



Community Health Impact Assessment

A Case of Coal Generator
at Khao Hinsorn sub-district
Phanom Sarakham district,
Chachoengsao province,
Thailand

Community Health Impact Assessment A Case of Coal Generator - Khao Hinsorn



This document is a summary of the book "Food - Coal, the Crossroad of Agricultural Land Development of Phanom Sarakham – Sanam Chai Khet" which was developed by learning process of an interest group sharing concern over the impacts on the 600 megawatt coal-based thermal power plant project of National Power Supply (Public) Company Limited, on approval process for the Operating License, in the areas of Tambol Khao Hinsorn, Amphoe Phanom Sarakham, Chachoengsao Province. The Group conducted Health Impact Assessment under the mission "CHIA – Community Health Impact Assessment" consulted by external Agencies and academics.

This group of people mainly consists of farmers who are members of Chachoengsao Alternative Agriculture Network, Organic Farming of Sanam Chai Khet, Agroforestry Network, Save Bangkla, Mango Gardeners and Straw Mushroom Farmers. Therefore, the definition framework of Health and Health Determinants is specific to Modus vivendi of agriculture community, not the community organized according to physical property.

The results from over two years of learning together is not only a report or information and evidence submitted to the Agencies related to Power Plant Licensing for consideration, but also study on area potentials of food production and expected future community as well as the development plan toward healthy community

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The Beginning

In 2008, learning from the news that the 600 megawatt Coal Generator would be constructed in Tambol Khao Hinsorn, the villagers expressed various demonstrations and defenses in order to protect their right for living in healthy environment. They protested, blocked the road, submitted documents to many Agencies and eventually petitioned to the King. On October 4, 2010, the network of Power Plant impact follow-up submitted document to Secretary – General of National Health Commission Office (NHCO) in order to use the right in accordance with Section 11 of National Health Act, B.E. 2550 to request the health impact assessment.

1. Screening

On November 19, 2010, HIA Coordinating Unit, a unit under National Health Commission Office of Thailand, conducted the field study and talked to the right users for screening the importance of health impact assessment. Initially, the project was considered Environmental Health Impact Assessment (EHIA) required to conform to Section 67 Paragraph 2 of the Permanent Constitution for the Kingdom of Thailand B.E. 2550. The pollution caused by the coal generator may effect on community health determinants , including air, noise and water quality as well as economic and social disturbance for the community nearby. Negative impacts may harm underprivileged group especially the poor people who depending on natural source of food from the Thalad canal. The HIA allows each party to share knowledge and search information and evidence beneficial to project assessment supporting careful decision of the regulators. There are 3 levels of HIA including;

1) Power Development Plan (PDP) level which gives rise to this power plant project. However many academics from various institutes have conducted study and suggested health-friendly PDP alternative which is being negotiated during public policy process.

2) Project level indicating EHIA which have to comply with Section 67, Paragraph 2 requiring a health impact assessment pertaining to announcement of Ministry of Natural Resources and Environment. National Power Supply (Public) Company Limited has hired the consultant Air Safe Company Limited, in conjunction with group of professors from University.

3) *Community level* assessed by Community under consultancy of academics. Information and evidence on HIA encourage affected people to give concrete opinion on EHIA process. Although public scoping has been finished, information from HIA and public review process can be presented for more complete and realistic EHIA which beneficial to consideration of EHIA report by experts and Energy Regulatory Commission.

The meeting of the HIA Commission on December 3, 2010, chaired by Dr. Wiput Phoolcharoen passed the resolution to concur and support Community Health Impact Assessment (CHIA) relevant to requirement of the right users requesting National Health Commission Office to support CHIA preparing information, evidence and affect community for effective participation in giving opinion during EHIA process.

2. Scoping

CHIA process starts from focus group meeting with villagers mainly consisting of farmers to understand approval process of awarding the License to operate a power plant project, applicable laws and related Agencies as well as indicating progress of coal generator project at Khao Hinsorn, the possibility for community to participate in each step of decision making process. Subsequently the meeting will study project details based on information from Company's EIA report approved by Office of Natural Resources and Environmental Policy and Planning (ONEP). Finally villagers will have the opportunity to express concerns involving many issues such as acid rain, water shortage, sulfur dioxide emission that creates airpollution, damages of agriculture products, illness and migration of labors to live and work in the area detrimental to security of lives and assets.

Later, representatives from concerning villages including Ban Yangdang, Ban Lamkhaochan, Ban Bangpaneang, Ban Mafueng, Ban Thanmuang, Ban Sra-maidang, Ban Angthong and Ban Nongkla have cooperated in community planning for clearer study scopes and issues. Each representative draws map of his village and connect to others to see the overall picture of villages, roads, streams and irrigation canals. The map drawn by hand may not be official but provides a snapshot of people's way of life connection dependent on water from Seeyad canal and Rabom canal. The small blue lines become meaningful and valuable when passing farms and residence areas.



Some lines pass wild bamboo area where villagers collect bamboo shoots. Some lines are drawn through temples, schools and waterworks of community near canals. Villagers said that the project map did not show farms, residence, temples, schools and lives. Those areas nurture people, agriculture plots, mushroom plots and organic vegetable plots.

May 23, 2011, the hand-drawn map was transformed to graphic map verified by communities. The interesting point was the addition of irrigation canals and other villages including Ban Kraboktia and Ban Huaynamsai. They wanted to be part of this issue and include their residence area in the map. The villagers missing the map drawing meeting could identify the location of their residence. Even some children could match houses with owners.

The community map gives clearer framework for HIA study focusing on health determinants of farmers living around the Thalad canal in two main issues; 1) Impact on water system of the Thalad canal 2) Impact on agriculture systems including organic farming, mushroom and mango.

3. Appraisal

3.1 Review major developments and changes in the areas of the Thalad canal using Timeline technique to study area potentials and water resources in terms of quality and quality

3.2 Study power plant project information, power development plan, pollution, toxicology and case study of health impact assessment from coal generator in foreign countries.

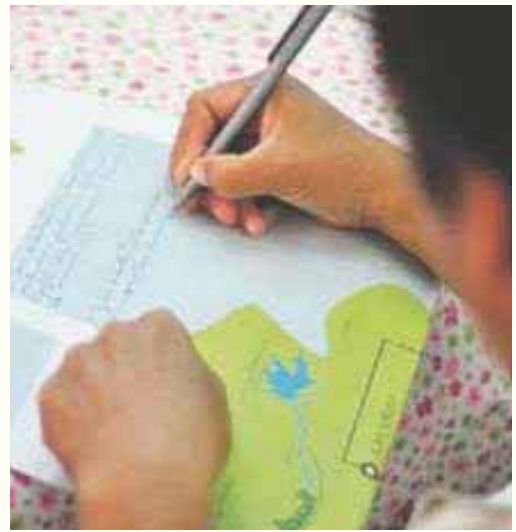
3.3 Collect data of organic farming, mango and mushroom through focus group meeting with respective farmers in order to indicate planting areas for vegetables, mango and mushroom. The collected data include production and sales volume for domestic and export markets, job creation and income generation for community. Review concept, principle and value of standard benchmark of organic farming. Make epidemiology map in case of mango garden termination near the 304 Industrial Estate.

All process stresses on data and evidence collection by field survey, State's documents, community memo, research on related topics, focus group meeting and in-depth interview with data verification by community.

4. Reviewing

Initial findings were compiled as the draft of "Food Security and Coal Power : Dispute on agriculture land and Modus Vivendi of the Thalad canal Community." The seminar forum was organized on August 21, 2011 at Convention Hall, Phanom Sarakham Occupational College, Chachoengsao Province. The seminar presented to related Government Agencies, academics and people in the area for knowledge sharing, data verification and public review. From the forum, there was a confirmed fact that water in the Thalad canal was insufficient. The water consumption of 11 million cubic meter per year of power plant will create water war and water quality problem. In terms of agriculture issue, further study on sensitivity of each plant to pollution of coal generator was suggested.

After the study on additional information and meeting with experts in each issue especially water and mushroom, the conclusion was drawn with the



Draft "Food - Coal, the Crossroad of Agricultural Land Development of Phanom Sarakham – Sanam Chai Khet" presented to the meeting of academics and related Agencies for suggestions and recommendations (Expert Review) on June 19, 2012 at the National Health Building, chaired by Associate Professor Doctor Pattapong Kessomboon, an Associate Professor of Faculty of Medicine, Khon Kaen University and HIA Commission. Attending the meeting included representative from Department of Industrial Works, Office of the Energy Regulatory, researchers from Healthy Public Policy Foundation, city planner from Social and City Planning Network, lawyers from the Environmental Litigation and Advocacy for the Wants, representatives from Green Peace and interested media.

5. Decision Making

Subsequently, the study results improving Expert Review was proposed in the Meeting on June 22, 2012, chaired by Doctor Wiput Phoolcharoen. The Committee had the resolution to submit report with regard to Community Health Impact Assessment of the 600 megawatt coal generator project in Chachoengsao Province to the National Health Commission for consideration before distributing to related Agencies in making decision as per roles and responsibilities. NHCO will coordinate with local Agencies including Governmental Agencies, Local Administration, academics and communities to organize follow-up mechanism for existing problems such as unproductive or burnt mango cluster and heavy metal contamination in water. The future development plan of the Thalad canal was indicated in line with area potential. These topics were included in the Agenda for the Meeting of National Health Commission on July 20, 2012 at the National Health Building.

Before the Meeting of National Health Commission, Office of Natural Resources and Environmental Policy and Planning (ONEP) had called the meeting for Expert Committee to consider the project EHIA report on July 12, 2012. Before the Meeting, the Expert Committee conducted the field trip survey to obtain additional information. CHIA came with the opportunity to provide information directly for the Expert Committee. In the Meeting, ONEP considered CHIA documents for supplementary information and opened the opportunity for NHCO representative to participate the information provision. Nevertheless, the Expert Committee did not concur the EHIA report.

The meeting of National Health Commission (NHC) on July 20, 2012 passed the resolution as follows;

1. Concur the CHIA report regarding the 600 megawatt coal generator project at Tambol Khao Hinsorn, Amphoe Panom Sarakham, Chachoengsao to be forwarded to related Agencies including Office of Energy Regulatory (OER), Department of Industrial Works (DIW), Office of Natural Resources and Environmental Policy and Planning (ONEP), Independent Commission on Environment and Health and other Agencies in provincial level for consideration and decision making in line with roles and responsibilities.
2. Request NHCO to coordinate with Local Authorities including State's Agencies, Local Administrative Agencies, academics and communities to organize mechanism to solve existing problems and structure framework of future development relevant to area potentials.

The Community Health Impact Assessment can be summarized as follows;



1. In the past, the Khao Hinsorn area was a rich forest. The forestry concession policy resulted in deforestation. Single plantation which deteriorated soils and water sources was encouraged. Villagers suffered food security problem. When His Majesty the King visited the area, the villagers gave a piece of land for Palace construction. But His Majesty the King dedicated the land for establishment of Development Learning Center of Khao Hinsorn, an Initiative Project. In the meantime, Kasem Petchnatee, NGOs, entered the area to work and instruct the villagers to live on self reliance and ensure food security with Alternative Agriculture. The Organic Farming Group emerged to be the important learning lesson for domestic and foreign farmers. At the same time, Principle Wiboon Khemchalerm, experiencing single agriculture problem, turned around to support Agroforestry.



Moreover, this area is famous for growing mangoes for export market. In parallel, area utilization expands to grow eucalyptus, the raw material for paper pulp production. In addition, area development in the eastern region drives industry expansion to Chachoengsao Province. Tambol Khao Hinsorn locate industrial entrepreneurships. The community is already suffering negative impact from industry such as decomposition and heavy metal contamination in shallow wells of villagers, unproductive and burnt mango cluster with unknown causes. Today the industry extends to the area where agriculture is affected.



2. Watersheds of the Thalad canal are food supply source feeding people in the country and abroad, a collection of various food breeds, a community with food security sufficient to help other communities during crisis such as allocation of fishes, foods and seeds to flood areas, an organic farming area rooted in long time operations with organic farming standard accredited by the European Union, a learning center for Thai people and foreigners. Mango is a product of Pad-Riew (Chachoengsao) exported around the world. If someone wants to know about mango, he or she needs to come here. Besides, the



watersheds of the Thalad canal are East's largest and country's second largest mushroom farming. Income from mushroom culture drives youngsters to leave the factory for work in their localities. Family members stay together. Employment and income distribution spread in community. Children, young, adult and senior people earn income from different functions of mushroom farming. Agriculture in watersheds of the Thalad canal including organic farming, mango and mushroom total over billion Baht in value, excluding natural plants collection such as bamboo shoot, water plant and fishing. More important than economic value is the value of food supply source creating food security for Thai people and the world.

3. Coal generator produces considerable amount of critical air pollutions including sulfur dioxide causing acid rain damaging agriculture, lead and various heavy metals in existence of micro dust with 2.5 micron, the size contaminable to ecology and food chain. The coal generator therefore is inappropriate to locate in food production area due to exposure to lead and heavy metals, which, if accumulating in human's body, can develop to fatal chronic diseases leading to death. Moreover, micro dust easily penetrates human's body through respiratory system.



4. At present, the Thalad canal prioritizes water utilization in four orders

- 1) Consumption along the stream
- 2) Conserve downstream ecology
- 3) Irrigation
- 4) Industry along the stream

Water utilization is well allocated. The coal generator utilizing water of 11 million cubic meter per year negatively impacts water management system. Water supply will be imbalanced between each part. If the water conserving ecology is consumed by the power generator, saline water will precipitate. Ecology of the Bangpakong river, straight and short stream, is highly sensitive. Using the downstream water which is conserved for ecology will overflow saline water up to Prachinburi Province.

5. The coal generator gives direct impact on agriculture sector. Organic farming, mango and mushroom are sensitive to pollutions caused by sulfur dioxide and heavy metals from the coal generator. Organic farming will fall down the standard. Mango will be unproductive or have burnt clusters. Mushroom will stop growing if temperature changes by 1 degree Celsius. The uncultivable

plants adversely impact not only gardeners and farmers but also every life depending on income and foods from the value chain such as workers in gardens and vegetable plots, agriculture product transporters, middlemen and consumers.

6. Recommendations

- Set standard to protect all food production areas in Thailand. The city planning of watershed areas along the Thalad canal should be adjusted to prohibit the projects or activities that adversely impact food production area and food security.
- Conduct in-depth study on food production areas in the watersheds of the Thalad canal and encourage the announcement of protection for food production area to ensure food security for community and country.
- The ecology of the Thalad canal watershed is sensitive while industry rapidly expands to this area and harms water resources. The mechanism which allows every party to coordinate in prioritizing, managing and controlling water utilization in the watersheds of the Thalad canal should be established.

