Health Impact Assessment and the Improvement of Economic Assessment:

Reflections and an Initial Proposal from Recent Experiences in Thailand

Decharut Sukkumnoed
Suphakij Nuntaworakarn
Nuntana Sabrum
Healthy Public Policy & Health Impact Assessment Program
Health Systems Research Institute, Thailand

1. Introduction

Health Impact Assessment (HIA) in Thailand has been developed in Thailand since 2001, as a social learning process towards the development of healthy public policy within the National health system reforms[1]. As the social learning process, several ideas and practices have been suggested, tried, and evaluated during the first phase (2002-2004) of HIA development. Presently, in moving into the second period (2005-2008) with more effective strategies, several initiatives and frameworks have been actively discussed together with practical experiences. This paper also deals with the reflective thinking about the suggestion to integrate HIA with a conventional economic assessment and its critical reflections from our grounded experiences.

Since various decisions, not only in Thailand, have been made with referring to economic assessment, the integration between HIA and economic assessment is always recognized as one of the most critical links for the development of healthy public policy. Obviously, many HIA researchers would like to turn their health impact arguments (or suggestions) into more influential and clear-cut economic arguments. In their view, if all health costs and benefits can be properly included in cost-benefit analysis (CBA) or play in the same ground with other costs and benefits, the decision-makers will move towards healthier public decision-making.

However, in reality, the issues of health impacts and decision-making process are much more complicated. Due to the different historical roots, HIA and economic assessment, at least in Thailand, seem to rely on different philosophies and assumptions on how the decision should be made and how impacts should be perceived by decision-makers and stakeholders. Evidently, in practice, the integration between HIA and economic assessment usually means

---

[1] For detail see Wiput Phoolcharoen et al, 2003. "Development of Health Impact Assessment in Thailand: Recent Experiences and Challenges" in *The Bulletin of the World Health Organization*, 81(6), p.465-467.

converting health costs into CBA. In other word, the economic philosophy and assumptions become the backbone of decision-making process with health information added from HIA contribution.

This paper argues that this is not the most appropriate direction from health perspective. The HIA case studies in Thailand show the main differences between our experiences and assumptions within economic assessment, especially within CBA. These differences urge us to think about this integration much more carefully. Furthermore, thinking about these differences can also provide us the ways to improve the economic assessment in order to promote healthy public policy in Thailand. This paper aims to share our reflections and initial proposal for the improvement in economic assessment with the global HIA community in order to develop the road map for the second phase of our HIA development.

2. The Assumptions of Conventional Economic Assessment

Conventional economic assessment, especially the cost-benefit analysis (CBA), becomes more and more popular as decision-making support tools in policy-making, public regulations, sectoral planning and specific investment projects. The main advantages of conventional economic approach, especially CBA, in supporting decision-making are its ability to express (a) in aggregate term; i.e. at the societal level, (b) in only two main dichotomies, i.e. as benefits and costs (c) in only single value or criteria, i.e., in monetary terms and (d) at only one point of time; i.e. discounted all future benefits and costs into present values.

When CBA has been applied in environmental and health management, all environment and health impacts are subjected to be transformed into the present monetary values of costs and benefits and compare with other benefits and costs, mainly economic ones, within each decision-making concern. The continuous improvement in economic valuation techniques of health and environmental impacts makes the economic approach, especially CBA, to become mainstream approach in comparing different impacts within decision-making process.

All conventional economic assessment tools are found on the principle of neo-classical welfare economics. Therefore, they contain all five basic assumptions of welfare economics, which, as the main point of investigation in this paper, determine the appropriateness of their applications in decision-making process.

2.1 Aggregation of Individuals' Preferences

The first basic assumption of CBA derived from welfare economics is the social aggregation of individuals' preferences. Based on this assumption, society can choose what should be done by the comparison of aggregate individual preferences of different societal options. To compare with others, the individual preferences usually refer to willingness to pay of each member, both in actual market transaction, surrogate market, or the calculation of willingness to pay. This assumption goes in line very well with the liberal democratic concepts that the public decision should be based on the aggregation of individuals' preferences[2].

---

[2] Graham Smith, 2003. *Deliberative Democracy and the Environment*. Routledge. www.routledge.com

2.2 Commensurability of Societal Values

Not only can all individuals' preferences be calculated, aggregated and, then, compared, but also, within welfare economics assumption, the different societal values can also be compared with each other in the same ground, that is economic ground, through individuals' willingness to pay concept. In other words, all societal values can be commensurable in one value that is the value of money. Various advanced economic valuation techniques have been developed in trying to convert all societal values into monetary term.

2.3 Compatibility of Societal Values

Comparing different societal values of each individual in monetary term does not only imply the commensurability of societal values as discussed earlier, but also assume the compatibility of societal values. This is because it implies that society will be better off if the loss of one societal value is relatively, in monetary terms, lower than the gain of other societal values. Just like substitution of competitive goods in basic economic concept, society can and will determine the appropriate substitution of different societal values through the exercises of individuals' preference and willingness to pay.

2.4 Allocational Efficiency within the Society

Certainly, public decision-making always leads to distributional effects by having the winners and the loser. In economic theory, Kaldor-Hicks compensation criterion has been developed to ensure that the gainers can compensate the losers and still have net gain left over. Thus, all members in the society are not worst-off from the decision-making. In other words, it reaches the criteria of Pareto optimality or an increase in utility across society without any individuals' utility being reduced. This can be seen as an assumption of allocational efficiency within the society. Usually, the application of CBA implicitly assumes this allocational efficiency and thereby suggested that, society should take policies or projects that have a positive net present value, since they potentially allow this Kaldor-Hicks compensation criterion to be implemented [3].

2.5 Fixed Individual Preferences

To aggregate all social values and individual preferences through the calculation of market values and willingness to pay, the assumption of fixed individual preferences is required. Otherwise present market values of any impacts gained or lost will be meaningless for the calculation of benefits and costs of future impacts[4]. Furthermore, this fixing preference assumption and its following willingness to pay also assumes that individuals have perfect information and market transaction is also functioning perfectly. This underlying assumption can be seen in almost all economic valuation techniques.

---

[3] Graham Smith, 2003. Ibid.
[4] Graham Smith, 2003. Ibid.

3. Learning from Health Impacts

Since almost all present economic assessment tools for decision-making are relating to the comparison of benefits and costs of specific projects and activities, the understanding of those benefits and costs is very essential. The characteristics of benefits and costs determined the ways to calculate and compare those specific costs and benefits in philosophical, theoretical and methodological levels. Unfortunately, apart from calculation them, many economists do not pay enough attention to analyze the characteristics of benefit and costs, or impacts, deeply enough to re-check their philosophical, theoretical and methodological appropriateness.

The increasingly concerned benefits and costs today are health impacts. Health impacts are recognized as one of the most sophisticated impacts in impact assessment field. From various HIA case studies conducted in Thailand in the last three years, several main observations of health impacts from development processes and activities can be summarized, with the ultimate aim to improve decision-making related to health in general and application of economic assessments for decision-making in particular.

3.1 Complex Relationship and Incompatibility of Health Determinants

From several cases, it is quite observable that the health impacts are located on the complex relationship of several determinants of health. The case of Pak Mun hydropower dam shows that constructing the dam that block the natural fishery migration resulted in lower food security, limited fishery income, poorer water quality, emigration and social conflicts, which all have interactive impacts on human health[5]. The changes in one determinant of health usually lead to the changes in other health determinants and then together create interactive impacts (positive or negative, increasing or decreasing) on human health of people.

Furthermore, another observation of several HIA cases in Thailand also suggests the concepts of *"incompatibility"* of health determinants. Since the health of people has evolved and maintained by the web of several indispensable determinants (or aspects), or so-called *"the life supports"*, the losses in one or some health determinants may not easily be offset by the increasing or improving in other health determinants. It is clear in Mab Ta Put case that the higher economic opportunities from industrial development cannot prevent, alleviate, or compensate for several illnesses of local people from industrial pollution and social insecurity [6].

This observation suggested that, in health perspective, the basic economic assumption of Kaldor-Hicks compensation criterion might not work automatically, especially when it is based mainly on monetary compensation. This is because several health determinants might not be purchased, or easily built, or compensated by other health determinants. Some of them need long-term ecological evolution or socially constructing processes.

---

[5] Decharut Sukkumnoed and et al., 2003. *Integrated Impact Assessment of Managing Pak Mun Hydropower Dam: The Future of the Mun River and the Health of Its People*. Paper Presented in IAIA03, Marrakesh, Morocco, Health Systems Research Institute, Thailand.

[6] Decharut Sukkumnoed and Penchom Tang, 2002. Ibid.

It is also very important to note that, in fact, unlike theoretical assumption, such compensation is hardly implemented in Thai society. As stressed by Sen[7], *"the losers could include the worst off and the most miserable in the society, and it is little consolation to be told that it is possible to compensate fully, but ('good God') no action plan to do so"*. The case of Pak Mun dam is just one of many cases to prove how difficulty for the health losers to claim for government compensation[8]. One can easily observed that allocational efficiency is hardly occurred within the contexts of power inequality.

3.2 Long-term and Irreversible Health Impacts

For several health impacts, once they occurred, both slowly or suddenly, they are usually last long or unable to return to previous healthy situations or status. The accident and chronic disease are probably the obvious general examples. In case of Mae Moh Lignite power plant, although the power plant have tried to reduce its sulpher emission in the recent years, the number of local people with respiratory disorders have not decreased easily due to previously long-term exposure and illness before[9]. When high rises have been flourished allover the ancient city of Chiang Mai, HIA case study found that the spiritual health of local people have been and will be negatively affected for quite a long time, probably forever[10].

Of course, ones should not think that our society and our health would be stable forever. However, if the changes will lead to long-term and irreversible impacts, especially undesirable impacts for some members of our society, we should reconsider our intention for changes much more carefully. Since long-term and irreversible negative health impacts in many cases mean the limitation of affected people to fulfil their aspiration and reach their potentials, these impacts should be given more weight in decision-making processes, especially within sustainable development perspective.

This leads to the suggestion that the economic application of social discount rate, i.e. to reduce all future social costs and benefits into lower present monetary values, may not be appropriate for societal decision-making, when irreversibility of health impacts are significant and undesirable. The society needs far-sighted economic analysis to ensure that present and future human capabilities, including better health, of our members will not be lost only or mainly for the sake of short-term benefits.

---

[7] Amartya Sen, 1987. *On Ethics & Economics*. Blackwell Publisher.
[8] Decharut Sukkumnoed and et al., 2003. Ibid.
[9] Healthy Public Policy and Health Impact Assessment Program, 2003. *Case Study: Health Impacts from Mae Moh Lignite Powerplants*. In Thai. www.hpp-hia.or.th .
[10] Danai Klawlaew and Duangchan Apawatcharakupata, 2003. *High Rises: Health Impacts and Future of Chiang Mai City*. In Thai. Foundation for Urban Development and Health Systems Research Institute.

3.3 Differentiation and Unequal Distribution of Health Impacts

It is obvious in all HIA cases in Thailand that health impacts are varied among different groups of people. The differentiation of health impacts results from various factors, including geographical, biological, socio-economic factors. It mainly depends on whom, how, when, and how long they get exposure from health risks or live in poor health determinants. In those situations, it also relates to their coping capabilities and strategies, which are also varied among affected people. Therefore, the disaggregation approach is highly recommended to understanding health impacts and to determining the appropriate actions, as always suggested in HIA Guidelines.

From differentiation of health impacts, it can be observable that the distribution of health impacts, either positive or negative, are hardly equal among different stakeholders. It is also evident that the distribution of health impacts is also related to the distribution of wealth and power in the society. In other words, the poorer groups in the society usually get more serious health impacts. The reasons probably link to the facts that they usually live in poorer working and living conditions and have limited coping capabilities, including political power in decision-making processes. Moreover, as mentioned before, within power inequality contexts, compensation mechanism does not work as it is wished in theory.

The Pak Mun dam case shows clearly that the poorer group, e.g. the landless fishermen, has faced the most serious health impacts both in terms of food security and social aspects of health. Even when the dam gate was open in 2001 for ecosystem recovery, they are still the lowest group in gaining benefits in terms of improving their economic and health status, due to their limited fishery investment capacities[11]. Thus, apart from disaggregation analysis as suggest earlier, the distributional effects and coping capabilities is needed for much closer investigation in order to avoid expanding of inequality within the society.

3.4 Incommensurability of Different Values on Health

From case to case, HIA researchers in Thailand found that different people usually have different values and views on health. The differences can be seen in three main ways; (a) the significance or prioritization of health in decision-making, (b) the focus on different aspects of health, i.e. different focus on physical, mental, social, and spiritual health, and (c) the focus on different health determinants.

These three differences are highly obvious in many cases. For example, in case of HIA of high rises in Chiang Mai, the officials seem not to pay much higher attention to health, since for them, there are no proven evidence on the relationship between high rises, air pollution, and physical health impacts. On the contrary, local people thought their spiritual health is highly affected due to the loss of local identity as a unique historic city, which should be taken more seriously in decision-making processes[12].

---

[11] Decharut Sukkumnoed and et al., 2003. Ibid.
[12] Danai Klawlaew and Duangchan Apawatcharakupata, 2003. Ibid.

In general, it can be said that two different views and values on health are playing their critical roles in HIA cases in Thailand. The first view may be referred to *"environmental health"* or tight perspective on health impacts, mainly looking for specific cause-effect relationship with the clear indicators and thresholds, including health costs. The second view may be called *"ecosystem health"* or broad perspective, searching for broader and integrated explanation of health impacts, including the interaction of several determinants on health[13]. The discussions and sometimes debates between these two views or values on health occur in all HIA cases.

The observation from the discussions and debates suggests that these different values on health are hardly compatible and commensurable with others[14]. The attempts to combine all health values into one main criterion, such as some epidemiological studies or CBA, are likely to increase the opportunities of conflict rather than the consensus. The better strategy should rely more on the recognition and integrated impact assessment of different values on health. This should be seen as the real challenge for the progress of HIA and economic assessment, as well as for deliberative public decision-making processes.

3.5 Uncertainties of Health Impacts

The last observation from HIA case in Thailand is high uncertainties of health impacts due to (a) the complication of health determinants and impacts, (b) different values on health, (c) lack of evidence-based information, and (d) uncontrollable future conditions and actions, including cumulative impacts from other relating sources.

The importance of this issue is not only how to reduce the uncertainties, which sometimes is not possible due to many limitations, but also how to make decision within uncertainty situations. It is clear that, in some cases, uncertainties of future health impacts was used either by opponent groups to against specific proposals or by project developers to ignore or undermine the health arguments and continue what they plan to do. In this way, the polarization may occur, resulted in conflict intensification and deadlock in decision-making process.

In principle, to cope with uncertainties, first, all uncertainties that may significantly affect on health need to be fully aware. Second, all possible pathways of uncertainties and health impacts should be explicitly and carefully considered, including their contributing factors or conditions. Third, all possible options in coping with these uncertainties and impacts are identified and discussed. All these attempts aim to provide insightful information for better communication and understanding about uncertainties and their health impacts before reaching the conclusion.

Unfortunately, most of HIA cases in Thailand do not yet succeed in these attempts. Moreover, economic assessment seems to focus mainly on the calculation of some uncertainties, rather than using their knowledge to analyze and understand all possible pathways and factors of uncertainties, as well as all possible options in coping with these uncertainties, which, in fact, partly depend on economic behavior, conditions, and rationales of different actors. Therefore, the issues of irreversibility and uncertainties cannot yet be tackled successfully in Thailand.

---

[13] See Jean Lebel, 2003. *Health: An Ecosystem Approach*. International Development Research Centre, www.idrc.ca.

[14] More detail discussion on the issues of incompatibility and incommensurability of values see Graham Smith, 2003. Ibid.

4. Learning from Healthy Public Policy and Decision-Making

Since HIA development in Thailand has a clear target in healthy public policy formulation, the active participation in decision-making become an essential part of this development. This leads to opportunities for HIA researchers to gradually take closer look at the decision-making, which, of course, will determine the ways that HIA and economic assessment should be conducted within decision-making processes. The three main observations will be discussed in this section.

4.1 Policy Formulation and Decision-making Style

Most of HIA cases in Thailand have related to centralized-sectoral policy-making and planning. The centralized policy-making implies that the decision-making is typically more sensitive to the aggregate benefits and costs (in Thailand usually referred to "*nation benefits or national interests*") than different local concerns. This sectoral policy and planning style implies that the integration of problem analysis and definition is normally lack. Moreover, it is also obvious that the aggregate economic interests, such as GDP, agricultural expansion and lower electricity tariffs, are dominated the sectoral policy making and planning. Therefore, within each centralized sectoral policy formulation, health is far from being main concern in decision-making process and policy formulation

Consequently, decision-making process of which HIA takes part, usually take fixed points of departure, as the well-planned solutions for national interests. The technical solutions have always put forwards without any significant changes in policy directions and institutional changes. With the fixed point of departure, there are limited rooms for other alternative ways of defining and solving the problems. Furthermore, the dominant concepts or policy directions, technical solutions and aggregate economic interests play important roles in blocking or underrating the discussions and arguments from other important values or aspects, including health. In other words, HIA researchers have face great difficulties in persuading for healthier decisions within this "Decide-Announce-Defend" model.

Third, the official opportunities for HIA information to take part of decision-making usually come very late, i.e. only in EIA procedure. Moreover, technical research and quantifiable norms are much more welcome for decision-maker than the local evidence or holistic concerns of health impacts. This leads to incomplete understanding of health impacts as discussed in previous section.

All these observations suggest that, within this policy style, the interconnection of health and economic aspects is very important. Concurrently, the early participation of HIA and economic assessment in decision-making process is extremely essential. By following these suggestions, it is very important to encourage for intersectoral policy formulation and planning as better entry points for health considerations in various sectoral policy-making. HIA and economic assessment should play an active role in integral problem analysis, including health aspect, as an important point of departures.

4.2 Significant Roles of Societal Values on Health

According to Thailand's HIA core-values, HIA does not aim only to provide information on health impacts for decision-making, but also to raise the awareness or the societal values on health in public decision-making processes as well[15]. Therefore, the roles of HIA in promoting societal values on health and, consequently, the roles of societal values on health in decision-making processes are very important. The values on health determine the demand for health knowledge and information, both for decision-makers, different stakeholders, and general public. The values on health also shape the ways in which health impact information will be or should be generated. The societal values on health also influence the decision-making through urging for more weight or careful consideration to health impacts and healthier options.

In Thailand, HIA development is quite successful in this aspect. For example, from HIA of Large Orange Plantation in Fang, it is quite clear that the information and discussion through HIA process can lead to the raising of public awareness and societal values on health (both local and national levels), shaping the health impact information need, and, then, influencing public decision-making and actions. In case of the Biomass power plant and the Potash mining project, focusing on health values can create the open ground for conflict resolution and influence the public decision-making[16]. The recent experiences of HIA development in Thailand can lead to the conclusion that "*the values on health are dynamics and depended on available information and process of information exchange within the society*" *and "the dynamic values on health do affect the decision-making process*".

4.3 Conflicts between Different Decision-Making Principles

According to Boyce[17], there are two main approaches of formulating policies, which relates to interpersonal allocation or distributional issues, like health impacts; the wealth-based and the rights-based approaches. The difference between two approaches has resulted in the different decision-making both in philosophical and methodological levels.

The wealth-based approach is found on welfare economics principle of social aggregation of individual preferences, or willingness of pay. In the wealth-based approach, "*those individuals who are willing (and, perforce, able) to pay more, deserve to get more*"[18]. Therefore, the winners and losers from decision-making, including in terms of health impacts, are depended on their willingness and ability to pay compare to others.

On the contrary, the rights-based approach is found on the egalitarian distribution of the right to live in a healthy environment. The rights-based approach would give equal weight to health impacts across the populations, regardless their wealth status or preference, i.e. regardless ability and willingness to pay for. Although these two approaches are usually co-existed in all society, they always compete with each other in gaining more space within public mindsets and decision-making processes.

---

[15] Decharut Sukkumnoed, 2003. *The Contribution of HIA Development to Healthy Public Policy Formulation in Thailand*. Paper Presented in the 2nd HIA International Workshop in Thailand, December 2003, Rayong, Thailand.
[16] Decharut Sukkumnoed, 2003. Ibid.
[17] James K. Boyce. 2002. *The Political Economy of the Environment*. Edward Elgar Publishing. www.e-elgar.com.
[18] James K. Boyce. 2002. Ibid.

In Thailand, the wealth-based approach dominates the officials' decision-making and public discussion under the claims of "national interests". Although the 1997 Constitution asserts the rights-based approach, the actual sectoral policy and planning practices are still more of the same. However, the rights-based approach has increasingly gained more public space in decision-making processes, especially through public actions of those affected groups under the new constitution. Accordingly, the tensions and conflict between these two approaches can be clearly seen and have been intensified in various cases.

Relating to main purpose of this paper, while economic assessment tools in sectoral policy formulation are deeply strict to the wealth-based approach, HIA implicitly promotes the rights-based approach by raising awareness and providing the information on health impacts on various groups of people. The integration or collaboration of HIA and economic assessment has to be fully aware of this difference between these two different principles in decision-making.

5. Reflective Thinking on HIA and Economic Assessment

Through the lessons learnt from HIA and HPP, there are some reflections to economic assessment, which are essential for future improvement of HIA and economic assessment. Table 1 summarizes important pre-cautionary points to think about the development of HIA and economic analysis and about their interaction or incorporation.

In general, the economic assessment is now much more influential in decision-making process than HIA. In many cases, economic assessment is used in determining the points of departure, while health information is needed mainly when the choices of decision are already limited or even sometimes decided. This observation, in fact, causes the reflection to HIA itself on how to take part of earlier steps of decision-making and, if possible, being part of the point of departure.

Certainly, incorporation health benefits and costs into economic assessment is one of the possible ways and also the most well-known suggestion. However, other different aspects of lesson learnt from HIA and HPP, presented in Table 1, urge us to think much more carefully about how HIA and the economic assessment should work together, due to the main differences between what we purpose from and face in HIA development and what are assumed and practiced in economic assessment.

Table 1: The Comparison between (a) Lesson Learnt from HIA and HPP and (b) The Assumption and Practices of Economic Assessment

Lesson Learnt from HIA for HPP experiences	Assumption and Practices of Economic Assessment
1. Incompatibility of health determinants and health values (with other values)	1. Compatibility and substitutability of different values through the aggregation of individuals' willingness to pay
2. Incommensurability of different values on health	2. Commensurability of different societal values through monetary valuation
3. Unequal distribution of health impacts and the needs for disaggregation analysis	3. Aggregation analysis according to the assumption of aggregation of individuals' preferences and allocational efficiency within the society
4. Raising awareness on long-term and irreversible impacts on human health	4. Discounting future benefits and costs to present monetary values (Future is less important than present)
5. Understanding and coping with uncertainties of health impacts	5. Focusing more on cost valuation rather than analyzing conditions and factors of uncertain impacts and coping strategies
6. Usually come very late in decision-making process, have limited influence, and only quantitative information is preferable	6. Dominating the point of departure. Providing information with high aggregation levels, maximum societal benefits, in present monetary term
7. Promoting Societal values on health within decision-making process	7. Assuming fixed societal values for the purpose of willingness to pay calculation
8. Implicitly support rights-based approach of decision-making	8. Philosophically, based on the wealth-based approach of decision-making

5.1 Values and Communicative Power

The first important difference between lesson learnt from HIA for HPP and the assumptions and practices of economic assessment is about the "societal values on health". While the experiences from HIA studies stressed the incompatibility and incommensurability of different values on health, including with other societal values, the economic assessment assumes the compatibility and commensurability of different values by the conversion of different values into monetary value and through the aggregation of individuals' willingness to pay.

Founding on economic assessment's assumption means all health values (of different people) must be converted into economic or monetary values, which certainly raises the questions of philosophical and methodological appropriateness. In practice, at least from HIA experiences in Thailand, the stakeholders seem to prefer the recognition and respectfulness of their health values rather than conversion and comparison only within economic sense. Moreover, since the exercise of their willingness to pay is definitely bound by their ability to pay, this economic assessment is more likely to intense inequality in Thai society.

Because the different values are always involved in decision-making process, democratic society needs deliberative communication about the impacts on different values, including health, within the society. The communication for collective decision-making is certainly the

deep core of democratic philosophy and culture, as well as the deep core of our HIA development. On the contrary, since all health values have to be translated and presented in economic terms, the conversion and incorporation health values into economic value might decrease the communicative power of HIA within decision-making. It will also cause the great difficulties for those who have less economic power and, therefore, less communicative power if they have to communicate only or mainly in economic sense.

One importance of communicative power in the democratic society is ability for stakeholders to change their judgement, preferences, and views during the course of their interactions[19]. HIA also tries to raise and emphasize societal values on health within decision-making process. Oppositely, for the purpose its willingness to pay calculation, economic assessment applies the fixed preference assumption. Certainly, the fixed preference assumption implies no necessity of taking closer look at the dynamics of values on health, which is the main purpose of HIA development. In other words, the economic assumption with fixed preference assumption cannot take the value-added of HIA communicative power into its consideration.

Therefore, in HIA viewpoint, the basic economic assumption of fixed individual and social preference in economic valuation techniques is inappropriate. Those social preferences and their economic valuations will not valid for so long. Sooner or later, they will be changed depended on information and social learning processes. Relying on these fixed preferences and static economic valuations for the long-term planning and decision-making over long-term impacts is certainly problematic. By this view, the contribution of economic assessment in healthy public policy formulation should be more dynamic and open for societal changes according to social learning processes. In other words, it should be used to open and facilitate the social discussion or learning processes, not end them, as usually done today in the conclusion of each CBA study.

5.2 Social Justice and Disaggregation Analysis

The second difference to be considered is linked to units of analysis and social justice. As a result of differentiation and unequal distribution of health impacts, HIA always take a closer look at different health impacts on different groups of people. On the contrary, to identify the maximum aggregate welfare choices, economic assessment is usually made in the societal level. The unequal distribution of impacts is usually overlooked, when the assumption of allocational efficiency, or perfect compensation between winners and losers, is applied in the economic assessment. However, as mentioned earlier, such assumption does not occur easily in the real world. Moreover, since the life supports of each people or group of people is so complicate, incompatible and, in some dimension, take time to be established, the compensation for health cannot be completely done just through simple economic transfer. Therefore, the disaggregation analysis is needed. Without careful disaggregation analysis, the social justice is hardly to be met in decision-making process.

In addition to social justice, disaggregation analysis is also very essential for deliberative communication among different societal values. This is because, through its insightful information on differentiation of impacts, it allows people to learn how specific values of health or health determinants are important for each specific stakeholder and how they will be affected by our collective decision-making.

---

[19] John S. Dryzek. 2000. Deliberative Democracy and Beyond: Liberals, Critics, and Contestations. Oxford University Press.

In fact, various economic tools can support and improve disaggregation analysis of HIA, since economic aspect is one of the most important determinants on health. Thus, economic focus in itself is not the obstacle in co-operation between HIA and economic assessment. The main problem is more on how to use this disaggregation information in making decision. If the economic assessment is still strict to the wealth-based or individual welfare aggregation approach of decision-making, all this information will loose its own significance and certainly be submerged into aggregate benefits and costs. Consequently, the contradiction between economic assessment and HIA and the conflict between the winners (including project owners) and the losers, will be certainly continued. Therefore, the most important and challenging points for the improvement of economic assessment are, probably, to assert rights-based approach and to develop alternative economic approaches for right-based decision-making.

5.3 Sustainable Future and Health Uncertainties

The last point for consideration is about the attitude towards sustainable future. Since, in HIA perspective, health and life is very complicate and have certain limits (but mostly unclear) for reversibility (or ability to move back into previous healthy state), therefore, the irreversibility and uncertainties of future health impacts are very important and should have more weight in public consideration.

Contradictory, economic assessment gives more weight to present outcomes. In CBA, all future benefits and costs have to be discounted into present monetary values. For example, with the discount rate of 7%, the future benefits and costs in the next 30 years will be discounted down to less than 10% of its own estimated values. In other words, the health impacts which occur and last long in the future will have less and less important and almost no meaning at all in decision-making after 30 years from the point of decision-making.

This raises the question about the sustainability. In principle, the future will hardly be sustained if decision-making today do not take future impacts into its consideration seriously. The issue becomes more sophisticated when it links to uncertainties. This is because, as mentioned earlier, economic valuation requires perfect information situation, which cannot be occurred within uncertainty situations. The calculation of willingness to pay within uncertainty situations is, therefore, questionable.

Towards more sustainable future, uncertainties and irreversible impacts should be given more weight in decision-making, both through HIA and economic assessment. However, their importance should not be emphasized only on benefits and costs calculation, but also in terms of understanding their processes and factors and searching the most effective ways to prevent or cope with these uncertainties and impacts for different groups of people. All possible options in preventing and coping with these uncertainty and impacts are needed to be identified and discussed from the point of departure, instead of coming at the end when most policy options have been already out of scope of discussion and only technical solutions are left for discussion.

6. Future Challenges and Initial Proposal

On reflection, the incorporation of health benefits and costs to aggregated CBA is not the most appropriate idea to facilitate or advocate for healthier decision. When significant health impacts and uncertainties, different societal values, and unequal distribution involve in decision-making, the decision should be made through much more deliberative process rather than just the aggregation of benefits and costs. The interconnection between health and economic impacts in long-term perspective is needed in both ways; the economic impacts on the health of different groups of people and the health impacts on the economic opportunities and capabilities of different groups of people and of the society as a whole. Evidently, this interconnected or integrated knowledge and information is still lacked today. Therefore, the development of HIA and economic assessment is very essential and, at the same time, very challenging due to the differences between the nature of health impacts and economic assumptions.

This paper would like to provide initial proposal for the improvement of HIA and better integration between HIA and economic assessment. In our view, the future challenges for HIA and economic assessment should, at least, include these six main aspects.

- **Opening and Understanding Values Discussion**. The economic assessment has to be more open for incompatible and incommensurable societal values, including different values on health. The conversion of different values into only monetary value is inappropriate for deliberative democratic decision-making. Better understanding of economic impacts on health impacts and economic consequences of health impacts will certainly facilitate public discussions on societal values and the different impacts on different values. Methodologically, various economic techniques can be applied for analyzing consequences and impacts on different values. Thus, the main challenge is more on the philosophical level. Obviously, economic assessment has to admit that society needs open discussion on values, rather than ending discussion by only the bottom-line of economic reasoning and monetary value, as usually done in CBA.

- **Disaggregation of Economic Assessment**. Different impacts on different groups of people need to be clear enough for the democratic society to make appropriate and acceptable decision-making. Therefore, economic assessment is required to provide insightful information on impacts and consequences for each stakeholder in each period of time (not just the present aggregated monetary value). To fulfil this need, the economic assumptions on aggregation of fixed individuals' preference, and allocational efficiency need to be avoided. Concurrently, economic consequences, uncertainties and impacts of each policy options on different stakeholders have to be analyzed. Alternatively, the aggregated CBA can be done, if all acceptable outcomes for all stakeholders, including uncertainties and irreversible impacts, can be ensured[20]. In other words, in this approach, the costs of allocational mechanisms between winners and losers within the society have to be included also in CBA.

---

[20] The idea and progress of this approach can be seen in Bradford Shapansky et al, 2003. *A Model for Stakeholder Analysis: Economic Implications*, Health Canada.

- **Assertion and Development of Rights-based Approach**. Probably, the most challenging issues is to change from wealth-based approach to rights-based approach, since it is not only dealing with convention methodology, but also dominant market economy and liberal democracy ideologies. The recognition of human security and human development goal and, in case of Thailand, the new constitution can be the firm ground for the development of right-based approach. However, in reality, due to the dominant of wealth-based welfare economics, economic analysis and knowledge based on rights-based approach is still lacking. The first step might be the development of economic assessment, which can analyze the impacts on local livelihoods, human security and human capability. Accordingly, since the issue of rights usually goes beyond one specific decision-making towards long-term implementation, risks, and uncertainties, thus, the effective institutions and mechanisms to ensure human security over the long-term is needed to be developed.

- **Communicative, Argumentative, and Deliberative Process.** It is very essential that both HIA and economic assessment have to pass through discursive, argumentative, and deliberative communication processes. The main objectives are not only to ensure correct and valid results for those assessments, as always mentioned in guidelines, but also to allow stakeholders to reposition or changing their preferences after having dialogues with the others. This process can allow us to observe the societal value adjustment process not through willingness to pay, but through "the willingness to listen and to learn".

- **Alternative Points of Departure**. One important suggestion for HIA development is to take part earlier in policy formulation and planning processes. Our HIA experiences suggested that, apart from earlier participation, widening the strategic choices or having alternative points of departure in policy formulation and planning processes is very important. Otherwise, the existing institutional frameworks and planning processes will technically, financially, and politically force the decision into the same directions, or so-called *"path dependency"*[21]. To promote healthy public policy, both HIA and economic assessment cannot only evaluate the few technical choices within the fixed points of departure, but, if possible, they should look for more provocative healthier policy directions with the long-term perspective as well. In this way, public discussion will be opened not only for different societal values but also different future solutions.

- **Different Focuses for Different Levels of Decision-making**. Apart form promoting the wider choices of points of departure, economic assessment and HIA have also to take part of different levels of decision-making from strategic policy direction, regulation to project levels. Different levels of decision-making imply different concerned questions and, certainly, require different answers for different time frames. Table 2 presents different main questions, time frames of analysis and economic implication for different levels of decision-making towards healthier society.

---

[21] Frede Hvelplund and Henrik Lund, 1998. *Feasibility Studies and Public Regulation in a Market Economy, the implementation of Environmental Objectives and Technological Change in the Energy Sector*. Aalborg University, Denmark.

All these aspects need to be developed along social interactive learning process, which, in case of Thailand, should be the real target for the second phase of HIA development (2005-2008). The interactive learning process aims to take place in few specific sectoral sectors, which have strong HIA experiences during the first phase of HIA development (2002-2004), like sustainable agriculture, energy and regional development policy. Hopefully, with the attempts to work on these six challenging points in the next three years, Thai HIA team will have both successful and unsuccessful valuable lessons to share with our HIA community, as well as, with economist communities.

Table 2: Main Questions, Time Frames of Analysis and Economic Implications for Different Levels of Decision-Making towards Healthy Public Policy Implementation.

Levels of Decision	Time Frame of Analysis	Main Questions and Economic Implications
Strategic Policy Direction	Medium to Long	What should be the best way or best policy direction for society? For example, should Thailand shift from chemical agriculture to invest more in organic farming? The economic tool should provide the insightful information on future economic impacts for the society from health and environmental long-terms changes, including distributional effects within different policy directions.
Policy Regulation	Short to Medium	What should be the best means to guide the preferable behavior of different actors, or to encourage these actors to join the preferable policy directions? For example, to promote safe food production, what should be done to control or reduce excessive uses (or impacts) of pesticide? In this level, the economic tool has to concentrate more on appropriate incentives, behavior, and market structure.
Project	Short to Medium	What are the benefits and costs of this specific project compare to its (specific) alternatives to the whole society, as well as to each stakeholder group? How can different stakeholder groups cope with these negative and positive impacts economically? What should be the appropriate mechanisms to support different stakeholders to cope with future situations?