits to all involved organisations (S7), and the level of successful public consultation (S9). The interactions between these effectiveness factors led to questioning for clarification on relevant policy framework (N1), lessons learned and more knowledge gained among the participants from taking part in HIA process (N2), and it might have implicitly influenced the decision-making process (N3) observed by some relevant organisations in the normative effectiveness category. Regarding this learning process, the involved community members have learned to understand the quality of their way of life based on their own satisfaction with what they have (N4).

Financial resource (P4) is also an essential factor in HIA practice, which could link to the transactive category by considering how the money has been used (T2). The finding demonstrated that, in this case, financial support was provided for the HIA process as a research project rather than through a financial arrangement with the project developer. While the budget supported seems inadequate, the HIA practitioner team did not prioritise this as a problem for the HIA process. Rather, their willingness led them to cooperate voluntarily such that they felt their roles for this HIA (T4) were appropriate enough coupled with knowledge transfer from HIA facilitators that helped enhance their skills (T3) in conducting the HIA. Furthermore, they maintained that the availability of human resource (T5) was far more important than money as this additional criterion could bring about the availability of skills (T3) in conducting the HIA process as well as knowledge gained based on the lessons learned (N2). The money (T2) was mainly spent for public consultation activities (P5). This suggests that considering the budget for impact assessment processes, the focus should be providing sufficient budget for the arrangement of public consultation, as it has been shown in this case that the financial budget is crucially required for this activity so that the public can have more opportunity to get involved with the process. Referring to this case, as they paid particular attention to public consultation (P5), the time (T1) for the HIA process was extended

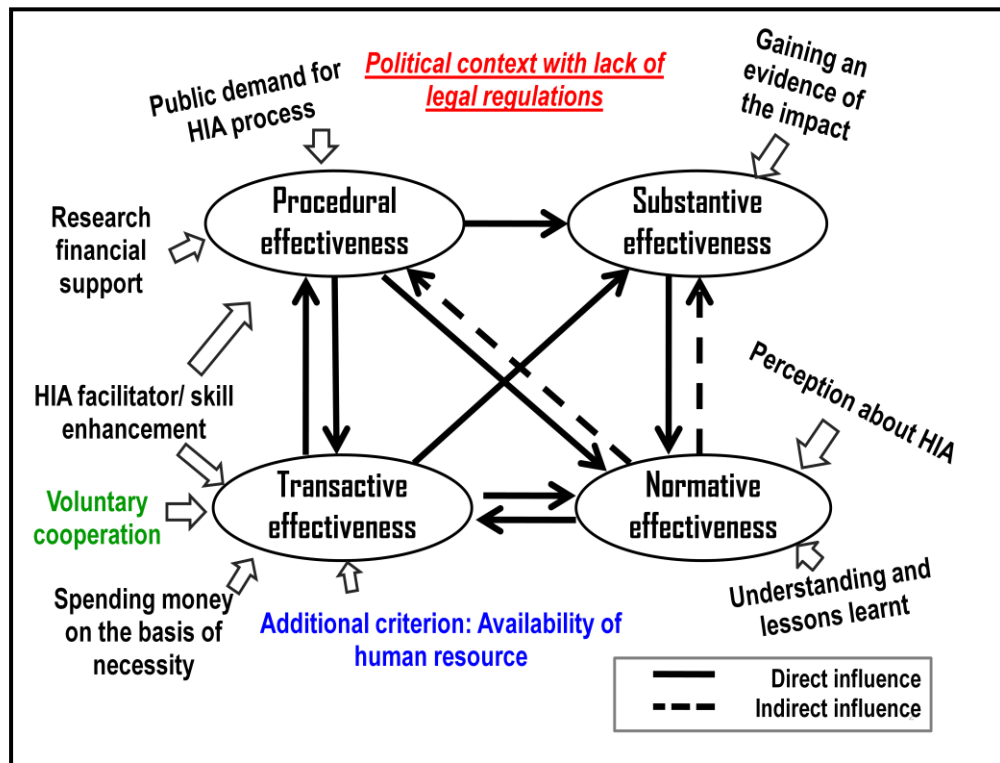


from their original plan by one year. The relationships between these criteria sets can be observed in **Figure 6.3**.

Summarising the effectiveness criteria connections in **Figure 6.4**, procedural effectiveness tends to directly influence substantive, transactive, and normative effectiveness. In this case, public demand played a key role in the development of the HIA process as no regulatory framework was provided during 2004-2006. Public pressure led to arrangements being made for public consultation, and this process led to the conduct of this HIA as part of the evidence for driving policy, and the call for reconsideration of the policy and project development related to this case. However, lack of HIA regulations at that time could have been a limitation as relevant authorities would be concerned about the validity of the HIA and would have limited knowledge about the potential value of it.

Similar to the procedural category, transactive effectiveness seems to directly influence procedural, substantive and normative effectiveness. Firstly, financial support was provided and, although it was a small budget, this resource was appreciated and managed efficiently. Secondly, a knowledge support was provided by the HIA facilitators mentoring the HIA practitioner team and they conducted the HIA process based on 'learning by doing' practice. Finally, the HIA practitioner team and their HIA participants conducted the HIA based on their willingness and voluntary cooperation. These are essential elements indicating that transactive effectiveness factors might be as important as procedural effectiveness factors. However, regarding the points of view in this case on the transactive category, it seems that availability of human resources that can work on HIA practice and development could be the most important factor influencing HIA effectiveness. This is because HIA development could not move forward to achieve its goals if there are not sufficient people to research and work on it to develop the knowledge about HIA practice and develop the approaches for using HIA effectively. This could link with the

role of human resources as explained by scholars in the human resource management field, for example, Torrington et al. (2009) pointed out that appropriate staffing is the first element of four, the others being motivation and commitment; ability of human resource to manage change; and good administration, which could lead to the achievement of missions.



**Figure 6.4** Summary of category connections between procedural, substantive, transactive, and normative effectiveness

The normative category could directly influence transactive effectiveness while it could indirectly influence procedural and substantive effectiveness. This is because understanding and lessons learned could lead to the improvement of practitioners' roles and skills in transactive effectiveness. Meanwhile, the perceptions based on understanding and experience could indirectly influence procedural effectiveness via the increasing knowledge and skills that the HIA professionals gained. This could be improved when conducting the HIA process based on public participation in the procedural

category. The result of the public participation could influence the level of successful public consultation in the substantive effectiveness category as well. In addition, in considering substantive effectiveness, decision making context is a factor influencing how it could work. **Figure 6.4** shows that the perceptions of the decision makers about the HIA in the normative category could indirectly influence substantive effectiveness. It is an indirect effect because the decision makers in this case tend to perceive the implementation of HIA via legal regulations. Gilboa (2010) emphasised that, seemingly, decision makers would decide the choice partly because of their normative perception.

Finally, substantive effectiveness is likely to influence only normative effectiveness. This is because the lack of regulations for HIA had not provided the place for substantive consideration in terms of implementing the HIA into decision-making. Therefore, perspectives on substantive effectiveness could not be reflected well regarding the lack of regulations. Consequently, the lacks of legal regulation in procedural and substantive category also influence the perception of HIA as reflected in normative effectiveness. Meanwhile, Birley (2007) stated that knowledge and understanding on HIA is essential in relevant authorities. This could implicitly suggest that awareness could bring about more concerns and actions in applying HIA.

To sum up, **Figure 6.4** summarises the connections between the categories of procedural, substantive, transactive, and normative effectiveness based on relativistic views of the key informants. The findings suggest that procedural effectiveness and transactive effectiveness tend to have a dominant influence towards other effectiveness categories when measuring HIA in this context. This is due to both categories directly influencing the other three remaining categories. The views from authorised government departments paid more attention to procedural and transactive effectiveness. HIA facilitators and professionals preferred building normative perceptions

as well as transactive concerns in terms of human resources and capacity building. The project developer seemed to rely on procedural effectiveness where they wanted to see a clear and effective guideline. Community members requested to take part in the impact assessment processes as they have learned from experience, gained more knowledge and understanding about the benefits of HIA. However, considering normative effectiveness, it might need a longer time to see clearer evidence of change.

## **6.6 Summary**

This chapter has provided the findings of this research in terms of stakeholders' perceptions of the four categories of the effectiveness criteria framework: procedural; substantive; transactive; and normative. The findings can be summarised in three main points: application of the effectiveness framework in measuring the effectiveness of impact assessment processes; the context of implementing impact assessment tools in Thailand and; lastly, the context of the case study itself and what involved people perceive about the effectiveness of this HIA. In terms of the criteria framework itself, clearly, the effectiveness categories could be used in this context; however, the findings suggested that flexibility in applying the designed criteria would be beneficial when implementing it in actual context. Furthermore, it would be useful if this framework were applied to measure the HIA/ IA effectiveness of other cases. This is because the nature of the contexts is different as well as the basic needs in the societies so that the responses and perspectives gained from those additional cases about this framework could help improving the measurement of effectiveness. Concerning this case study, the limitation when using this effectiveness framework is the lack of a legal regulatory framework in Thailand at that time when this HIA was conducted and, to date, no clear guideline for laws about HIA have been established completely. However, even though lacking legal enforcement, this framework could help to identify the essentials when providing regulations for HIA in Thailand, particularly, based on

transparency. The findings also suggested that perceptions and perspectives on implementing impact assessment processes in the Thai context were such that the laws seem to be a fundamental requirement for procedural, substantive, transactive and normative changes. Regarding the reflection on the case study through these criteria, a clear understanding of the effectiveness criteria after applying them to measure the HIA effectiveness could reflect the strengths and limitations of these criteria on the case. This is considered in the next chapter along with other comments on this research.

## **CHAPTER 7**

### **CONCLUSIONS**

#### **7.1 Introduction**

Based on the research aims, perspectives on effectiveness of impact assessment tools were reviewed in order to conceptualise a framework of criteria to assess how well HIA can work and contribute to the benefit of the decision-making process. The framework comprises four categories of effectiveness criteria: procedural; substantive; transactive; and normative, and these were applied to a HIA case study of a Potash Mine in Thailand.

The findings achieved clarify the answers to the research questions in this study. It can be concluded that, in terms of the definitions and purposes of HIA, individuals look at it differently based on their existing standpoint. The findings also could suggest how well effectiveness should be assessed and how the case performed against the criteria developed. The findings also provide learning on the practical application of the conceptualised criteria framework when applying it to the case, as well as suggesting factors influencing the effectiveness of HIA, and providing suggestions for HIA effectiveness improvement in the Thai context.

To recap, the main objectives of this research were: to review perspectives on HIA theory/ practice/ roles/ and its contribution to HIA application in the Thai context; to study the effectiveness context of impact assessment and set the conceptual framework for measuring the effectiveness of HIA; to apply the effectiveness criteria framework to a HIA case study in Thailand; to use the findings from this study to advance HIA theory in terms of effectiveness perspectives; and to provide recommendations for the improvement of effectiveness.

This chapter highlights the main findings achieved from this research. Firstly, the implications of the results in terms of HIA theory, its roles, and its contributions in the Thai context are stated prior to consideration being given to the perceptions on effectiveness of HIA. Secondly, reflections on the conceptual framework and methodological approach are investigated based on the experience gained from this study. Thirdly, recommendations for improving HIA effectiveness in the Thai context are made, based on the findings and reflections of the research. Then, future research based on applying the effectiveness framework to measuring the effectiveness of other cases or other impacts assessment processes is recommended. Finally, the contributions of this research are summarised based on the knowledge gained and lessons learned.

## **7.2 Implications of the results**

### ***HIA theory, roles, and its contributions to policy making in the Thai context***

HIA definition should be fundamental when considering HIA theory, roles, and its contributions. Regarding the findings, based on the perspectives and relevant documentary review, different perspectives on the definitions of ‘health impact assessment’ were debated. HIA has been variously defined as a process; a supportive decision-making tool; a learning process or a social tool and an integration of a decision-making tool and a learning process. These views were obtained based on the extent of understanding and knowledge, culture and belief, and purposes or conditions expected for HIA.

HIA has been defined as a process as it was recognised that the process could bring about HIA outcomes. In order to achieve the desired outcomes from HIA, the process should be conducted based on facts and up-to-date data. It has been a concern that there has not yet been an example of a reliable database being developed based on existing conditions and facts

when the impact assessment processes were performed. Furthermore, it was emphasised that consultant companies that mainly conduct impact assessment processes in Thailand might not have put sufficient efforts into obtaining baseline data when performing the impact assessment process. HIA is a process that should provide the key evidence on health improvement to consider in decision making as it was believed that it provided reliable assessments.

Secondly, HIA should be a supportive decision-making tool. It was believed that if there were legislation provided for implementing HIA in the decision-making process, it could certainly bring about good health for the public. This is because HIA can provide direction on whether projects can be developed or not, and how. It was argued by some of the interviewees, particularly those were HIA facilitators and researchers, that it seems to be more worthwhile considering HIA as a decision-making tool rather than a learning process.

Thirdly, HIA was considered as a social learning process that all organisations can get involved in to share and exchange ideas about health impacts that could occur as a result of developments, so that more options can be considered. This process could help strengthen empowerment such that the participants can learn how to gain more knowledge and protect their own rights. In this sense, HIA as a social tool was added because people can use it as evidence to express their views to decision makers and drive the policy. It was asserted that if the outcomes obtained from the HIA process were implemented in decision-making, good decisions could lead to the generation of good policy and development, and as evidence itself, it could also help balancing political power in the decision-making.

Fourthly, it was suggested that HIA should be an integrated decision-making tool and learning process. It was suggested that, based on legal regulation, the state can be a focus which links all stakeholders to the policy



by using the HIA process. The HIA process would bring about cooperation between all organisations such that a learning process can be generated from the collaboration.

In addition, it was suggested that defining ‘what HIA is’ should be based on purposes and conditions set in terms of what HIA is expected to be and how it might be implemented. Regarding this, it can be said that HIA could be defined differently as different stakeholders might see it in different ways based on their perceptions. This suggests that the definition of HIA could vary depending on how people understand, interpret and perceive it. This could imply that implementing or conducting a HIA process tends to be influenced by the context where the HIA is used.

In **Chapter 3**, HIA was defined for the purposes of this research as ‘**a process, methodology and supportive tool for decision-making which quantifies and qualifies health effects on populations that might be caused by the development of projects, programmes, plans or policies prior to the decision-making process when physical and mental health of the populations should be considered as minimum criteria.**’. This definition tends to fit with the perspectives towards HIA in the Thai context where people look at HIA as a learning process, a decision-making tool, and as a social tool.

In terms of the perspectives on HIA effectiveness, it has been shown that the perspectives on all four categories of effectiveness could help understanding more about HIA meaning and definition. On one hand, procedural and substantive effectiveness criteria reflect the extent to which the interviewees prioritised the regulatory framework for HIA implementation as a key concern coupled with seeing it as a process or methodology. This indicates that HIA will only be taken seriously as a decision-making tool provided that it is required by law. On the other hand, transactive and normative

criteria reflect the way that people view HIA as a learning process and a social tool.

Therefore, it seems that Thai society expects HIA to contribute multiple roles to development from the policy level through to project level.

***Perceptions on effectiveness of HIA***

Regarding the findings, it can be concluded that the four categories of effectiveness criteria can reflect both strengths and weaknesses from this HIA process (**Table 7.1**).

**Table 7.1 Strengths and limitations found in this HIA**

<b>Effectiveness category</b>	<b>Strengths</b>	<b>Weaknesses</b>
<b>Procedural</b>	<ul style="list-style-type: none"> <li>- Fund available for HIA practice</li> <li>- Initiate participation and capacity building at local level</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of legal basis and regulation</li> <li>- Lack of cooperation between institutions</li> <li>- Lack of human resource in the institutions</li> <li>- Political influence</li> </ul>
<b>Substantive</b>	<ul style="list-style-type: none"> <li>- Engage community</li> </ul>	<ul style="list-style-type: none"> <li>- Decision makers and project developer tend to pay little attention to this HIA</li> </ul>
<b>Transactive</b>	<ul style="list-style-type: none"> <li>- The practitioner team used the resources they had wisely</li> </ul>	<ul style="list-style-type: none"> <li>- Human resource and capacity building</li> </ul>
<b>Normative</b>	<ul style="list-style-type: none"> <li>- Enhance public knowledge on health concern and outcomes</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of legal basis leading to reduced knowledge of the HIA, involvement in the HIA process, and concern on health impacts in policymaking</li> </ul>

The strengths of the HIA process in this case study, measured based on the criteria, have been demonstrated as a result of action taken in the HIA process by the voluntary practitioner team. It could be said that the financial support provided for the HIA as well as a methodological approach concerning public participation are key elements in strengthening the procedural effectiveness of the HIA. This allowed the HIA process to

engage with related communities such that all concerns about the proposed development were obtained to deliver both directly and indirectly, but not formally, to the decision makers later on. This tends to suggest that community engagement is a strength when considering substantive effectiveness in this case. This is because the community engagement seemed to influence decision makers to step back and consider more carefully about the public concerns raised. Regarding factors shaping the characteristics of community involvement relevant to this context, Soravongsiri (2010) suggested that internal and external influence are key factors leading to an event of ‘public engagement’. The internal influences comprises supportive roles from NGOs, availability of built-in community networks, characteristics of community member’s leader roles and democratic independence within “*the social movement organisation and sub-groups*”. Meanwhile, the external influences are “*the political opportunity structure, the social opportunity structure, and the counter movement*” (p. c). Based on the interviews conducted for the investigation into the HIA, it was found that the basic skills in public engagement that the community members had could contribute to their effective performance in this HIA process (GSHF#1,#2, PGHF#9, PHAP#11). It can be stated that this experience, e.g. social movement experience and public involvement in this HIA process, is an example of capacity building at the local level in the Thai context during that time. However, more contributions on human resource development and allocation of HIA-specific roles within relevant sectors to build capacity at this level would be more beneficial to all relevant groups and organisations.

In addition, the practitioner team conducted this HIA based on public engagement while the fund provided was spent wisely on the basis of need only. They considered the limited money they had was manageable and was not the main obstacle in conducting the HIA process. This perspective could be a strength found in considering transactive effectiveness in this HIA. Furthermore, through the HIA process, the results have shown that public

perception about health concern and outcomes could have been raised directly, by those who got involved with the process, and indirectly, among the people who might have had access to the information derived from this HIA process in some ways, for example, through the public media. These perceptions could be counted as a strength identified in this HIA when considering its normative effectiveness.

Considering the weaknesses found in this HIA process, the lack of a regulatory framework seems to be a key concern related to procedural effectiveness that had a number of consequences. For example, there was a lack of cooperation between institutions contributing to this HIA process. This is because the relevant institutions operated based on their own missions that relied on statutes. Voluntary HIA was considered as an extra responsibility such that it was not taken into account because of a lack of human resources in the institutions. In addition, political influence, regarding politicians' perceptions, on providing relevant legislation for implementing HIA in the decision-making process was also considered as a weakness. This is because as long as the regulatory framework had not mandated consideration of health impacts from the development be taken into account, considering the use of HIA could have been overlooked by the policymakers, decision-makers and politicians. This could link to the outcomes considered in the category of substantive effectiveness that this HIA process had received little attention from the decision makers and the project developer, as it was not a mandatory HIA.

It could also be argued, in the category of normative effectiveness, that little knowledge of HIA was observed among the decision makers and representatives of relevant organisations, and that little attention was paid to adjusting the relevant policy framework for implementing HIA in Potash mining developments in general. Moreover, regarding the lack of a regulatory framework for HIA implementation, a lack of adequate human resources and the need for capacity building might have been overlooked as

it was considered to be a weakness found in the category of transactive effectiveness for this HIA. As discussed in Chapter 6, HIA professionals have been considered to be in short supply. Meanwhile, the informants from government authorities admitted they have insufficient human resources to work on HIA issues because they have key responsibilities and workloads associated with their existing roles assigned to them within their organisations. As HIA has not yet received a legal mandate, it seems that human resources for this role might not be easily provided. Therefore, providing appropriate legal regulation for HIA implementation in decision-making processes at all levels based on public consultation and transparency might be beneficial for society in terms of providing opportunities for relevant groups and authorities to initiate the application of the HIA process. Soravongsiri (2010) also suggested that political structure in terms of legal improvement, for example, the rights of the public to get involved with political decisions that might affect their local resources, as provided in the Thai constitution 2007, could allow the citizens to argue to have their voice heard. Nevertheless, Tongcumpou and Harvey (1994) cautioned that providing a statutory basis for EIA (and we assume here the situation is analogous for HIA) might not achieve the desired implementation because, although having a regulatory framework facilitating the implementation of impact assessment processes, for example, EIA, it seemed the EIA was implemented in Thailand only as a symbolic tool. This could suggest that it is very important for decision-makers to provide and consider the regulatory frameworks seriously, in terms of applying the findings from the impact assessment in decision-making processes or in the solution of real problems.

Referring to the strengths and weaknesses identified, it could be emphasised that all the categories of effectiveness criteria: procedural; substantive; transactive; and normative are related to each other in terms of their influences and connections, directly or indirectly. This was explained in **Figures 6.3** and **6.4** in Chapter 6 (results and discussion). The nature of the case context and the existing political context can have key roles in terms of

influencing the linkages between the effectiveness criteria and categories. For example, while voluntary cooperation among the HIA practitioner team and the process participants seemed to be dominant as a key driver in this HIA process, the political context with no regulatory framework for HIA implementation in the decision-making process seems to be a key factor. This is because the lack of laws precluded the existence of a formal track that the government authorities could use to prioritise HIA in their existing missions. In addition, the little knowledge and awareness of applying HIA that relevant organisations had, at that time, could have influenced their perspectives and the level of their understanding about HIA. Therefore, it could be said that these two factors, the nature of how HIA was conducted or initiated and the nature of the political context, with variable conditions, could influence how the conceptualised effectiveness criteria, in this research, connected and influenced each other. More evidence to support this point is provided in the following section.

### ***Major influences on the effectiveness of the Potash mine HIA***

The influences on how the effectiveness criteria link within or between the effectiveness categories can be considered based on how the HIA was initiated and the state of the existing political context, as presented in the previous section in this chapter on the perceptions on effectiveness of HIA, where strengths and weakness found in this case were justified.

Firstly, regarding the initiation of the HIA process and the way in which it was conducted, the findings based on the documentary review and in-depth interview, presented in Chapter 6, has shown that the public distrust authority and the resulting conflicts led to public demand for conducting the HIA process voluntarily. The strong motivation of the participants in conducting the HIA process was suggested to be the main driver bringing about the conclusion that the HIA participants found this HIA process to be effective in some ways. Nevertheless, this is in contrast to the perspectives

of representatives from relevant government organisations that expressed their views based on the lack of legal regulation, which suggested that this HIA could not be formally considered and, in any case, might have inadequate stakeholder coverage. However, the findings based on their views against the criteria established for this study suggested that their perceptions about the HIA for this project were developed implicitly based on public pressure. Referring to the findings, it can be said that the key considerations: public distrust; public demand; and public pressure: are continuing crucial factors influencing the decision-making process when new EIA and HIA processes for this project development are proposed in future. These factors were found when the interviews were conducted that all relevant organisations agreed that understanding and trust were required based on overall transparency once the project development might be reconsidered again. However, the solution of the problem of distrust seems to be challenging for relevant authorities with roles in providing the policy for Potash mine development in Thailand. This is because the public distrust has been rooted in the policymaking in the past that suffered from a lack of public consultation. Therefore, the distrust between stakeholders and the authorities should be the first priority to consider when planning for an effective impact assessment process for both EIA and HIA based on a regulatory framework.

Secondly, the state of the existing political context in which a relevant framework for HIA implementation in decision-making was lacking, as well as an unclear development plan and policy for Potash mine development in Thailand could influence the performance of this Potash mine HIA effectiveness. The perspectives about this state has been shown in **section 6.4** of Chapter 6 as this HIA did not meet the criteria related to these factors in the procedural, substantive, and normative effectiveness categories because related authorities did not have a formal operational frame to follow for this HIA. In addition, the lack of legal regulations for HIA implementation was frequently raised when the interviews were conducted.

This suggests that providing a regulatory framework is crucial in facilitating readiness in all organisations in using and implementing HIA as a public tool or process (or whatever framework purpose is identified).

However, at present, it seems that implementing HIA in decision making under the existing regulations is not explicitly required. The latest update of the laws concerning health impacts in project development has been announced and restricted to conducting HIA within the EIA process for particular project types (Ministry of Natural Resources and Environment, 2010). Underground mining using a rooms and pillars approach (as in this case) has not been included in the notification provided: Notification of Ministry of Natural Resources and Environment Re: Rule, Procedure, Method and Guideline for Preparation of the Environmental Impact assessment Report for Project or Activity which may seriously Affect Community with respect to Quality of Environment, Natural Resources and Health, 31 August 2010 (in Thai). Considering the policy statement of the latest government (The Prime Minister's Office, 2011), it was shown that developing Potash mining seems to be a target that the government would consider as part of an economic recovery plan for the country. It could be argued that although the governments of the country at different periods of time are from different political parties, it seems there is universal political will for the development of a Potash mining sector. In the latest policy provided by the Prime Minister's Office (2011), SEA, EIA and HIA are mentioned as measures in considering the project development. However, the project design provided for this Potash mine development at present is not covered by existing explicit requirements of the project types, appearing in the regulations, that need to be subject to HIA . Although there is commitment on behalf of the project developer and the decision-making authorities that HIA will be undertaken in this project, the legal notification on the project types stated as requiring HIA exclude this kind of 'rooms and pillars' mining method. This raises questions about the transparency of the government who appear to have deliberately avoided a legal mandate for



HIA in this case. This claim can be perceived via various media reporting about the reoccurrence of conflicts over the project development based on this notification (Manager Online, 2011, Chaiyarak, 2010). This suggests the distrust problem remains unsolved. Distrust issues have become a chronic problem. It seems it is not the first time that such a problem has been found in the Thai context when referring to other studies about public participation and impact assessment processes in Thailand, for example, the works conducted by Tongcumpou and Harvey (1994), Rerkpornpipat (2007), and Chompunth (2011). Thus, it is clear that an urgent solution is required.

At this point, it can be suggested that the factors influencing the effectiveness of HIA or other impact assessment processes tend to affect each other. The lack of legal obligation led to a lack of public participation leading to the emergence of distrust between all organisations and, ultimately, conflict. This could affect the effectiveness of HIA procedurally and substantively because public participation activities could help the development achieve agreement between all stakeholders. Therefore, it seems that providing legal regulation for the development, based on transparency, including specific requirements for public involvement is a key point to consider in improving the effectiveness of HIA.

### **7.3 Reflections on the conceptual framework**

#### ***Implementation of the conceptual framework***

The effectiveness criteria framework designed in this study was implemented to measure the effectiveness of this HIA process. The framework was designed based on a review of relevant literature focused on the evaluation and effectiveness of impact assessment processes: SEA; EIA; HIA and SIA. While effectiveness perspectives could be different in different studies, this research has proposed a way of looking at it based on

four categories: procedural; substantive; transactive; and normative: as an approach that could reflect how the impact assessment works in Thai context.

Firstly, procedural effectiveness in this study represents how well the impact assessment process is conducted based on principles, methodology, and provided policy, such that the stated outcomes of the process can be obtained. The factors deemed to influence procedural effectiveness are the political framework, political context, financial resources, public participation, and lessons/ experiences. The criteria set designed in this category (P1-P7) were considered based on these factors.

Although some interviewees might have struggled in responding to the questions related to these criteria: Institutional characteristics and roles (P2); HIA integration plan (P3); and capacity of HIA representing sound evidence to decision makers (P6): the responses have led to a demonstration of the linkages between the criteria themselves. **Figure 6.2**, Chapter 6, indicates that the provision of a regulatory and policy framework for HIA implementation (P1) had a strong influence on other criteria, particularly within the procedural and substantive categories. Regarding this, it could be suggested that where the effectiveness of a voluntary impact assessment process is measured; some criteria in this category might need to be adapted to fit with that particular context. For example, the P3 criterion might not be appropriate when considering voluntary HIA without the provision of a regulatory framework for HIA implementation in the decision-making process. This is because decision-makers at all levels of governance tend to rely mainly on legal regulations.

Secondly, substantive effectiveness in this research is understood to be how the results of the impact assessment process meet the expected purposes in terms of decision making in the relevant policies, programmes, and plans. The factors that might influence the substantive effectiveness are the

regulatory framework, the decision-making context, the role of stakeholders and public participation, and the impact assessment report in terms of its quality and its ability to deliver the conclusion of the assessment to decision makers. These factors shaped the set of criteria for measuring the effectiveness in the substantive category (S1-S10).

As for the procedural effectiveness criteria, the lack of a regulatory framework for HIA caused the interviewees to struggle to provide their perspectives on some of the substantive criteria: regulatory framework on HIA implementation in decision making (S1); parallel development (S5); successful statutory consultation (S8); and comments in using HIA in the decision-making process (S10). This is because the lack of regulations might have led to a lack of knowledge about the implementation of this HIA such that some of the interviewees felt that some criteria, for example, (S1) and (S5), should be removed from this category. However, considering the criteria developed to measure substantive effectiveness, the issues related to regulatory context cannot be avoided when examining how HIA, or other impact assessment process, can work substantively. This is because legal regulations seem to be a fundamental concern in the Thai context when relevant authorities undertake their actions or roles. Therefore, retaining these criteria might be advisable.

Thirdly, transactive effectiveness is understood as the wise use of resources in the impact assessment process in order to achieve the purposes of the HIA. Resources and time are the basic factors when designing the transactive effectiveness criteria (T1-T4) concerning how these resources were invested. The resources were considered in terms of financial resources and practitioners' proficiency in conducting the HIA process.

It can be highlighted that the ability of respondents to convey their perspectives in the interviews relied on the level of their involvement within this HIA process. For example, with reference to details about skills and

roles of the HIA practitioners, only the practitioner team and the HIA facilitator group could give comments in detail. In addition, how the financial resource was managed was discovered mainly from the practitioners whereas other groups of interviewees had little knowledge about this.

It was surprising that this HIA spent such a small amount of money (£2,000 GBP or 100,000 THB) in conducting the process. Again, as there was a lack of legal requirement for HIA implementation, therefore, a guideline suggesting how financial resources should be allocated to a HIA process has yet to be established. This is a crucial point to consider, that there should be some guidance on considering how the financial resource should be allocated and managed for HIA processes when developing a policy, programme, and project, including community HIA and HIA as a research process.

Finally, in this research, normative effectiveness has been defined as the extent to which perceptions are changed through getting involved or learning about the impact assessment process; leading to changes in terms of perspectives, institutional roles adjustments, and ways of life. The particular context of the case in terms of public concerns on health, existing policy, and perceptions about health impact seems to be a factor influencing how normative changes happen. The normative effectiveness criteria (relevant policy adjustment (N1), public perception on this HIA (N2), changes or development in relevant institutions (N3), and the improvement of perspectives on health and quality of life (N4)) were applied to this HIA process.

Levels of the involvement in the HIA process and the provision of a regulatory framework for HIA implementation tend to be the two main aspects influencing the normative effectiveness of this HIA process. This was seen in the responses gained from the interviewees who felt they could

contribute properly, in the group that took part, when they were asked about their perceptions on this HIA process. They stated that the lessons they had learnt had led to more understanding about the way of life and environment that might fit them well. They felt they had got more knowledge because of being part of the HIA process. This suggests that the HIA process could be a part of a human-centred development leading to local empowerment and capacity building. However, the regulation for HIA implementation in Thailand tended to be a primary concern in the majority of the interviewees, about their perceptions of HIA and its implementation in the decision-making process. This is because the responses from some interviewees implied that they would be concerned about the HIA implementation if it was required by law.

It can be emphasised that this voluntary HIA process could meet the criteria set in this conceptual framework partially. It was found that there are connections between the effectiveness criteria. The characteristics of the political context could bring about various interrelations between the effectiveness criteria in different contexts. It was found that in the Thai context, regulation for the HIA process and necessary resources have key roles in achieving the outcomes of the HIA process holistically concerning all four categories of effectiveness in this study (as summarised in **Figure 6.4**).

To conclude, although this HIA process was not mandatory, referring to the findings, it seems this framework has been an appropriate basis on which to measure its effectiveness. This is because it has identified the perceptions of HIA effectiveness among different stakeholder groups as well as identifying the means for shaping the direction of HIA implementation in Thailand.

### ***Methodological approach***

The methodology of this research was designed based on a constructivism paradigm. This is because the nature of the impact assessment process is that it tends to involve stakeholders who are individuals with different perspectives and perceptions about the HIA process. Kemm and Parry (2004) suggested that ontology on a local and specific constructed reality approach tends to bring about a better understanding about the findings to the researcher when we interpret the effects on human health. With an influence from the social context of the case, knowledge can be generated based on transactional findings as suggested in the constructivist philosophy principle (Guba and Lincoln, 2005). Perspectives and perceptions from the stakeholders in this case demonstrated that the individuals felt differently about the HIA in terms of its purposes, definitions, and its effectiveness. In order to gain the knowledge and understand the reality gained from these views, constructivism was found to be the most appropriate paradigm that could allow the researcher to build knowledge from these findings when the results were obtained from the field research.

Prior to the field research, a questionnaire for the semi-structured interviews was created in English and then translated into the Thai language. The researcher translated the questionnaire prior to the confirmation of correct understanding about the contents and language by a third person with a good level of language proficiency in English and Thai. This was done in order to make sure that using both languages in this research would provide and maintain the correct meaning and understanding as much as possible. The Thai version of the semi-structured questionnaire was used in semi-structured and in-depth interviews.

Semi-structured and in-depth interviews were conducted to explore the perceptions on effectiveness of this HIA. The data gained based on the reality within this context were analysed, coded, and interpreted, repeatedly,

from the original transcripts. The researcher attempted to confirm the more-than-one-time interpretations of the transcripts and cross comparisons of the similar views of the stakeholders that allow the state of data saturation to be reached when the same or similar perspectives were given. Then, the coded findings were translated from Thai to English by the researcher. At this point, there was no confirmation of the translation from a third person with the limitation that, as stated by the ethical research design, all data must be kept anonymous and confidential. However, the researcher had attempted to translate the language consistently between both languages in order to maintain the meaning and understanding as much as possible.

In terms of the number of research participants in this study, although many of them are very busy and had very different perspectives about this HIA process, they were willing to take part in the interviews and had an open mind in being a part of HIA development in Thailand. This can be counted as strength in conducting the research when considering their kind cooperation such that additional voluntary interviews were gained and they were enthusiastic in hearing about the findings obtained from this research. This cooperation could also help the researcher to gain an appropriate level of data collection from the field about this case, which helps to increase confidence in the validity of the findings.

In terms of using the single case study approach as a research strategy in this study, it was found that this strategy seems to be the most appropriate for the research questions raised in this research considering the availability of resources. Firstly, in terms of the research questions in this research, for example, why HIA is used? How did the HIA work based on the designed criteria? and why some major factors influence the HIA?, Yin (2009) recommends that using the case study approach would help the researcher to explore the answer for 'how' and 'why' questions better than other approaches. This seems to be because when conducting a case study, particularly, the single case study approach, it allows the researcher to

explore, investigate, and understand the case deeply such that the cause and consequences can be learned and explained. For example, in this research, when the new effectiveness criteria framework was implemented, it was found that the data collected was overwhelming in terms of detail related to each set of criteria developed. In addition, Gomm et al. (2000) and Silverman (2005) also suggested that the case study approach is appropriate for researching a case with a natural setting in a particular context. Stouffer (1941), Stake (2005), and Bryman (2008) added that significant and dominant points can be explored through conducting a single case study approach. Although it was argued that there might be less ability to generalise the finding from a single case study to the wider context or other cases, it has been concluded that the framework criteria conceptualised in this study can be used for more cases in future. Accumulation of cases could lead to the improvement of the effectiveness criteria framework as well as a wider generalisation to other contexts in Thailand or other countries.

#### **7.4 Recommendations for improving the effectiveness of HIA in Thailand**

Factors influencing the improvement of HIA effectiveness in Thailand can be identified as the provision of policy and a regulatory framework for HIA implementation, capacity building to ensure the availability of human resources for HIA practice with knowledge production for HIA development.

Firstly, in order to improve the effectiveness of HIA in Thailand, providing legal regulations setting out a HIA framework and its implementation in decision-making is regarded as the key factor that will raise awareness of health impacts from all organisations in all development. The existing relevant legal basis for HIA implementation comprises section 67 in the Thai constitution B.E. 2550 (2007), National Health Act B.E. 2550 (2007), The Enhancement and Conservation of the National Environmental Quality



Act B.E. 2535 (NEQA 1992) [section 46-51 in Part 4 (EIA report preparation)], and Notification of Ministry of Natural Resource and Environment [Re: Rule, Procedure, Method and Guideline for Preparation of the Environmental Impact assessment Report for Project or Activity which may seriously Affect Community with respect to Quality of Environment, Natural Resources and Health No.1 (2009) and No.2 (2010)]. However, clarity in terms of the necessity for HIA implementation in the decision-making process of proposed developments at the project level are still unclear. For example, in the latest notification of the Ministry of Natural Resource and Environment No.2 (2010), it seems unlikely that beneficial outcomes will consistently be delivered when underground mines with rooms and pillars are not subject to HIA as part of the EIA processes, whereas the underground mines without rooms and pillars are. In addition, there has not been any operation of underground mining in Thailand ever, such that no experience about this mining operation in the Thai environment has been gained. Therefore, more evidence on mine operation in the Thai context should have been/ should be considered carefully by the cabinet when identifying the project types and scales in to be subject to various forms of assessment in legal regulations. Otherwise, in the absence of such evidence, a precautionary approach to the project development would dictate the need for HIA more widely to help bring to an end the never-ending conflicts between the stakeholders relating to this case.

Secondly, capacity building was found to be one of the main factors influencing the effectiveness of HIA in Thailand. This can be considered in two aspects: at the individual and at the institutional level. First, at the individual level, some interviewees indicated that they had little knowledge about HIA. This was due to the lack of regulation on health impacts and HIA implementation prior to 2007, coupled with their existing workloads, therefore, their interests only focused on their missions based on existing legal regulation provided for the institutions. In addition, some interviewees had a lack of health knowledge in their experience or academic backgrounds

such that they might have overlooked health issues when they exercised their roles. Second, insufficient human resource seemed to be the main concern in building capacity at institutional level, coupled with financial resource provided for personal development and taking part in essential relevant activities. This can be supported by the findings which stated that a lack of motivation was found in some governmental organisations because of overload of routine working responsibility as well as a lack of financial support provided for the institution to take part in key activities at international level. Thus, to tackle these obstacles, a capacity building plan for the individual and the institutional level should be considered. Conducting institutional research might help the planners to explore basic requirements in the particular context of the individual and institutions such that a suitable capacity building plan can be derived based on the research findings.

Finally, it was found there was a lack of human resources for HIA practice and that more knowledge production for HIA development in Thailand is required. This means the number of people that are interested in conducting and learning about the HIA process is still low. This factor might overlap with some parts of the capacity building mentioned above that some organisations or institutions are facing a shortage of human resources when they need pay more attention to, and be responsible for, the HIA process and public participation.

For HIA implementation, formally, in the decision-making process in Thailand at present, only consultant companies, certified by ONEP, can conduct the HIA, for projects requiring the provision of HIA as part of EIA. Most staff in the consultant companies are EIA practitioners that are new to HIA practice. This suggests that in the subsequent HIA process, there may be deficiencies over the way health is understood and considered. Although the findings from this research suggested that HIA could be counted as a social learning process, the conduct of a HIA process by a consultant

company is a different context to a voluntary HIA initiated by public pressure over a Potash Mine case. Therefore, it is necessary that human resources for HIA practice should be multidisciplinary so that the process assessment can be conducted integrally and holistically. In terms of facilitating HIA knowledge in Thailand, at present, the knowledge transfer to all relevant organisations, has been handled by the HIA Coordinating Unit Thailand cooperating with other relevant organisations, for example, HIA division from Ministry of Public Health and ONEP from Ministry of Natural Resource and Environment. However, more human resources for these activities are urgently needed. Therefore, increasing the human resource, conducting more research about HIA, and providing more research funding to investigate HIA integration with other impact assessment processes in Thailand, should be considered and provided.

### **7.5 Recommendations for applying the effectiveness framework to other cases and impacts assessment processes**

In order to develop and improve the effectiveness framework for impact assessment processes, the core of the effectiveness criteria framework designed in this research should be applied to more cases of HIA, and to other impact assessment processes. In terms of applying the criteria set to evaluate other HIA cases, the options include both voluntary HIA and compulsory HIA. Although legal regulation about implementing HIA in the decision-making process has been unclear for all level of development, eleven project types are required to conduct HIA within the EIA as stated in the Notification of Ministry of Natural Resource and Environment No.2 (2010): Re: Rule, Procedure, Method and Guideline for Preparation of the Environmental Impact assessment Report for Project or Activity which may seriously Affect Community with respect to Quality of Environment, Natural Resources and Health. There have, thus, been more cases of HIA conducted by consultant companies during the past few years, therefore, applying this conceptualised framework for measuring HIA effectiveness

could allow wider replication of the findings such that generalisation of the research results might be possible.

In terms of applying this framework to measuring the effectiveness of other impact assessment processes, it is possible to apply the criteria set with, for example, Environmental Assessment (SEA and EIA) and Social Impact Assessment (SIA). However, it is necessary to consider the context of the case to study because some criteria might need to be adjusted to fit with the particular context. For example, for the procedural effectiveness category, if the legislation has been provided, considering the details stated in the framework provided in that particular context might help develop or adjust the criteria set to fit with the case, such that the criteria in other categories such as the substantive effectiveness category can be reconsidered and adjusted to be more appropriate. This could lead to a wider range of impact assessment processes to which this framework can be applied.

## **7.6 Contributions of the thesis**

- 1) This study has provided a systematic investigation of knowledge related to HIA theory, practice, its implementation, and criteria conceptualisation for measuring the effectiveness of HIA or other impact assessment tools.
- 2) The findings can bring about improved effectiveness for HIA and relevant practice in Thailand in terms of considering the key factors influencing the HIA effectiveness.
- 3) The findings could contribute more understanding on different perspectives towards the case among the research participants when they are from different organisations and the context where they stand. This might lead to the adjustment of roles and

motivation to maintain transparency and deliberate views towards the project development.

- 4) The finding has emphasised the need for capacity building for HIA in Thailand. It is expected that this could urge cooperation from relevant organisations in taking action on planning for this matter and turn it into practice, with good support from the government.
  
- 5) The conceptual framework for effectiveness created in this study can be used as a guideline for measuring the effectiveness of other cases of impact assessment processes. Therefore, it could be a tool that can be further improved and developed when applied in other cases both within and outside Thailand.

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# APPENDIX 1

(Documents for research participants – in Thai language)

**เอกสารชี้แจงข้อมูลสำหรับผู้ถูกสัมภาษณ์**

**โครงการวิจัยเรื่อง ประสิทธิภาพและประสิทธิผลของการประเมินผลกระทบทางสุขภาพต่อการพัฒนาโครงการหรือ  
การพัฒนานโยบายสาธารณะในประเทศไทย**

**(Effectiveness of Health Impact Assessment (HIA) for public policy or project development in Thailand)**

คณะผู้วิจัย ขอเชิญท่านเข้าร่วมโครงการวิจัยนี้โดยขอความอนุเคราะห์ในการให้สัมภาษณ์เกี่ยวกับการประเมินผลกระทบทางสุขภาพในประเทศไทย เพื่อศึกษาประสิทธิภาพ และประสิทธิผล จากการใช้ประโยชน์ของการประเมินผลกระทบทางสุขภาพในประเทศไทย โดยศึกษาจากกรณีศึกษา ที่ได้มีการดำเนินการประเมินผลกระทบทางสุขภาพไปแล้ว

คณะผู้วิจัย ขอความกรุณาท่านสละเวลาในการอ่านเอกสารชี้แจงข้อมูล ดังรายละเอียดต่อไปนี้ เพื่อท่านจะได้รับทราบข้อมูล และเข้าใจเหตุผลในการดำเนินโครงการ รวมถึงสิ่งที่เกี่ยวข้องต่างๆในการดำเนินโครงการ ก่อนการตัดสินใจเข้าร่วมโครงการ ทั้งนี้ ท่านอาจแลกเปลี่ยนความคิดเห็นกับผู้อื่นได้ตามความประสงค์ หรือหากมีข้อมูลส่วนตัวส่วนหนึ่งที่ไม่ชัดเจน โปรดติดต่อสอบถามผู้วิจัยได้ตลอดเวลาขณะดำเนินการวิจัยในพื้นที่ศึกษาวิจัย หรือตามที่อยู่ที่ได้ระบุไว้ในตอนท้ายของเอกสารนี้

**1. ใครคือผู้ดำเนินโครงการนี้?**

โครงการนี้ ดำเนินการโดย นางสาว ชื่นจิต ชาญชิตปริษา (อาจารย์ประจำสาขาวิชานามัยสิ่งแวดล้อม สำนักวิชาแพทยศาสตร์ มหาวิทยาลัยเทคโนโลยีสุรนารี) ปัจจุบันอยู่ในระหว่างลาศึกษาต่อระดับปริญญาเอก ภายใต้การให้คำปรึกษาของ ดร.อลัน บอนด์ (Dr. Alan Bond) สาขาวิชาวิทยาศาสตร์สิ่งแวดล้อม คณะวิทยาศาสตร์ มหาวิทยาลัยอีสต์แองเกลีย ประเทศอังกฤษ (School of Environmental Sciences, Faculty of Science, University of East Anglia, UK) ซึ่งการวิจัยโครงการนี้ เป็นส่วนของการทำวิทยานิพนธ์เพื่อปริญญาดังกล่าว

**2. โครงการวิจัยนี้มีชื่อโครงการว่าอะไร?**

ประสิทธิภาพ และ ประสิทธิผลของการประเมินผลกระทบทางสุขภาพต่อการพัฒนาโครงการหรือการพัฒนานโยบายสาธารณะในประเทศไทย (Effectiveness of Health Impact Assessment (HIA) towards public policy or project development in Thailand)

**3. โครงการวิจัยนี้มีวัตถุประสงค์ใด?**

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพและประสิทธิผลของการประเมินผลกระทบทางสุขภาพต่อการพัฒนาโครงการหรือนโยบายสาธารณะในประเทศไทย เพื่อนำผลการศึกษาที่ค้นพบไปเป็นแนวทางในการเสนอแนะเพื่อการปรับปรุงประสิทธิภาพของการใช้ประโยชน์จาก HIA และ การพัฒนากระบวนการด้าน HIA ในประเทศไทย หรือ ในบริบทที่มีความคล้ายคลึงกับประเทศไทย

**4. ทำไมท่านได้รับเลือกเพื่อให้สัมภาษณ์?**

จากการทบทวนเอกสารที่เกี่ยวข้องกับการทำการประเมินผลกระทบทางสุขภาพ (HIA) และ รายงาน HIA ในประเทศไทย ที่สืบค้นได้จากฐานข้อมูลดิสเปซ (DSpace) ของสถาบันวิจัยระบบสาธารณสุข พบว่ากรณีการประเมินผลกระทบสุขภาพจากเหมืองแร่โปแตช จังหวัดอุดรธานี เป็นกรณีที่น่าสนใจในการศึกษาผลของ HIA ในกระบวนการต่างๆ เช่น กระบวนการตัดสินใจพัฒนาโครงการ หรือนโยบายสาธารณะ กระบวนการเรียนรู้ร่วมกันในชุมชน และ

กระบวนการพัฒนา HIA ในประเทศไทย โดยการมีส่วนร่วมของผู้มีส่วนได้ส่วนเสีย หรือ ประชาชนที่เกี่ยวข้อง มีบทบาทสำคัญในกระบวนการดังกล่าว

เนื่องจากท่านได้รับการพิจารณาว่าท่านจัดอยู่ในกลุ่มใดกลุ่มหนึ่งดังต่อไปนี้ซึ่งเป็นผู้มีส่วนได้ส่วนเสีย (stakeholders) ต่อการมีหรือไม่มีโครงการ ทางคณะผู้วิจัยจึงเห็นว่าข้อมูลที่ได้จากท่านจะเป็นประโยชน์ต่อการศึกษา ได้แก่

- ผู้ดำเนินการประเมินผลกระทบทางสุขภาพ หน่วยงานที่สนับสนุนองค์ความรู้ด้าน HIA หรือ องค์กรเอกชนที่เกี่ยวข้อง (HIA practitioners, HIA facilitators)
- ตัวแทนจากหน่วยงานภาครัฐที่เกี่ยวข้องกับการพิจารณาพัฒนา หรือ ใช้ประโยชน์ จากการประเมินผลกระทบทางสุขภาพ (Representatives from government sectors)
- ตัวแทนจากชุมชนที่อาจได้รับผลกระทบ (Representatives from community)
- ตัวแทนจากภาคเอกชน หรือผู้พัฒนาโครงการ (Representatives from private or industrial sectors/ project developers)

#### 5. กระบวนการที่จะเกิดขึ้นประกอบด้วยอะไรบ้าง หากท่านยินยอมให้ผู้วิจัยสัมภาษณ์?

หากท่านตัดสินใจยินยอมให้สัมภาษณ์ ผู้วิจัยจะขอความอนุเคราะห์ขอความร่วมมือจากท่านในกระบวนการอันประกอบด้วยขั้นตอนต่างๆ ดังต่อไปนี้

- (1) อ่านเอกสารชี้แจงข้อมูลสำหรับผู้ถูกสัมภาษณ์ฉบับนี้ และเห็นชอบในการเซ็นคำยินยอมรับการสัมภาษณ์
- (2) กรอกข้อมูลในเอกสารก่อนการสัมภาษณ์ กรณีที่ท่านจัดอยู่ในกลุ่ม ผู้ดำเนินการประเมินผลกระทบทางสุขภาพ หน่วยงานที่สนับสนุนองค์ความรู้ด้าน HIA หรือ องค์กรเอกชน ที่เกี่ยวข้อง (Health Impact Assessment practitioners, HIA facilitators) ซึ่งอาจใช้เวลาประมาณ 10 – 15 นาที
- (3) ให้สัมภาษณ์แก่ผู้วิจัย ซึ่งอาจใช้เวลาประมาณ 50-90 นาที
- (4) อ่านบทสนทนาที่ได้ถอดเทปหลังจากการสัมภาษณ์ และแก้ไขข้อมูลหากท่านต้องการ และให้ความเห็นชอบในการให้นำข้อมูลดังกล่าวไปใช้ในการวิเคราะห์ผลการศึกษาก็ได้ ทั้งนี้ ผู้วิจัยขอความกรุณาท่าน ตอบกลับภายในสองสัปดาห์หลังจากได้รับเอกสารดังกล่าว ผ่านทางโทรศัพท์ ที่อยู่ หรือ อีเมลล์ แอดเดรส ที่ให้ไว้ในตอนท้ายของเอกสารนี้

#### 6. จะเกิดอะไรขึ้นกับข้อมูลของท่าน?

การกำหนดรหัสจะถูกนำมาใช้แทนการระบุชื่อของท่านในการแสดงและจัดเก็บข้อมูลที่ได้จากการสัมภาษณ์ ซึ่งข้อมูลต่างๆ ที่อาจเกี่ยวกับความเป็นส่วนตัวของท่านจะถูกเก็บเป็นความลับ อย่างไรก็ตาม ผู้วิจัยอาจจำเป็นต้องระบุว่าท่านถูกจัดอยู่ในกลุ่มผู้มีส่วนได้ส่วนเสียในกลุ่มใด หรือ ระบุหน่วยงาน หรือ ประเภทขององค์กรที่ท่านสังกัด ทั้งนี้ เนื่องจาก การได้ประโยชน์สูงสุดจากการนำผลการศึกษาที่ได้ไปใช้ประโยชน์ในวงกว้าง ที่ผู้วิจัยจะสามารถส่งผ่านข้อเสนอแนะไปยังกลุ่มที่เกี่ยวข้องกับการพัฒนา และใช้ประโยชน์จากการประเมินผลกระทบสุขภาพ (HIA) ในประเทศไทยประกอบการพัฒนานโยบายสาธารณะ หรือ การพัฒนาโครงการต่างๆ ผ่านงานวิจัยนี้

#### 7. ท่านจำเป็นต้องเข้าร่วมโครงการวิจัยนี้หรือไม่?

ท่านไม่จำเป็นต้องเข้าร่วมโครงการนี้ หรือหากท่านไม่สะดวกจะเข้าร่วมโครงการ ท่านสามารถถอนตัวจากการเข้าร่วมโครงการโดยไม่จำเป็นต้องชี้แจงเหตุผล หรือแจ้งล่วงหน้า ทั้งนี้ การงดเข้าร่วมโครงการจะไม่ส่งผลกระทบต่อท่านเลย

**8. ท่านจะได้รับค่าตอบแทนในการให้สัมภาษณ์ หรือ เข้าร่วมโครงการหรือไม่?**

ผู้วิจัยต้องขอภัยด้วย ที่ท่านจะไม่ได้รับค่าตอบแทนใดๆในการให้สัมภาษณ์ หรือเข้าร่วมโครงการวิจัยในครั้งนี้

**9. ผลที่คาดว่าจะได้รับจากการทำวิจัยนี้คืออะไร?**

ผลการศึกษสามารถเป็นส่วนหนึ่งที่เป็นหลักฐานทางวิชาการที่สามารถสนับสนุนการพัฒนางานด้านการประเมินผลกระทบทางสุขภาพในประเทศไทย และการพิจารณาใช้ประโยชน์จากการประเมินผลกระทบดังกล่าว (HIA) ในการพัฒนา นโยบายสาธารณะ หรือ การพัฒนาโครงการต่างๆในประเทศไทย

**10. ผลการศึกษาจะมีการเผยแพร่หรือไม่?**

ผลการศึกษาอาจมีการเผยแพร่ในเอกสารทางวิชาการ หรือการประชุมทางวิชาการที่เกี่ยวข้อง หากท่านสนใจอยากรับทราบผลสรุปจากการศึกษาท่านสามารถติดต่อรับได้ตามที่อยู่ที่แจ้งไว้ในตอนท้ายของเอกสารนี้

**11. ที่อยู่ที่ท่านสามารถติดต่อได้ หากท่านมีข้อสงสัย หรือต้องการสอบถามข้อมูลเพิ่มเติม**

หากท่านมีข้อสงสัยประการใด โปรดสอบถามผู้วิจัย คือ นางสาว ชันจิต ชาญจิตปรีชา

ที่อยู่ติดต่อได้ สาขาวิชานามยสิ่งแวดล้อม สำนักวิชาแพทยศาสตร์ มหาวิทยาลัยเทคโนโลยีสุรนารี 30000

หรือ Miss Chaunjit Chanchitpricha, PGR Student, School of Environmental Sciences, Faculty of Science, University of East Anglia, Norwich, Norfolk. NR4 7TJ United Kingdom

😊 ขอขอบพระคุณเป็นอย่างสูงที่ท่านให้ความร่วมมือกับการวิจัยนี้ 😊

**Appendix 1.2** Question themes

**ชื่อโครงการวิจัย:** ประสิทธิภาพและประสิทธิผลของการประเมินผลกระทบทางสุขภาพต่อการพัฒนาโครงการหรือการพัฒนา นโยบายสาธารณะในประเทศไทย กรณีศึกษา การประเมินผลกระทบทางสุขภาพจากเหมืองแร่โพแทช จังหวัด อุดรธานี ประเทศไทย (Effectiveness of Health Impact Assessment (HIA) for public policy or project development in Thailand Case study HIA of Potash Mining in Udon Thani Thailand)

**ชื่อผู้วิจัย:** นางสาว ชื่นจิต ชาญชิตปรีชา      **อาจารย์ที่ปรึกษา:** ดร. อลัน บอนด์.(Dr. Alan Bond)

**แนวข้อคำถามในการสัมภาษณ์ (Theme for semi-structured and unstructured interviews)**

บริบทของเนื้อหา	ประเด็นคำถาม
1.1 กรอบนโยบายหรือกฎหมาย หรือ ข้อแนะนำเกี่ยวกับ ขั้นตอนการ ดำเนินการในกระบวนการ ประเมินผลกระทบทางสุขภาพใน ประเทศไทย	1) ท่านคิดว่ากรอบข้อแนะนำเกี่ยวกับการทำ HIA ที่มีอยู่เพียงพอหรือไม่ ในแง่ ของกฎเกณฑ์มาตรฐาน ขั้นตอนการดำเนินการ และ การกำหนดใบอนุญาต สำหรับผู้ที่สามารถทำ HIA ได้? (ในช่วง พ.ศ.2547-2549 ที่มีการทำ HIA ของ โครงการเหมืองแร่โพแทช อุดรธานี และ ในปัจจุบัน)
1.2 นโยบายทางการเมืองหรือ บริบท ทางการเมือง ที่มีผลต่อการนำ HIA มาใช้ในประเทศไทย	2a) หน่วยงานที่มีการติดตามตรวจสอบคุณภาพสิ่งแวดล้อมกับหน่วยงานเฝ้า ระวังผลกระทบสุขภาพได้มีการแลกเปลี่ยนข้อมูลระหว่างกันหรือไม่ เพราะเหตุใด 2b) ท่านคิดว่ารัฐบาลมีบทบาทมากน้อยเพียงไร หรือควรมีบทบาทอย่างไรใน การสนับสนุนเครือข่ายในด้านการติดตามตรวจสอบคุณภาพสิ่งแวดล้อม กับการ เฝ้าระวังสุขภาพ หรือ โรคที่อาจเกิดจากผลกระทบสิ่งแวดล้อม? 3) มีการนำ HIA มาใช้ประกอบการตัดสินใจและวางแผนเพื่อพัฒนาโครงการใน ลักษณะนี้ หรือ นโยบายและโครงการอื่นๆ หรือไม่ เพราะเหตุใด?
1.3 งบประมาณ หรือการสนับสนุน ทางด้านการเงินเกี่ยวกับการทำ HIA ในประเทศไทย	4) ท่านคิดว่างบประมาณ หรือการสนับสนุนทางการเงินเกี่ยวกับการทำ HIA ในประเทศไทยมีเพียงพอ หรือไม่ อย่างไร?
1.4 การมีส่วนร่วมของประชาชนใน กระบวนการทาง HIA	5) ท่านมีความเห็นอย่างไรเกี่ยวกับการมีส่วนร่วมของประชาชนในกระบวนการ ทาง HIA สำหรับกรณีศึกษาผลกระทบสุขภาพจากโครงการเหมืองแร่โพแทช จังหวัดอุดรธานี ?
1.5 ความเชื่อถือได้และข้อมูลที่ได้ จากการทำ HIAหรือจากรายงาน HIA	6) ท่านคิดว่าผู้มีอำนาจในการตัดสินใจ สามารถทำความเข้าใจกับรายงาน HIA ได้มากน้อยเพียงใด และจากข้อมูลที่ได้รับจากการพิจารณา HIA นั้น สามารถทำ ให้พวกเขาให้ความสำคัญกับ HIA หรือไม่ เพราะเหตุใด? 7) ท่านมีความเห็นอย่างไรกับผลการศึกษา HIA ให้กับผู้มีส่วนได้ส่วน เสียที่มีส่วนร่วมในกระบวนการ HIA?

<p><b>2.1 การบังคับใช้ HIA ตามกฎหมาย</b> ประกอบกระบวนการตัดสินใจ</p>	<p>8a) มีกฎข้อบังคับหรือกรอบกฎหมายที่บังคับใช้ HIA ประกอบการตัดสินใจหรือไม่?</p> <p>8b) ถ้ามี ท่านมีความเห็นอย่างไรเกี่ยวกับ การบังคับใช้ HIA ตามกฎหมายประกอบกระบวนการตัดสินใจ?</p>
<p><b>2.2 ความสำคัญของกลไกของกระบวนการตัดสินใจต่อ</b> พิจารณาผลกระทบทางสุขภาพของประชาชนในการพัฒนาโครงการหรือนโยบายสาธารณะในประเทศไทย</p>	<p>9) สำหรับโครงการนี้ ในที่สุด HIA ได้รับความสำคัญจากผู้บริหารที่ตัดสินใจเกี่ยวกับโครงการ หรือไม่? อย่างไร?</p> <p>10) ท่านมีความเห็นอย่างไรเกี่ยวกับการตัดสินใจหลังจากมีการเสนอรายงาน HIA สำหรับโครงการนี้ต่อผู้บริหาร?</p> <p>11) ท่านมีความเห็นอย่างไรกับความร่วมมือ หรือ การประสานงานระหว่างผู้ดำเนินการประเมินผลกระทบทางสุขภาพ กับผู้พัฒนาโครงการนี้?</p> <p>12a) มีการดำเนินการ HIA สำหรับโครงการนี้หรือไม่? (ก่อน หรือ ระหว่าง หรือ (ควบคู่) หลังการจัดทำแผนพัฒนาโครงการ</p> <p>12b) ท่านคิดว่ากระบวนการ HIA ที่เหมาะสมสำหรับกรณีเหมือนแร่โพแทชนี้ควรเป็นอย่างไร?</p> <p>13a) ท่านมีความเห็นอย่างไรกับการเริ่มต้นกระบวนการ HIA สำหรับโครงการนี้ เช่น อะไรคือการจุดประเด็น และ ทำไมจึงมีการพูดถึง HIA และ เริ่มต้นทำ HIA เมื่อไหร่?</p> <p>13b) ช่วงเวลาดังกล่าวที่เริ่มต้นนั้นเหมาะสมหรือไม่ เร็วไป หรือ ช้าไป เพราะเหตุใด?</p> <p>14) กระบวนการทาง HIA ทำให้เกิดการเริ่มต้นเครือข่ายหรือการร่วมมือ ระหว่างสถาบันหรือไม่ และท่านมีความเห็นอย่างไร?</p> <p>15a) ผู้บริหารที่มีอำนาจในการตัดสินใจโครงการได้รับคำปรึกษาด้านกฎระเบียบ หรือข้อบังคับเกี่ยวกับ HIA หรือไม่?</p> <p>15b) แล้วผู้บริหารเหล่านั้นได้ให้ความสำคัญกับประเด็นนี้หรือไม่ (การพิจารณาผลกระทบทางสุขภาพในกระบวนการตัดสินใจ)?</p> <p>15c) และท่านทราบได้อย่างไร?</p>
<p><b>2.3 การพิจารณาการตอบรับของผู้มีส่วนได้ส่วนเสีย และการมีส่วนร่วมของประชาชน</b>ในการประเมินผลกระทบทางสุขภาพจากโครงการนี้</p>	<p>16a) ประชาชน หรือกลุ่มผู้มีส่วนได้ส่วนเสียได้รับโอกาสในการแสดงความคิดเห็นหรือไม่?</p> <p>16b) แล้วการแสดงความคิดเห็นดังกล่าวเกิดขึ้นในกระบวนการ HIA หรือไม่?</p> <p>16c) แล้วผู้บริหารได้ให้ความสำคัญและนำความคิดเห็นจากประชาชนไปประกอบการพิจารณาในกระบวนการตัดสินใจหรือไม่?</p>

<p><b>2.4</b> <u>คุณภาพ ความถูกต้อง และ ความ</u> <u>ยากง่ายในการเข้าใจเนื้อหาของ</u> <u>รายงานผลกระทบทางสุขภาพจาก</u> <u>โครงการนี้</u></p>	<p>17) ท่านมีความเห็นอย่างไรต่อ<u>คุณภาพ ความถูกต้อง และ ความยากง่ายในการ</u> <u>เข้าใจเนื้อหาของรายงานผลกระทบทางสุขภาพจากโครงการที่นำเสนอต่อ</u> <u>ผู้บริหารเพื่อพิจารณาในกระบวนการตัดสินใจ?</u></p>
<p><b>3.1</b> <u>ความคุ้มค่าของทรัพยากร และ</u> <u>เวลาที่จำเป็นต้องใช้ในการ</u> <u>ประเมินผลกระทบทางสุขภาพ</u></p>	<p>18) ท่านมีความเห็นอย่างไรเกี่ยวกับ<u>ระยะเวลาที่ใช้ในกระบวนการ HIA</u> (เพียงพอหรือไม่ มากไป หรือน้อยไป และผลที่ได้คุ้มหรือไม่สำหรับกรณีศึกษา นี้?)</p> <p>19) ท่านมีความเห็นอย่างไรเกี่ยวกับ<u>งบประมาณที่ใช้ในกระบวนการ HIA</u> (เพียงพอหรือไม่ มากไป หรือน้อยไป และผลที่ได้คุ้มหรือไม่สำหรับกรณีศึกษา นี้?)</p> <p>20) ทีมจัดทำ HIA มีทักษะความชำนาญในการจัดทำ HIA เพียงพอหรือไม่? เพราะเหตุใด?</p> <p>21) บทบาท ความรับผิดชอบที่ทีมจัดทำ HIA ได้รับนั้นมีความชัดเจนและ เหมาะสมหรือไม่?</p>
<p><b>4.1</b> <u>ผลลัพธ์ ผลสัมฤทธิ์ หรือการ</u> <u>เปลี่ยนแปลงจากการมีกระบวนการ</u> <u>HIA และการที่นำ HIA มาใช้</u> <u>ประกอบการตัดสินใจเพื่อพัฒนา</u> <u>โครงการ หรือนโยบาย</u></p>	<p>22) หลังจากกระบวนการ HIA นั้น <u>นโยบายที่เกี่ยวข้องมีการเปลี่ยนแปลงหรือไม่</u> <u>และท่านมีความเห็นอย่างไร?</u></p> <p>23) ท่านมีความเห็นอย่างไรเกี่ยวกับการ<u>เรียนรู้ การรับรู้ และการได้รับบทเรียน</u> <u>จากกระบวนการ HIA</u> ของผู้ที่มีส่วนเกี่ยวข้องกับกระบวนการนี้?</p> <p>24) ท่านมีความเห็นอย่างไรเกี่ยวกับการเปลี่ยนแปลงที่เกิดขึ้นใน<u>แง่การบทบาท</u> <u>บทบาท หรือแนวคิดของสถาบันหรือหน่วยงานที่เกี่ยวข้องกับการทำ HIA?</u></p> <p>25) ท่านมีความเห็นอย่างไรกับ<u>คุณภาพชีวิต หรือสุขภาพของประชาชน</u>หลังจาก กระบวนการทาง HIA?</p>

ขอขอบพระคุณเป็นอย่างสูงในความอนุเคราะห์ให้สัมภาษณ์



## หนังสือประกาศความยินยอมให้สัมภาษณ์ในโครงการวิจัย

**ชื่อโครงการวิจัย:** ประสิทธิภาพและประสิทธิผลของการประเมินผลกระทบทางสุขภาพต่อการพัฒนาโครงการหรือการพัฒนา นโยบายสาธารณะในประเทศไทย (Effectiveness of Health Impact Assessment (HIA) for public policy or project development in Thailand)

**ชื่อผู้วิจัย:** นางสาว ชื่นจิต ชาญชิตปรีชา

**วัตถุประสงค์ของคำประกาศนี้:** คำประกาศนี้จัดทำขึ้นเพื่อปกป้องสิทธิมนุษยชน และความเป็นส่วนตัวของผู้ให้สัมภาษณ์ให้ปลอดภัยจากสิ่งคุกคามต่างๆอันอาจเกิดขึ้น รวมถึงเพื่อแสดงให้เห็นว่า งานวิจัยทางวิชาการนี้ดำเนินการบนพื้นฐานของความโปร่งใส และสามารถตรวจสอบได้ทางจริยธรรมการวิจัย

หากท่านมีความยินดีในการให้สัมภาษณ์เพื่อการศึกษา ขอบความกรุณาท่านขีดเครื่องหมาย ✓ ในช่องที่ระบุว่า “ใช่” และ ลงลายมือชื่อของท่านในตอนท้ายของหนังสือประกาศความยินยอมฉบับนี้

ใช่ ไม่ใช่

**ข้าพเจ้าขอรับรองว่า:**

(กรณาขีดเครื่องหมาย ✓ )

- |    |   |                          |                          |
|----|---|--------------------------|--------------------------|
| 1. | ข้าพเจ้าทราบและเข้าใจวัตถุประสงค์ของการศึกษาวิจัยนี้ และ ได้รับคำอธิบายจากเอกสารชี้แจงข้อมูลโครงการที่แนบท้ายหนังสือประกาศความยินยอมนี้ พร้อมสำเนาหนังสือให้ความยินยอมในการให้สัมภาษณ์กับ โครงการวิจัยนี้แล้ว | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | ข้าพเจ้าได้รับทราบแล้วว่าข้าพเจ้าสามารถถอนตัวจากโครงการวิจัยในระหว่างขั้นตอนใดก็ได้ โดยไม่จำเป็นต้องแจ้งเหตุผลให้ทราบล่วงหน้า   | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | ข้าพเจ้ายินดีให้ผู้วิจัยสัมภาษณ์ และยินดีให้ความร่วมมือตรวจทานบทสนทนาภายหลังการถอดเทปสัมภาษณ์   | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | ข้าพเจ้าทราบว่าข้าพเจ้าไม่ได้รับค่าจ้าง หรือค่าตอบแทนใดๆ ในการเข้าร่วมโครงการวิจัยนี้   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | ข้าพเจ้าได้รับการรับรองจากผู้วิจัยว่าข้อมูลที่แสดงความเป็นส่วนตัวของข้าพเจ้าจะถูกเก็บเป็นความลับ  | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | ข้าพเจ้าต้องการทราบผลการศึกษาโดยรวมภายหลังเสร็จสิ้นการดำเนินโครงการวิจัย  | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | <b>ดังนั้น</b> ข้าพเจ้ายินดีให้สัมภาษณ์ และให้ความร่วมมือกับโครงการวิจัยนี้   | <input type="checkbox"/> | <input type="checkbox"/> |

Signed: .....

Date: .....



**หนังสือประกาศความยินยอมให้สัมภาษณ์ในโครงการวิจัย (สำเนาฉบับ)**

**ชื่อโครงการวิจัย:** ประสิทธิภาพและประสิทธิผลของการประเมินผลกระทบทางสุขภาพต่อการพัฒนาโครงการหรือการพัฒนาโยบายสาธารณะในประเทศไทย (Effectiveness of Health Impact Assessment (HIA) for public policy or project development in Thailand)

**ชื่อผู้วิจัย:** นางสาว ชันจิต ชาญชิตปรีชา

**วัตถุประสงค์ของคำประกาศนี้:** คำประกาศนี้จัดทำขึ้นเพื่อปกป้องสิทธิมนุษยชน และความเป็นส่วนตัวของผู้ให้สัมภาษณ์ให้ปลอดภัยจากสิ่งคุกคามต่างๆอันอาจเกิดขึ้น รวมถึงเพื่อแสดงให้เห็นว่า งานวิจัยทางวิชาการนี้ดำเนินการบนพื้นฐานของความโปร่งใส และสามารถตรวจสอบได้ทางจริยธรรมการวิจัย

หากท่านมีความยินดีในการให้สัมภาษณ์เพื่อการศึกษา ขอความกรุณาทำเครื่องหมายถูก (✓) ในช่องที่ระบุไว้ และ ลงลายมือชื่อของท่านในตอนท้ายของหนังสือประกาศความยินยอมฉบับนี้

ใช่    ไม่ใช่

**ข้าพเจ้าขอรับรองว่า:**

(กรุณาขีดเครื่องหมาย ✓)

- |    |   |                          |                          |
|----|---|--------------------------|--------------------------|
| 1. | ข้าพเจ้าทราบและเข้าใจวัตถุประสงค์ของการศึกษาวิจัยนี้ และ ได้รับคำอธิบายจากเอกสารชี้แจงข้อมูลโครงการที่แนบท้ายหนังสือประกาศความยินยอมนี้ พร้อมสำเนาหนังสือให้ความยินยอมในการให้สัมภาษณ์กับ โครงการวิจัยนี้แล้ว | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | ข้าพเจ้าได้รับทราบแล้วว่าข้าพเจ้าสามารถถอนตัวจากโครงการวิจัยในระหว่างขั้นตอนใดก็ได้ โดยไม่จำเป็นต้องแจ้งเหตุผลให้ทราบล่วงหน้า   | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | ข้าพเจ้ายินดีให้ผู้วิจัยสัมภาษณ์ และยินดีให้ความร่วมมือตรวจทานบทสนทนาภายหลังการถอดเทปสัมภาษณ์   | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | ข้าพเจ้าทราบว่าข้าพเจ้าไม่ได้รับค่าจ้าง หรือค่าตอบแทนใดๆ ในการเข้าร่วมโครงการวิจัยนี้   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | ข้าพเจ้าได้รับการรับรองจากผู้วิจัยว่าข้อมูลที่แสดงความเป็นส่วนตัวของข้าพเจ้าจะถูกเก็บเป็นความลับ  | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | ข้าพเจ้าต้องการทราบผลการศึกษาโดยรวมภายหลังเสร็จสิ้นการดำเนินโครงการวิจัย  | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | <b>ดังนั้น</b> ข้าพเจ้ายินดีให้สัมภาษณ์ และให้ความร่วมมือกับโครงการวิจัยนี้   | <input type="checkbox"/> | <input type="checkbox"/> |

Signed: .....

Date: .....

# APPENDIX 2

(Documents for research participants – in English language)

## Appendix 2.1 Information Sheet

### **Participant Information Sheet Effectiveness of Health Impact Assessment (HIA) in Thailand**

We would like to invite you to participate in a research study on effectiveness of HIA in Thailand. This study aims at evaluating the effectiveness of HIA based on a case study conducted and implemented in Thailand.

Prior to the decision you would make, it is essential that you should understand why this research is being conducted as well as its related circumstances. So, please take time to read the following information carefully and discuss this with other people if you wish. If there were something unclear or you would like to have more information, please feel free to contact us via the contact details provided at the bottom of this sheet.

#### **1. Who will conduct the research?**

This study is being conducted by Miss Chaunjit Chanchitpricha, Postgraduate research student, at School of Environmental Sciences, University of East Anglia, Norwich, United Kingdom. Chaunjit is a lecturer at School of Environmental Health, Institute of Medicine, Suranaree University of Technology, Nakhorn Ratchasima, Thailand. She is leaving for study at the PhD level during 2008-2011. Therefore, this study is conducted as part of her PhD thesis at the School of Environmental Sciences, University of East Anglia.

#### **2. Title of the research**

Effectiveness of Health Impact Assessment (HIA) in Thailand.

#### **3. What is the aim of the research?**

This study aims to evaluate the effectiveness of Health Impact Assessment (HIA) in Thailand so that the recommendations for improving HIA effectiveness in Thailand or in a similar context can be provided.

#### **4. Why have you been chosen?**

Based on the review of HIA reports from the Dspace library online provided by the Health System Research Institute (HSRI) in Thailand, HIA of Potash Mining in Udon Thani (Thailand) has been selected as a case study. As you are supposed to be one of the stakeholders (HIA facilitators, relevant government sectors, members of community, project developer) in this case, you would be asked to give an interview (semi-structured and unstructured) in this study based on a qualitative research design.

#### **5. What would you be asked to do if you decided to participate in this study?**

If you decided to participate in this study, you would be asked to

- (1) Read and agree to sign the informed consent form in participating the study.
- (2) Complete a pre-interview questionnaire on your training and experience (for the HIA facilitator group only). This should take between 10-15 minutes.
- (3) Give an interview to the researcher for approximately 50-90 minutes.
- (4) Approve, suggest changes prior to the approval of the transcribed dialogue after the interviews.

**6. What happens to the data collected?**

All information will be stored without identifying your name or your personal details into a database system for further analysis. However, it is necessary to retain and refer to the category of your organisation or stakeholder categories.

**7. How is confidentiality maintained?**

Your anonymity will be protected in all research publications. The data will be coded and yourself cannot be identified from the data. Analysis of the data will be performed anonymously and confidentially. The study results will be presented as categories of stakeholders and/ or the relevant organisation in Thailand. This is because the reason that the findings and recommendations can be passed to the right actors of particular roles in HIA development in Thailand.

**8. What happens if you do not want to participate or if you change your mind?**

If you do not want to participate in this study, you can withdraw your consent at any point in time and for any reason without giving any explanation.

**9. Will you be paid for participating in the research?**

Unfortunately, there is no payment for participation in this research.

**10. What is the duration of the research?**

Total duration of this research is approximately 3 years, however, the data collection process by interviews is targeted to be during the middle of June to the end of August 2010.

**11. Where will the interview be conducted?**

The interviews will take part in Bangkok, Udon Thani, and wherever in Thailand the key informants of this research are located.

**12. Will the outcomes of the research be disseminated?**

The results of the study might be published in academic journal, professional practice articles, working papers, and presented in academic conferences. If you were interested in the result or its findings, you could request for a summary of the study and it would be delivered to you by post or e-mail.

**13. Who is organising and funding this study?**

This study is being organised by Miss Chaunjit Chanchitpricha, sponsored by the Royal Thai Government, under supervision of Dr. Alan Bond, School of Environmental Science, The University of East Anglia (United Kingdom).

**14. Contact for further information**

If you have any queries about this study, you can contact Miss Chaunjit Chanchitpricha by telephone numbers or email address,

*Contact address in Thailand:*

School of Environmental Health, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima 30000 Or

*Contact address in the UK:*

PGR Student, School of Environmental Sciences, Faculty of Science, University of East Anglia, Norwich, Norfolk. NR4 7TJ United Kingdom

Email: C.Chanchitpricha@uea.ac.uk, Tel: +44(0) 1603 59 1340

**15. What if there might be something goes wrong?**

If there might be something goes wrong or you would like to make a formal complaint about the field research activities, you can contact Dr.Alan Bond, School of Environmental Science, Faculty of Science, University of East Anglia, Norwich, Norfolk, NR4 7TJ.

☺**THANK YOU FOR YOUR TIME AND CONSIDERATION**☺

## Appendix 2.2 Question theme for the interviews

Effectiveness Category	Question context	Criteria/ Main points/ Specific questions	Key Points to focus
1. Procedural Effectiveness	1.1 The <b>policy framework</b> and procedures of HIA in Thailand - (emphasising how HIA process and practice should be done)	<p><b>P1.</b> Relevant policy framework and procedures for HIA - Existence of national plan on health, regulations or guidelines or standard performance for HIA, procedure implementation in HIA, and licensing.</p> <p><b>1)</b> Is there <b>sufficient policy framework and procedures for HIA implementation</b> in terms of regulations, guidelines, standard performance, and licensing (During 2004-2006 when the HIA was conducted and at present)?</p>	Availability/ Sufficiency of content/ being pragmatic or not/ Coverage or not in terms of legal basis, requirement, or guidelines.
	1.2 <b>Political context</b> in implementing HIA in Thailand	<p><b>P2.</b> Institutional infrastructure - Existing environmental monitoring network, disease surveillance network, and role of government.</p> <p><b>2) To what extent do the organisations holding evidence/ data provided for HIA communicated with each other and share the data? and why?</b></p>	Availability/ Sufficiency of networks/ being pragmatic or not/ Coverage or not/ Priority concerning health impacts.
		<p><b>P3.</b> Integrating HIA in planning process.</p> <p><b>3) Was/ Is HIA integrated in planning process? Why?</b></p>	
	1.3 <b>Financial funds or supports</b> for HIA practice in Thailand	<p><b>P4.</b> Availability of financial funds for HIA practice.</p> <p><b>4)</b> What do you think about <b>financial funds</b> for HIA practice in Thailand in terms of availability, sufficiency, and coverage?</p>	Availability/ Sufficiency/ Coverage of financial funds for HIA practice.
	1.4 <b>Public participation</b> activities implemented in the HIA process	<p><b>P5.</b> Involvement of stakeholders in the process.</p> <p><b>5)</b> What do you think about <b>public participation</b> activities implemented in the HIA process of Potash mining case in Udon Thani?</p>	Accessibility/ Cooperation/ Expression/ Conflicts/ Concern on information gaining from the area of study.
	1.5 The <b>credibility and informativeness</b> of the HIA	<p><b>P6.</b> Capacity of HIA to present sound and understandable evidence for the decision making process with valid predictions and argumentation.</p> <p><b>6)</b> To what extent could the <b>decision makers understand the content</b> of the HIA report <b>and agree that the predictions and suggestions</b> should be taken into account?</p>	Decision makers could or could not understand the evidence.
<p><b>P7.</b> Delivering the report to participating stakeholders.</p> <p><b>7)</b> What do you think about <b>the process to deliver the HIA report or its findings to participating stakeholders?</b></p>		Stakeholders were or were not informed	
2. Substantive Effectiveness	2.1 <b>Regulatory framework on implementing HIA</b> in decision-making	<p><b>S1.</b> Regulatory framework on implementing HIA in decision-making process.</p> <p><b>8a)</b> Is there available regulatory framework for HIA?</p> <p><b>8b)</b> What do you think about <b>regulatory framework on implementing HIA</b> in decision-making?</p>	Availability/ Sufficiency/ Coverage of the projects or public policy making (at present and when this HIA case was conducted).

2.Substantive Effectiveness (continued)	2.2 The <b><u>mechanism in decision making</u></b> context on considering population health impact in project or public policy development in Thailand	S2. Incorporation of proposed changes - HIA was taken into account in the final version of the programme. 9) For this project, <b><u>was HIA concerned at the final decision-making step?</u></b>	How/ in what extent HIA is concerned at final decision-making step.
		S3. Informed decision-making. 10a) Was HIA taken into account? 10b) What do you think about the <b><u>decision-making</u></b> being made <b><u>after delivering the HIA report?</u></b>	The HIA process was or was not taken into account.
		S4. Close collaboration between HIA practitioners and project or programme or developers. 11) What do you think about the <b><u>collaboration between HIA practitioners and the project developer?</u></b>	Good or bad collaboration/ Gap/ or performance.
		S5. Parallel development - the HIA and programme developed alongside one other with considering cross-cutting between the processes. 12a) How was HIA done? (separate process at the case) 12b) What would be the right way to do it?	Yes or No, and why
		S6. Early start - the HIA process was initiated at the very first stages of project/ programme development. 13a) When was the HIA initiated in this project ? 13b) Was it early enough?	Yes or No, and why
		S7. Institutional relations and other benefits after the HIA process. 14) Did the HIA lead to the development of any <b><u>new relationships</u></b> or <b><u>networks?</u></b>	Gaining new partnerships, better public-private voluntary sector communication.
		S8. Successful statutory consultation - there is a fair opportunity for the statutory consulting team to contribute their comments to allow decision-makers to take them into account. 15a) Did decision-making receive suggestions from statutory consultees? 15b) Did they take them into account? 15c) How do you know?	Decision makers considered suggestions provided by statutory consultation team based on the coverage and completeness of the idea.
		2.3 <b><u>Response from stakeholders and public participation</u></b> on this project	S9. Successful public consultation - the public consultation structure had a fair opportunity to contribute their idea and this was taken into account. 16a) Did the public have an opportunity to have their say? 16b) Was it through the HIA? 16c) Did decision-makers take public comments into account?
2.4 The <b><u>quality, accuracy, and understandability of impact assessment report</u></b>	S10. Satisfactory/ comments in implementing HIA in decision-making process. 17) What do you think about the <b><u>quality, accuracy, and understandability</u></b> of the impact assessment report that was <b><u>submitted in the decision-making process?</u></b>	Poor, Fair, Good, Very Good, Excellent.	
3.Transactive Effectiveness	3.1 <b><u>Resources and time management</u></b> in conducting the HIA process	T1. Time - HIA was carried out within a reasonable time frame without undue delay or within a very short time period. 18) Was sufficient <b><u>time invested</u></b> in the HIA process and how the time was planned to conduct the HIA?	Reasonable or unreasonable/ Problems/ Causes.

3. Transactive Effectiveness (continued)	3.1 <b>Resources and time management</b> in conducting the HIA process (continued)	T2. Financial resources. 19) Were there sufficient <b>financial resources invested</b> in the HIA process and how the budget was managed?	Reasonable or unreasonable/ Problems/ Causes.
		T3. Skills - the acquiring of skills and personnel required for the HIA did not cause a big burden. 20) Did the HIA practitioner team have sufficient skills for the task?	Who (well trained staff or inexperienced staff) involved with the process.
		T4. Specification of roles - responsibilities were clearly defined and allocated. The tasks were undertaken by the most appropriate subjects. 21) Were the <b>role and responsibilities</b> of HIA practitioners <b>clear</b> ?	How the staff works together regarding their roles?
4. Normative Effectiveness	4.1 <b>Consequences/ outcome/ or changes</b> prior to the result of HIA process and its implementation in decision-making	N1. Adjustment of relevant policy framework concerning the normative goal achieved in term of changes of views. 22) Has there been any <b>change in the policy framework after the HIA process</b> ?	Views on health impact and project development in decision-makers.
		N2. Learning process, perception, and lesson learnt from HIA. 23) What do you think about <b>public learning process, perception, and lessons gained from the HIA process</b> ?	Availability of learning process and lessons, in what way.
		N3. Development or changes in relevant institutions. 24) What do you think about any <b>changes in relevant institutions after the HIA process</b> ?	Changes after gaining lessons learnt in all sectors, normatively.
		N4. Improvement or changes of health and quality of life. 25) What do you think about any <b>improvement of population health and their quality of life</b> ?	Gaining the improvement of health condition and quality of life.



**Appendix 2.3 Informed consent form**

**Declaration of Informed Consent by Interviewee**

**EFFECTIVENESS OF HEALTH IMPACT ASSESSMENT (HIA) IN THAILAND**

**Purpose of this declaration:** In order to protect the human right to privacy of interviewees, their right to be informed, and right to be protected from any harm that might occur. Also, it is intended to encourage transparency and accountability for academic research.

If you are willing to participate in this research, please complete and sign the consent form below.

	<b><u>Yes</u></b>	<b><u>No</u></b>
<b>I confirm that:</b>	<i>(please tick boxes)</i>	
1. I have read the information sheet on this research and I understand the reasons why the research is being conducted.	<input type="checkbox"/>	<input type="checkbox"/>
2. I have been given a copy of the information sheet to keep.	<input type="checkbox"/>	<input type="checkbox"/>
3. I agree to complete the pre-interview questionnaire prior to the interview (for HIA facilitator group only).	<input type="checkbox"/>	<input type="checkbox"/>
4. I agree to participate in a face to face interview to the researcher.	<input type="checkbox"/>	<input type="checkbox"/>
5. I understand that there is no payment for participation in this study.	<input type="checkbox"/>	<input type="checkbox"/>
6. I understand that my anonymity will be protected.	<input type="checkbox"/>	<input type="checkbox"/>
7. I would like to know the findings and results of this study.	<input type="checkbox"/>	<input type="checkbox"/>
8. I, therefore, willingly agree to participate in this research study.	<input type="checkbox"/>	<input type="checkbox"/>

Signed: .....

Date: .....

## Declaration of Informed Consent by Interviewee

### EFFECTIVENESS OF HEALTH IMPACT ASSESSMENT (HIA) IN THAILAND

(Copy)

**Purpose of this declaration:** In order to protect the human right to privacy of interviewees, their right to be informed, and right to be protected from any harm that might occur. Also, it is intended to encourage transparency and accountability for academic research.

If you are willing to participate in this research, please complete and sign the consent form below.

**Yes**      **No**

*(please tick boxes)*

**I confirm that:**

- |   |                          |                          |
|---|--------------------------|--------------------------|
| 1. I have read the information sheet on this research and I understand the reasons why the research is being conducted. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. I have been given a copy of the information sheet to keep.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. I agree to complete the pre-interview questionnaire prior to the interview (for HIA facilitator group only).         | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. I agree to participate in a face to face interview to the researcher.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. I understand that there is no payment for participation in this study.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. I understand that my anonymity will be protected.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. I would like to know the findings and results of this study.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. I, therefore, willingly agree to participate in this research study.   | <input type="checkbox"/> | <input type="checkbox"/> |

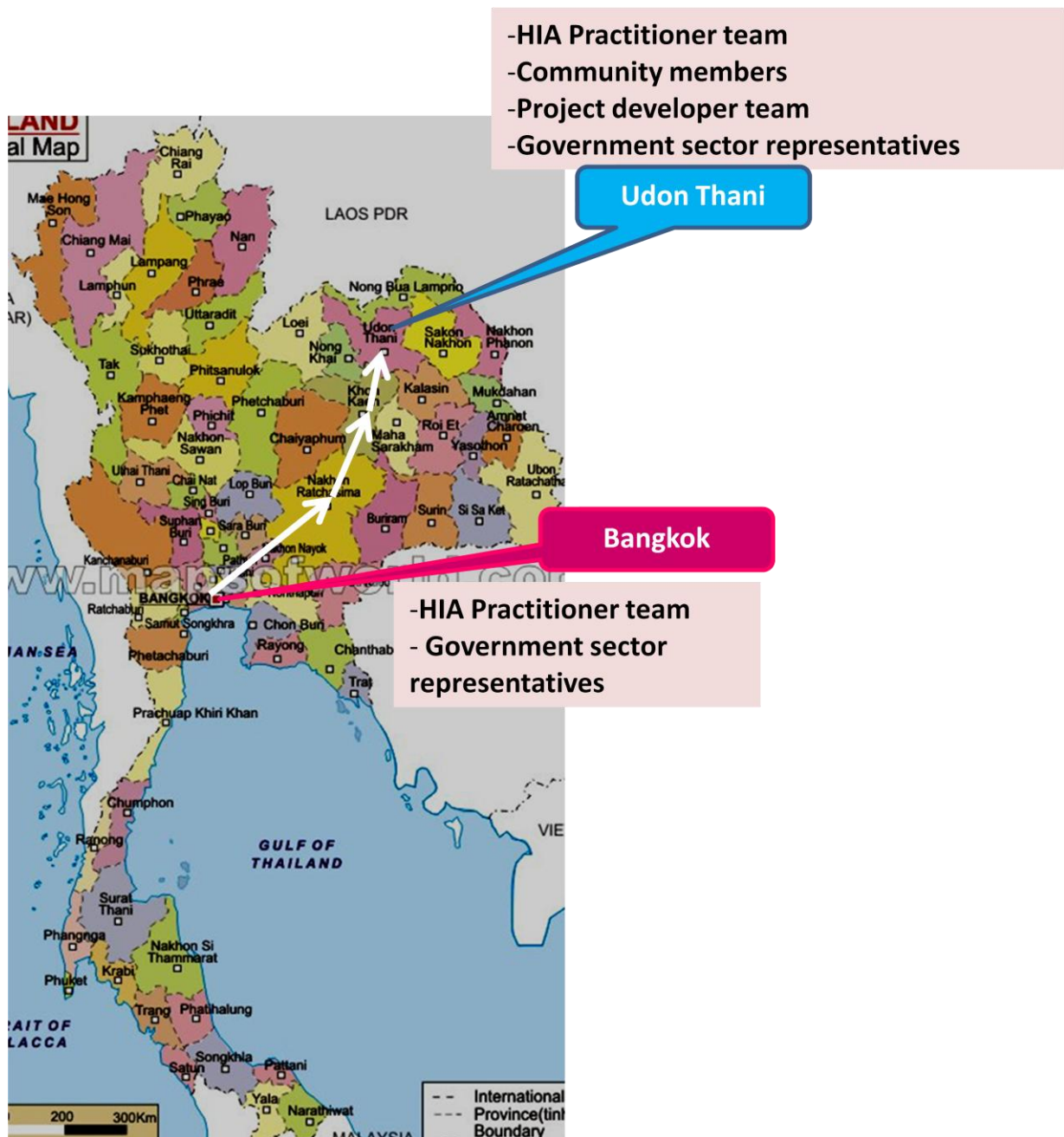
Signed: .....

Date: .....

# APPENDIX 3

(Field research)

### Appendix 3.1 Where were key informants?



Source of the map is from URL <http://www.mapsofworld.com/thailand/thailand-map.html>

**Appendix 3.2 Area where underground mine was planned**





**Appendix 3.3 Opposition of Potash mine development project remained in some communities in Udon Thani province**



**Text translation: STOP STAKE CLAIM! POTASH MINE STRATEGIC ENVIRONMENT ASSESSMENT (SEA) IS REQUIRED!**

# APPENDIX 4

(Data Coding)

**Appendix 4.1 Identifying codes for initial coding:** Initial coding was conducted based on the key issues provided in semi-structured questions, in accordance with the effectiveness criteria created in this study, as well as the issues additionally found during the interviews. For example, the criteria set might have focused mainly on relevant policies for HIA application, however, information gained from the interviews suggested that relevant policies and regulations on the development of a particular project could have influenced decision makers in taking HIA into account. These codes were applied to categorise the quotes reflected from various perspectives of the key informants toward the HIA and its effectiveness in this case study.

ประเด็น (Issue)	นิยาม (Definition)	ประเด็นหลัก (Key Issue)	ตัวย่อ (Abbreviation)	รหัส (Code)	Issue
<p>1.1 กรอบนโยบายหรือกฎหมาย หรือข้อแนะนำเกี่ยวกับ ขั้นตอนการดำเนินการในกระบวนการประเมินผลกระทบทางสุขภาพในประเทศไทย</p> <p>The policy framework and procedures of HIA in Thailand - (emphasising how HIA process and practice should be done)</p>	<p>กรอบข้อแนะนำเกี่ยวกับการทำ HIA ที่มีอยู่ในแง่ของ กฎเกณฑ์มาตรฐาน ขั้นตอนการดำเนินการ และ การกำหนดใบอนุญาต (ในช่วง พ.ศ.2547-2549 ที่มีการทำ HIA ของโครงการเหมืองแร่โพแทช อุครธานี และในปัจจุบัน)</p> <p>Suggested framework for HIA related to Potash Mine development during 2004-2006 and at present</p>	Policy framework and guideline	PolFrGui	PFGH	The policy framework and procedures of HIA in Thailand - (emphasising how HIA process and practice should be done)
				HIADT	Defining HIA based on knowledge, theory, guideline and relevant regulation
				PFGR	Relevant required regulations (clarify guidelines& procedures in conducting project development)
				PFGL	Lesson learned from EIA process and guideline and may implemented in HIA
CTC	Compatibility of policy framework on HIA/ impact assessment with Thai context				
<p>1.2 กรอบนโยบายด้านการพัฒนาโครงการเหมืองแร่โพแทชในประเทศไทย (additionally issue found )</p> <p>Policy framework on Potash mining development in Thailand,</p>	<p>กรอบนโยบายการพัฒนาทรัพยากรแร่โพแทชในเมืองไทย</p> <p>Policy framework for Potash Mine development in Thailand</p>	Mining development policy	MiPol	MP	The policy framework and procedures for mining development in Thailand



<p>1.2 <u>นโยบายทางการเมืองหรือ บริบททางการเมือง</u> ที่ มีผลต่อการนำ HIA มาใช้ในประเทศไทย</p> <p>Political context in implementing HIA in Thailand</p>	<p>การแลกเปลี่ยนข้อมูลระหว่างหน่วยงานที่มีการ ติดตามตรวจสอบคุณภาพสิ่งแวดล้อมกับหน่วยงาน ใ้เฝ้าระวังผลกระทบต่อสุขภาพภายใต้การนำและบทบาท ของรัฐบาลให้มีการนำ HIA มาใช้ประกอบการ ตัดสินใจในระดับการพัฒนาโครงการและนโยบาย (Data exchange/ sharing between organisations under the government's roles in considering HIA in decision-making process)</p>	<p>Political context and Institutional infrastructure</p>	<p>PotCo-InsInf-InPI</p>	<p>PIP</p>	<p>Political context in implementing HIA in term of Institutional infrastructure - Existing environmental monitoring network, disease surveillance network, and role of government. Integrating HIA in planning process.</p>
	<p>การบริหารจัดการ Governance (Governance hierarchy and administration)</p>	<p>Governance &amp; Institutional Infrastructure</p>	<p>GovcInIn</p>	<p>GII</p>	<p>Its administration and management, limitation within the institution and availability of human resource</p>
<p>1.3 <u>งบประมาณ</u> หรือ<u>การสนับสนุนทางการเงิน</u> เกี่ยวกับการทำ HIA ในประเทศไทย</p> <p>Financial funds or supports for HIA practice in Thailand</p>	<p>ความเพียงพอของงบประมาณ หรือวิธีการสนับสนุน ทางด้านการเงินเกี่ยวกับการทำ HIA ในประเทศไทย Budget sufficiency and how it was allocated to support HIA practice in Thailand</p>	<p>Financial funds or supports for HIA practice in Thailand</p>	<p>Finance</p>	<p>Fnc</p>	<p>Availability of financial funds for HIA practice.</p>
<p>1.4 <u>การมีส่วนร่วมของประชาชนในกระบวนการทาง HIA</u></p> <p>Public participation activities implemented in the HIA process</p>	<p>โอกาสของการมีส่วนร่วมของประชาชนใน กระบวนการทาง HIA สำหรับกรณีศึกษาผลกระทบต่อ สุขภาพจากโครงการเหมืองแร่โพแทช จังหวัด อุตรดิตถ์ Opportunity that stakeholders could get involved in the HIA process.</p>	<p>Public participation activities in the HIA process</p>	<p>PubPar</p>	<p>PP</p>	<p>Involvement of stakeholders in the process</p>
<p>1.5 <u>ความเชื่อถือได้และข้อมูลที่</u>ได้จากการทำ HIA หรือจากรายงาน HIA</p> <p>The credibility and informativeness of the HIA</p>	<p>ผู้มีอำนาจในการตัดสินใจมีความเข้าใจ การยอมรับ และการให้ความสำคัญกับ HIA ประกอบการตัดสินใจ To what extent that the decision makers could understand the content of the HIA report and agree that the predictions and suggestions should be taken into account</p>	<p>Credibility/ informativeness of the HIA</p>	<p>Cred-Infomve-CapDm</p>	<p>CICDm</p>	<p>Capacity of HIA to present sound and understandable evidence for the decision making process with valid predictions and argumentation.</p>

1.5 <u>ความเชื่อถือได้และข้อมูลที่</u> ได้จากการทำ HIA หรือจากรายงาน HIA(ต่อ) The credibility and informativeness of the HIA	การแจ้งผลการศึกษา HIA ให้กับผู้มีส่วนได้ส่วนเสียที่มีส่วนร่วมในกระบวนการ HIA The process to deliver the HIA report or its findings to participating stakeholders	Credibility/ informativeness of the HIA	Cred-Infomve-DelSt	CIDSt	Delivering the report to participating stakeholders
2.1 <u>การบังคับใช้ HIA ตามกฎหมาย</u> ประกอบกระบวนการตัดสินใจ Regulatory framework on implementing HIA in decision-making	การมีหรือไม่มีกฎข้อบังคับหรือกรอบกฎหมายที่บังคับใช้ HIA ประกอบการตัดสินใจ Availability of regulatory framework for HIA and its implementation in decision-making process	Regulatory framework on implementing HIA in decision-making	RegImHIADm	RIDm/ GDA	Regulatory framework on implementing HIA in decision-making process in terms of availability/ sufficiency/ coverage of the projects or public policy making/ Governance of decision-making
2.2 <u>กลไกของกระบวนการตัดสินใจ</u> ในการพิจารณาผลกระทบทางสุขภาพของประชาชน The mechanism in decision making context on considering population health impact in project or public policy development in Thailand	การตัดสินใจของผู้มีอำนาจในการตัดสินใจหลังจากมีการเสนอรายงาน HIA – HIA ถูกนำมาใช้ในการพัฒนาโครงการหรือไม่ Decision-making concerning HIA in the project development	Mechanism in decision making context on considering HIA	MecDmC	MDC	Incorporation of proposed changes - HIA was taken into account in the final version of the programme
		Mechanism in decision making context on considering HIA	MecDmIn	MDI	Informed decision-making
	ความร่วมมือ หรือ การประสานงานระหว่างผู้ดำเนินการประเมินผลกระทบทางสุขภาพ กับผู้พัฒนาโครงการนี้ the collaboration between HIA practitioners and the project developer	Mechanism in decision making context on considering HIA	MecDmCC	MDCC	Close collaboration between HIA practitioners and project or programme or developers.
	ลักษณะการดำเนินการ HIA สำหรับโครงการนี้ (ก่อนหรือ ระหว่างหรือ (ควบคู่) หลังการจัดทำแผนพัฒนาโครงการ,กระบวนการ HIA ที่เหมาะสมสำหรับกรณีนี้ How this HIA was conducted: before; in parallel; or after the planning of this project development	Mechanism in decision making context on considering HIA	MecDmPd	MDP	Parallel development - the HIA and programme developed alongside one other with considering cross-cutting between the processes.

<p><b>2.2 กลไกของกระบวนการตัดสินใจในการพิจารณาผลกระทบทางสุขภาพของประชาชน(ต่อ)</b> The mechanism in decision making context on considering population health impact in project or public policy development in Thailand (cont)</p>	<p>การเริ่มต้นกระบวนการ HIA สำหรับโครงการนี้ และความเหมาะสมของช่วงเวลาดังกล่าวที่เริ่มต้นนั้น</p> <p>The start of HIA process and its appropriateness of timing</p>	<p>Mechanism in decision making context on considering HIA</p>	<p>MecDmEs</p>	<p>MDE</p>	<p>Early start - the HIA process was initiated at the very first stages of project/ programme development</p>
	<p>การเริ่มต้นเครือข่ายหรือการร่วมมือ ระหว่างสถาบัน จากกระบวนการทาง HIA</p> <p>Initiation of networks and cooperation between relevant organisation</p>	<p>Mechanism in decision making context on considering HIA</p>	<p>MecDmIR</p>	<p>MDIR</p>	<p>Institutional relations and other benefits after the HIA process</p>
	<p>ความรู้ด้านกฎระเบียบ หรือข้อบังคับเกี่ยวกับ HIA ที่ผู้มีอำนาจในการตัดสินใจมี และช่องทางในการได้รับความรู้ หรือคำปรึกษา การให้ความสำคัญกับการพิจารณา HIA ในกระบวนการตัดสินใจของผู้ที่มีอำนาจในการตัดสินใจ</p> <p>Knowledge on HIA and its relevant regulations that decision-makers had in accordance with the roles of statutory consulting team</p>	<p>Mechanism in decision making context on considering HIA</p>	<p>MecDmSsc</p>	<p>MDS</p>	<p>Successful statutory consultation - there is a fair opportunity for the statutory consulting team to contribute their comments to allow decision-makers to take them into account</p>
	<p>การบริหารจัดการ Governance ของหน่วยงานตัดสินใจ (Governance hierarchy and administration in decision-making organisations)</p>		<p>GovDmA</p>	<p>GDA</p>	<p>Governance of decision-making and its authority</p>
<p><b>2.3 การพิจารณาการตอบรับของผู้มีส่วนได้ส่วนเสีย และการมีส่วนร่วมของประชาชน</b>ในการประเมินผลกระทบทางสุขภาพจากโครงการนี้ Response from stakeholders and public participation on this project</p>	<p>ประชาชน หรือกลุ่มผู้มีส่วนได้ส่วนเสียได้รับโอกาสในการแสดงความคิดเห็น ในกระบวนการ HIA</p> <p>ความคิดเห็นจากประชาชน ได้รับความสำคัญจากผู้มีอำนาจในการตัดสินใจ</p> <p>the stakeholders had a fair opportunity to share their ideas in public consultation structure and this was taken into account</p>	<p>Response from stakeholders and public participation on this project</p>	<p>ResPubPar</p>	<p>RPP</p>	<p>Successful public consultation - the public consultation structure had a fair opportunity to contribute their idea and this was taken into account</p>

<p><b>2.4 คุณภาพ ความถูกต้อง และ ความง่ายในการเข้าใจเนื้อหาของรายงานผลกระทบทางสุขภาพจากโครงการนี้</b></p> <p>The quality, accuracy, and understandability of impact assessment report</p>	<p>คุณภาพ ความถูกต้อง และ ความง่ายในการเข้าใจเนื้อหาของรายงาน</p> <p>The quality, accuracy, and understandability of impact assessment report</p>	<p>The quality, accuracy, and understandability of impact assessment report</p>	<p>ReptQual</p>	<p>RQ</p>	<p>Satisfactory/ comments in implementing HIA in decision-making process</p>
<p><b>3.1 ความคุ้มค่าของทรัพยากร และเวลาที่จำเป็นต้องใช้ในการประเมินผลกระทบทางสุขภาพ</b></p> <p>Investing the resources and time in conducting the HIA process</p>	<p>ความเพียงพอของระยะเวลาที่ใช้ในกระบวนการ HIA และผลที่ได้คุ้มหรือไม่สำหรับกรณีศึกษานี้</p> <p>Reasonable period of time for this HIA process</p>	<p>Investing the resources and time in conducting the HIA process</p>	<p>ResorInvT</p>	<p>RT</p>	<p>Time - HIA was carried out within a reasonable period without undue delay or within a very short time period.</p>
	<p>ความเพียงพอของงบประมาณที่ใช้ในกระบวนการ HIA และผลที่ได้คุ้มหรือไม่สำหรับกรณีศึกษานี้</p> <p>sufficient financial resources invested in the HIA process</p>	<p>Investing the resources and time in conducting the HIA process</p>	<p>ResorInvFn</p>	<p>RF</p>	<p>Financial resources.</p>
	<p>ทักษะและความชำนาญของทีมจัดทำ HIA</p> <p>Sufficient skills that HIA practitioner team have for the task</p>	<p>Investing the resources and time in conducting the HIA process</p>	<p>ResorInvSk</p>	<p>RS</p>	<p>Skills - the acquiring of skills and personnel required for the HIA did not cause a big burden</p>
	<p>ความเหมาะสมของบทบาท ความรับผิดชอบที่ทีมจัดทำ HIA ได้รับ</p> <p>Appropriateness of the role and responsibilities of HIA practitioners</p>	<p>Investing the resources and time in the HIA process</p>	<p>ResorInvRo</p>	<p>RR</p>	<p>Specification of roles - responsibilities were clearly defined and allocated. The tasks were undertaken by the most appropriate subjects.</p>
	<p>จำนวนทรัพยากรบุคคลที่มีในการศึกษา HIA (additional findings- qualified human resource availability to conduct HIA)</p>	<p>Investing the resources and time in the HIA process</p>	<p>ResourcHu</p>	<p>RH</p>	<p>Human resource availability</p>

<p>4.1 ผลลัพธ์ ผลสัมฤทธิ์ หรือการเปลี่ยนแปลงจากการมีกระบวนการ HIA และการที่นำ HIA มาใช้ประกอบการตัดสินใจเพื่อพัฒนาโครงการ หรือนโยบาย</p> <p>Consequences/ outcome/ or changes prior to the result of HIA process and its implementation in decision-making</p>	<p>การเปลี่ยนแปลงนโยบายที่เกี่ยวข้องหลังจากกระบวนการ HIA</p> <p>Change in the policy framework after the HIA process</p>	<p>Consequences/ outcome/ or changes prior to the result of HIA process and its implementation in decision-making</p>	<p>ConRelPol</p>	<p>CRP</p>	<p>Adjustment of relevant policy framework concerning the normative goal achieved in term of changes of views.</p>
	<p>การเรียนรู้ การรับรู้ และการได้รับบทเรียนจากกระบวนการ HIA ของผู้ที่มีส่วนเกี่ยวข้องกับกระบวนการนี้</p> <p>Public learning process, perception, and lessons gained from the HIA process</p>	<p>Consequences/ outcome/ or changes prior to the result of HIA process and its implementation in decision-making</p>	<p>ConLea</p>	<p>CL</p>	<p>Learning process, perception, and lesson learnt from HIA/definition of HIA in their perception</p>
	<p>การทบทวนบทบาท หรือแนวคิดของสถาบันหรือหน่วยงานที่เกี่ยวข้องกับการทำ HIA</p> <p>Revisions for changes in relevant institutions after the HIA process</p>	<p>Consequences/ outcome/ or changes prior to the result of HIA process and its implementation in decision-making</p>	<p>ConRelIns</p>	<p>CRI</p>	<p>Development or changes in relevant institutions (Government sectors and Non-Government sectors=project developer / Consulting company)</p>
	<p>คุณภาพชีวิต หรือสุขภาพของประชาชนหลังจากกระบวนการทาง HIA</p> <p>Improvement of population health and their quality of life after the HIA process</p>	<p>Consequences/ outcome/ or changes prior to the result of HIA process and its implementation in decision-making</p>	<p>ConQuaLi</p>	<p>CQL</p>	<p>Improvement or changes of health and quality of life</p>

## **Appendix 4.2 Identifying codes and recoding in free nodes by NVivo subsequently**

After the initial coding as presented in **Appendix 4.1**, the coded quotes were transferred to NVivo programme in order to organise/ recode the quotes that tallied with the conceptualised effectiveness criteria framework, and additional issues found from the interviews, prior to refining and verifying the data. The column ‘Initial codes’ from **Appendix 4.1** is shown along with a ‘Recodes’ column in the table below. The number of sources and references represented for each code in the table below shows the range of perceptions about knowledge related to a particular criterion. At this stage the data can be reported systematically, using the software package functions, so that the findings can be analysed and interpreted systematically.

Recodes	Initial codes	Sources	References	Created On	Created By
AP3-influences of admin in integrating HIA in planning process	PIP,GII	1	1	2/2/2011 12:12	Chaunjit
AP4-HIA funds after Potash HIA (but not at present)	Fnc	1	1	2/2/2011 12:11	Chaunjit
Definition of HIA	HIADT	15	38	4/2/2011 12:26	Chaunjit
effectiveness of IA tools	Eff	6	8	6/2/2011 20:42	Chaunjit
EIA framework	PFQH,PFGR,PFGL,CTC, MP	3	8	6/2/2011 20:32	Chaunjit
Potash EIA	PFQH,PFGR,PFGL,CTC, MP	8	17	7/2/2011 13:10	Chaunjit
SEA methodology	-	1	1	6/2/2011 20:29	Chaunjit
P1-HIA Policy framework and guideline	PFQH,PFGR,PFGL,CTC, MP	23	84	23/1/2011 17:16	Chaunjit
P2-Institutional infrastructure	PIP	26	67	23/1/2011 17:17	Chaunjit
P3-Integrating HIA in planning process	PIP,GII	21	38	23/1/2011 17:18	Chaunjit
P4-Availability of funds for HIA	Fnc	9	9	23/1/2011 17:19	Chaunjit
P5-Involvement of stakeholder in HIA process	PP	27	101	23/1/2011 17:19	Chaunjit
P6-Capacity of HIA to present as a clear evidence for DM	CICDm	29	57	23/1/2011 17:20	Chaunjit
P7-Delivering the report to DM and stakeholders	CIDSt	22	44	23/1/2011 17:21	Chaunjit
S1-Regular framework on implementing HIA in DM and Governance of DM and its authority	RIDm, GDA	21	38	23/1/2011 17:29	Chaunjit
S2-Incorporation of proposed change	MDC	28	67	23/1/2011 17:32	Chaunjit
S3-Informed decision-making	MDI	24	49	23/1/2011 17:33	Chaunjit
S4-Close collaboration	MDCC	18	31	23/1/2011 17:35	Chaunjit
S5-Parallel development	MDP	18	20	23/1/2011 17:37	Chaunjit
S6-Early start	MDE	20	38	23/1/2011 17:38	Chaunjit
S7-Institutional and other benefits	MDIR	25	38	23/1/2011 17:39	Chaunjit
S8-Successful statutory consultation	MDS	19	41	23/1/2011 17:40	Chaunjit
S9-Successful public consultation	RPP	25	104	23/1/2011 17:42	Chaunjit
S10-Satisfactory and comments	RQ	19	23	23/1/2011 17:44	Chaunjit
T1-Time	RT	11	16	23/1/2011 17:45	Chaunjit
T2-Financial resources	RF	7	9	23/1/2011 17:46	Chaunjit
T3-Skills	RS	13	22	23/1/2011 17:46	Chaunjit
T4-Specification of roles	RR	12	25	23/1/2011 17:47	Chaunjit
T5-Human resource availability	RH	9	12	23/1/2011 17:48	Chaunjit
N1-Adjustment of policy framework	CRP	23	68	23/1/2011 17:49	Chaunjit
N2-Lessons learned from HIA process	CL	28	91	23/1/2011 17:50	Chaunjit
N3-Development of changes	CRI	26	78	23/1/2011 17:52	Chaunjit
N4-Quality of life	CQL	11	18	23/1/2011 17:53	Chaunjit
OP1-HIA framework at present	PFQH,PFGR,PFGL,CTC, MP	20	92	2/2/2011 11:44	Chaunjit
OP2-Cooperation between sectors at present	PIP	7	22	3/2/2011 20:14	Chaunjit
OP4-suggestion for HIA funding management	Fnc	3	4	2/2/2011 12:15	Chaunjit
OP5-public participation at present	PP	10	26	4/2/2011 13:08	Chaunjit
OP6-capacity of HIA at present	CICDm	3	4	6/2/2011 16:36	Chaunjit
OS1-Implementing HIA in decision making	RIDm, GDA	7	14	2/2/2011 20:30	Chaunjit
OS2-implementing HIA in final version at present	MDC	1	3	6/2/2011 13:11	Chaunjit
OS3-Informed decision at present	MDI	4	7	2/2/2011 20:43	Chaunjit
OS4-Close collaboration at present	MDCC	3	7	6/2/2011 14:03	Chaunjit
OS5-parallel dev at present	MDP	1	1	8/2/2011 13:49	Chaunjit
OS7-institutional and other benefit at present	MDIR	5	7	6/2/2011 16:10	Chaunjit
OS8-successful statutory consultation at present	MDS	5	6	6/2/2011 15:47	Chaunjit
OS9- Successful public consultation at present	RPP	11	15	1/2/2011 17:36	Chaunjit
OT2- Budget for HIA at present	RF	1	1	3/2/2011 21:12	Chaunjit
OT3-required skill for HIA at present	RS	4	6	3/2/2011 20:09	Chaunjit
OT4- HIA skills at present	RR	2	2	6/2/2011 13:13	Chaunjit
OT5- Human resource for HIA at present	RH	9	15	3/2/2011 21:13	Chaunjit
ON1-Adjustment of relevant policy framework at present	CRP	4	6	2/2/2011 11:58	Chaunjit
ON2- Lessons learned from HIA at present	CL	6	15	1/2/2011 17:37	Chaunjit
ON3- Development of changes at present	CRI	9	19	1/2/2011 17:42	Chaunjit
ON4- quality of life at present	CQL	1	2	6/2/2011 15:55	Chaunjit

**Appendix 4.3** Example of coding on one of the findings about lessons learned from HIA (Code:N2) At this stage, data transferred to NVivo as explained in **Appendix 4.2** provides a coding summary on a particular criterion (as seen in node) and particular interviewees (as seen in sources), or groups of them, so that different perspectives reflected from the interviewees can be categorised. These reports of the coding summary can be investigated, compared, contrasted, justified, and discussed.

**Memos\Data\11-PHAP**

**Memo**

Node Coding

**N2-Lessons learnt from HIA process**

Coverage 13.12%

Reference 1 of 7 Coverage 1.31% Character 1035-1665

11-PHAP-003 (บทเรียนที่ได้จากตรงนี้มีมันได้อะไรบ้าง HIA ตัวนี้มันมี effect ต่ออะไรที่เกี่ยวข้องหรือเปล่า อย่างเช่นกลุ่มผู้มีอำนาจในการตัดสินใจ หรือว่ากลุ่มที่มีส่วนได้ส่วนเสียอื่นๆ ก็เลยจะดูผลเป็นประสิทธิภาพในเชิงของการนำ HIA ไปใช้ประโยชน์) หลังจากนั้นก็คือ สิ่งสำคัญมันทำให้ประชาชนในพื้นที่โครงการได้มีการตื่นรู้ ได้เข้าใจว่ากระบวนการศึกษาผลกระทบอะไรแบบนี้เราก็เข้าถึงมันได้ เราก็จะสามารถที่จะนำมันไปใช้เป็นการสร้างความรู้ความเข้าใจของเราต่อโครงการแล้วก็แง่มุมต่างๆ ที่เกี่ยวข้องกับคุณภาพชีวิตของเราได้ คือเป้าหมายจริงๆ มันน่าจะอยู่ตรงนั้น มันไม่ได้อยู่ที่จะต้องไปทำให้เกิดการพบทวนอะไรเลย เพราะว่าอันนั้นมันยังไม่มีกฎหมายอะไรรองรับ

*“The lessons learned from this HIA have made the local people realised that they could approach impact assessment processes related to the project development, in their communities, by taking part within the processes. This could lead to building more understanding and knowledge on project development related to their quality of life in the community” (PHAP #11) – Translated from Thai note*

**Linked with** the findings presented in second paragraph in Chapter 6, summarised about learning process based on the interviewees’ perspectives as *“the HIA process could generate a learning process at all levels that could bring about knowledge gain based on actual practice in a particular context, which is different in various case”* (GSHF #2, PHAP #11, p.244).

**Memos\Data\2-GFHF**

**Memo**

Node Coding

**N2-Lessons learnt from HIA process**

Coverage 13.12%

Reference 2 of 5 Coverage 1.84% Character range 4553 - 4922

2-GSHF-010 (Do you think Potash mining HIA has become an example for project development planning for other mining project?) I think one essential direction for HIA development at present is to generate learning process at levels in the society from the bottom to top policy level. So, this case could be an example showing the learning process among the participants.

Translated from “ ทิศทางอันหนึ่งที่สำคัญของการพัฒนา HIA ปัจจุบันคือ เพื่อให้เกิดการเรียนรู้ในทุกระดับของสังคม ตั้งแต่ชาวบ้านจนถึงระดับ Top policy.....ซึ่งเคสนี้ก็ถือว่า สร้างความเข้าใจ สร้างกรณีศึกษาให้คนอื่นมาเรียนรู้ต่อ ให้ชาวบ้านได้เข้าใจ.....” (2-GSHF)

**Linked with** the findings presented in second paragraph in **Chapter 6**, summarised about learning process based on the interviewees’ perspectives as *“the HIA process could generate a learning process at all levels that could bring about knowledge gain based on actual practice in a particular context, which is different in various case”* (GSHF #2. PHAP #11. p.244).

