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"Empowering Local Citizens in Rural Thailand to Seek Options for Environmental Health Management Through Capacity Building"

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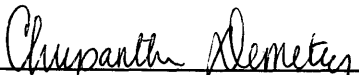DEGREE OF BACHELOR OF SCIENCE

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Abstract

This project developed and tested a facilitation process that can be used to enhance communication, knowledge, and awareness concerning the management of environmental problems in rural Thai communities. To test this process, we conducted focus groups and interviews in the village of Huay King in order to identify stakeholder groups, define environmental problems and solutions, and assess the current capacity and responsibilities of each group. From this information, we then compiled recommendations for action plans, such as educational programs and public relations campaigns, for opportunities to improve the community's ability to manage environmental problems.

Executive Summary

Community participation is the key to effective environmental health management. Increasing education, awareness, and skill training is a fundamental method of strengthening the communication link between governing authorities and citizens and giving the citizens the knowledge and abilities necessary for participating in decision and policy-making with respect to environmental problems in their community. This process of increasing the capability of a community to become involved in and effectively manage its own environment is known as capacity building.

The need for capacity building is prevalent in the rural villages within the Mae Moh district of northern Thailand, where the Electricity Generating Authority of Thailand (EGAT) operates a lignite coal mine. In the next few years, this mine will expand to within 300-500 meters of Huay King, one of twelve villages surrounding the EGAT plant in Mae Moh. Before this planned expansion, EGAT would like to develop a process through which the community can create an efficient participatory environmental health management system within the village. One way that EGAT is trying to achieve this system is through ISO 14001 standardization, an internationally recognized, voluntary framework for creating such a system of environmental health management regulations. In order to earn this certification, EGAT must develop a method in which to build capacity so as to prepare the surrounding communities for involvement in policy and decision-making procedures. In addition, decentralization of the Thai government is currently being instituted in order to give more responsibilities in the way of determining budget and personnel administration to the local governments. With these expanded responsibilities, local people and businesses, such as EGAT, will have broader access to formal political power, thereby creating a great need for training and capacity building at the local level.

Thus, the goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental health management in rural Thailand, using the village of Huay King as a model. In this process, facilitators work with a community to accomplish three objectives: identifying stakeholder groups, identifying environmental problems and possible means toward solutions, and assessing current capacity, roles, and responsibilities in order to develop capacity building action plans. To test this facilitation process in Huay King, we conducted a series of focus groups and in-depth interviews with members of each of the primary stakeholder groups, which include EGAT, the local government, also known as Sub-District Administration Organizations (SAOs), and the local citizens. Within these interviews, members of the stakeholder groups identified other groups they would like to see involved in environmental health management, the roles and responsibilities they should play in capacity building, and their perceptions of the local environment. Throughout the data collection process, our questions were designed to be neutral, unobtrusive, and acceptable to Thai culture. In order to assure the suitability of our interviews and focus groups, we pre-tested these questions and techniques using translators and a neighboring village, prior to entering the Huay King community. We also utilized six different translators, each with different backgrounds and affiliations, in order to assure the validity and accuracy of the interpretations.

From the information gathered in these focus groups and interviews with Huay King stakeholders, we were able to accomplish each of the three objectives in the capacity building facilitation process we developed. First, we asked representatives from each of the stakeholder groups, EGAT, the local government, and community members, to identify environmental issues in the area and possible causes of these problems. All three groups agreed that the most

prevalent problems include dust, noise, air and water pollution, and vibrations. The causes of these issues were determined to be not only EGAT's mining facility, but also some of the daily activities of the villagers themselves, such as the burning of garbage.

It is evident from this test that EGAT, the local governing bodies, and the villagers of Huay King are all interested in improving and managing the environment. Each group identified the current roles and responsibilities they, as well as the other stakeholders, play in improving their surroundings. EGAT, through the Mae Moh Community Development Project, is improving communication and involvement with the communities affected by the pollution by increasing the electric company's visibility in the neighboring villages. In addition to creating more communication, EGAT is also obtaining ISO 14001 standardization. With this standardization, EGAT hopes to improve their public image and prove to the local citizens that they are creating a sustainable solution to the environmental problems their mining facility has caused. The local governing bodies are currently going through decentralization, which will allow for a stronger community presence. With closer contact to the villagers, these officials will be better able to understand and assist in improving the environment. The local government is already responsible for disseminating information to the citizens by acting as a liaison between EGAT and the local citizens. The villagers have started taking a pro-active role by voicing their opinions and some suggestions concerning the environment, which is a difficult concept to adjust to, considering the normally reactive nature of Thai culture. Although the Huay King stakeholders have initiated the first steps toward environmental health management, there is still a need for capacity building.

In the opinion of many respondents, options for building capacity should focus on enhancing the communication and educational system in Huay King. Improved communication

is necessary in order to prevent misunderstandings and general mistrust between the stakeholder groups. Education is also essential to increasing capacity because the local citizens are currently unaware of or do not fully understand the overall environmental issues. With more knowledge and awareness, the villagers will be able to participate more actively in identify and preventing environmental problems.

Throughout the test of this facilitation process, the Huay King stakeholder groups provided ideas for programs that could be part of a capacity building action plan. One common suggestion was monthly meetings with top EGAT officials, local government representatives, and the citizens for the purpose of disseminating information and gaining feedback from one another. Another option is training for local citizens to obtain skilled labor jobs at EGAT, which will not only improve the quality of life for the villagers in general, but also help employees to learn about EGAT's current role in the environment. Educational programs, such as tours of EGAT environmental monitoring systems and workshops, could provide preventive information for the local citizens. These suggestions provided a basis for the recommendations we presented to EGAT regarding possible capacity building efforts they could use toward ISO 14001 certification.

After compiling all of the results from the test study and making recommendations for the future of capacity building and environmental health management in Huay King, we also made suggestions for ways in which this capacity building facilitation process could be carried out more effectively in the future for other rural Thai villages facing similar circumstances. These recommendations included a longer time commitment that would allow for the assessment of more stakeholders. For example, many of the respondents of this study expressed an interest in seeing the involvement of health and education officials in capacity building and environmental

health management, however, due to time constraints, we were unable to thoroughly address the views of these groups. We also recommend a comparative examination of other villages at different levels of environmental health management capacity. This comparison would allow for a more complete picture of common needs in a rural Thai community, as well as a more accurate assessment of possible solutions based on villages more experienced with participation in environmental health management. We also determined that the process would greatly benefit from a stronger focus on neutrality by relying exclusively on external, impartial facilitators and translators. Neutrality lessens the degree of bias in focus groups and interviews and tends to encourage more participation from respondents.

The test in Huay King provided us with a valuable overview as to the current problems, causes, and possible solutions to environmental contamination. This information was essential in developing capacity building action plans for the future of the community. Concurrently, the execution of this process initiated capacity building in Huay King by increasing awareness and encouraging critical thinking with respect to the local environment. This process can now be applied to other rural villages with similar environmental issues in order to generate capacity building action plans specific to other regions of Thailand.

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The interviews and focus groups upon which this project was built would not have been possible without Khun Mou, Khun Khaw, Phii Praew, Phii Boy, Phii Non, and Phii Opal. Each of them devoted a great deal of time to not only translating for us, but also helping us to contact participants.

Last, but not least, we would like to thank our advisors, Stephen W. Pierson and Chrysanthe Demetry for challenging us to put forth our best efforts throughout this project.

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Authorship

In writing this project, we found that it was necessary to include the thoughts and writing styles of the entire IQP team. Throughout the fourteen-week period we spent working on this project, each group member made equal efforts. For the Literature Review, each person managed one section while also revising the others. Nadia worked on the Environmental Management Systems and Policies sections, Brian wrote the Decentralization section, and Heather and Leah combined their previous work to develop the Capacity Building section. For all other sections, we worked in pairs, in which one pair acted as primary authors for a specific section and the others edited it. Once comments were received, the primary authors would switch and work on other sections. In the same manner, the pairs switched often to ensure all four of us were involved in almost every decision made concerning the IQP. In working this way, we made sure to include everyone's opinions and writings styles throughout the entire written project.

1.0 Introduction

Community participation is the key to effective environmental health management. By involving local citizens throughout this process, interest in environmental issues and policies concerning the community is increased. In turn, local environmental policies will be a more accurate reflection of the community's needs in determining budgetary allocations and policy-making decisions. Involving the community, however, requires a great deal of knowledge, awareness, and skill training for the local citizens and other stakeholder groups, a course of action known as capacity building.

In many developing countries, including Thailand, governmental decentralization has increased the need for capacity building. Decentralization is the reallocation of political power from the federal or central level to local communities, giving the people more of a voice in issues that directly affect them. As mandated by Thailand's 1997 constitution, the local governing bodies, or Sub-district Administrative Organizations (SAOs), now have more authority over responsibilities such as budget, personnel administration, and policy development and implementation, than in previous years. Therefore, the SAOs now have further autonomy in making decisions and creating policies with respect to environmental health management. This empowerment has greatly contributed to the need for local capacity building with respect to environmental health management.

In Huay King, one of several villages in the Mae Moh district of Thailand, environmental issues associated with the Electricity Generating Authority of Thailand (EGAT), the primary industry in the district, accentuate the need for capacity building created by decentralization. Huay King is located near a large deposit of lignite coal, which will soon be mined and utilized by EGAT. Before the expansion of the mine, EGAT would like to develop a process through

which the community can work together to create an efficient participatory environmental health management system. EGAT is also in the course of attaining ISO 14001 standardization, a voluntary framework for creating such a system of environmental health management regulations. By obtaining this certification, EGAT hopes to gain the respect of not only the local communities, but also the global market. Community involvement is also emphasized by ISO 14001, providing EGAT with further motivation for encouraging the dissemination of information and education on environmental health management issues in the surrounding villages.

While EGAT is currently making an effort to employ several different types of community programs aimed at increasing public relations in the Mae Moh district, similar, more established programs in other developing countries serve as excellent models for capacity building. Many nations have utilized capacity building processes to increase the level of education and awareness with respect to environmental issues within small communities and indigenous tribes. Various groups throughout Africa, Asia, Europe, and the United States have established capacity building programs by opening lines of communication between local governments and other groups concerned with solving social problems such as the reduction of poverty, inequality, and ineffective management. In many cases, community programs in the form of educational training, advisory boards, or workshops are used as tools to build capacity. These global capacity building case studies have not yet been applied to the village of Huay King, where decentralization of the federal government, coupled with the pending expansion of the EGAT mine, has brought about the need for a capacity building process for participation in environmental health management within the community.

The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand. This process, which is designed so that members of the community can carry it out for themselves, has three key objectives: identifying stakeholder groups, defining environmental problems and possible means toward solutions, and evaluating current capacity, roles, responsibilities, and resources. This process was tested in the village of Huay King, located in the Mae Moh province of northern Thailand, resulting in recommendations for capacity building action plans. While specific to Huay King, the process which we developed and tested will also be applicable more broadly to other rural areas of Thailand facing needs for environmental capacity building related to decentralization.

2.0 Literature Review

There are many factors that need to be taken into consideration when developing a plan of action for building environmental health management capacity in rural Thailand. Environmental health management is a process that involves many steps and generally takes years to achieve successfully. To better understand environmental health management and environmental policy formation and implementation, we provide a brief analysis of international environmental management systems and models of U.S. legislation. With the decentralization of the Thai government, the various stakeholder groups within local Thai communities will need to take a more active role in the development and enforcement of policies such as those used in environmental health management. By providing two decentralization case studies, as well as an overview of the Thai government structure, a better understanding of the need for increased awareness results. Throughout most of northern Thailand, there is a lack of knowledge and skills with respect to the environment. Before these stakeholder groups can be expected to become more involved in the issues concerning them, they need the capacity to do so. Capacity building entails the dissemination of information to the community in order to raise awareness and provide education and skills. Thus, we outline key environmental and capacity building models as they apply to Thailand.

2.1 Environmental Health Management Systems

To begin understanding the concept of environmental management, we will examine environmental management systems as prescribed by the International Organization for Standardization (ISO) with their ISO 14001 standardization. By delving into some background information about this regulatory certification and how industrial companies around the world

have utilized it to gain a more respectable image both nationally and internationally, we may be able to further comprehend how environmental management can be applied to companies in Thailand. Therefore, we present some key information regarding the formation and application of ISO 14001.

2.1.1 ISO 14001

Before examining ISO 14001 and how this standard can be used to gain a better environmental reputation, the origin of this standard is presented. The International Organization for Standardization (ISO) was founded in 1947 and has been a fundamental resource in guiding companies around the world with environmental standards. The goal of ISO is to strengthen global management standards in the areas of manufacturing, production, and communication. The organization is based in Geneva, Switzerland, and is separated into Technical Committees (TCs). The TCs are further divided into Sub-Committees (SCs), which are then divided into Working Groups (WGs). For our purposes, environmental management, which is the ISO 14000 series of standards, comes under TC 207. Under TC 207, SC1—environmental management systems committee—is the committee that developed the ISO 14001 standards[1].

ISO 14001 is one of many sets of standards maintained by the committee and employed by companies around the world. This standard provides extensive information on environmental management system standards[2]. These standards help companies and firms by providing the framework needed to conduct their business while remaining aware of the environmental effects. It is important to note that ISO 14001 standards do not provide exact figures that measure a company's performance, but rather ISO can serve as a guide for creating a management system. ISO believes that by using a well-established management system, a company can eventually

gain a greater level of performance. ISO 14001 helps companies set attainable goals for their environmental management systems that consequently helps many companies to gain an impressive public image[3].

The Electricity Generating Authority of Thailand (EGAT), a Thai mining company, is currently working to improve its environmental standards as well as their public image by obtaining ISO 14001 certification. The EGAT operation, which consists of a lignite mining division and an electricity generating division, is the only major industry in the Mae Moh district that can be considered a major polluter of the area. EGAT is currently trying to contain the environmental damage caused by its facilities. For every ton of lignite that is provided to the generating plant, from the mine, EGAT contributes 0.25 U.S. dollars to be used for the purposes of restoring the land near the mine to a "green area." At its current operation, EGAT uses 50,000 tons of lignite each day. EGAT predicts that the usable stock of coal in this mine will be exhausted within 25 years. During, and at the end of that time, EGAT has plans to replant forests, build reservoirs, and further restore the land to what it was before the plant existed there using the land restoration fund[4]. By using an environmental management system as prescribed by ISO 14001, EGAT feels they will have more success in reducing the pollution in the area. EGAT also believes this standardization will help them gain the respect and cooperation of area villages that have lost faith in the organization's ability to maintain a clean environment. Soon EGAT will be seeking to privatize itself and by following a series of steps to become ISO 14001 certified, EGAT also hopes to attain the appraisal and fruitful business relations from surrounding countries such as Burma and Cambodia[5].

2.1.2 ISO 14001 Case Study – Cambior Inc., Canada

To better understand the steps EGAT must take in order to become ISO certified, we take a closer look at the requirements for ISO 14001 standards as applied by the Cambior Company in Montreal, Canada. ISO 14001 recommends five key steps in organizing an environmental management system. These steps include the development of environmental policies, the planning of a process, the initiation of an implementation of the designed process, the realization and refinement of any corrective actions that need to be outlined, and finally a management review to be conducted by an outside auditor[6]. Thus, we present Cambior Inc., and the steps carried about this gold-mining company to attain ISO 14001.

Cambior, Inc., located in Montreal, Canada, is one of the first gold-mining companies in the world to attain ISO 14001 certification. This company, which works with many international corporations, has gained a reputation for continuously seeking new ways of improving their business practices with respect to the environment. In 1996, having already achieved ISO 9000 standardization—a set of regulations to insure a safe working environment—Cambior was highly motivated in updating their environmental management system in accordance with ISO 14001[7].

Cambior followed a series of five steps to attain ISO 14001 standardization. The company began by scrutinizing all current technology and policies in the company that may have environmental effects. Having gained an understanding of the problem areas within the company, they began planning a system that gradually prevents future environmental contamination from occurring. Next, Cambior tested the new adjustments made to the mining facilities as well as the new policies and procedures developed from the planning process. This test was done in order to find key areas that may need re-examination, such as the need for new technology and employee participation. After taking corrective measures to better tailor the new

company technology and standards, new regulations were set into place and auditors from Societe Generale de Surveillance International Certification Services, were invited to examine the new Cambior environmental management system. These third-party auditors were the key evaluators who deemed Cambior as being ISO 14001 approved[8]. As seen from the steps used by Cambior Inc., we can begin to grasp how a company such as EGAT may employ similar steps to attain ISO 14001 standardization.

2.2   Environmental Policies

Another helpful way to comprehend environmental standards is by analyzing United States environmental policies that serve as models for environmental management practices. The Safe Drinking Water Act of 1974 and the Emergency Planning and Community Right-to-Know Act of 1986 are two key examples we will provide to illustrate the importance of issues such as the dissemination of environmental information to the public. Therefore, we detail these two pieces of legislation and the ways in which they were applied.

2.2.1 Safe Drinking Water Act

This analysis begins with a model of U.S. environmental laws by examining the Safe Drinking Water Act of 1974 and how it has been regulated in a rural setting. In order to understand the major effects of this legislation, we will detail some key background information as to its origin and how it has been used to help local citizens become more involved in environmental policies. We will then examine a case study in Santa Cruz that further depicts the

flexibility of this act. Thus, we present the U.S. Safe Drinking Water Act and how it has been applied.

The Safe Drinking Water Act of 1974 requires the Environmental Protection Agency (EPA) to set standards for keeping drinking water safe for consumption and bathing. All supplied drinking water is required to be tested for harmful contaminants by the EPA. Over the years since the act was ratified, the standards have become more detailed and the list of contaminants to be tested has been extended. Along with monitoring contamination levels, the federal government directs the EPA, via the Safe Drinking Water Act, to create procedures for keeping drinking water safe[9].

Another aspect of this act is the requirements for reporting the contamination levels. The EPA has to provide ample consumer information, as well as direct access to the information by the public[10]. This act exemplifies the need for environmental awareness. Because this act requires the EPA to keep the public informed, it creates a catalyst for interest groups and the general public to voice their concerns and to seek out ways to better their environment. Not only does the public gain awareness, but also the companies being monitored gain a better understanding of how their activities are affecting the environment[10].

The Safe Drinking Water Act is also an example of how U.S. legislation has been continuously altered to better suit the needs of American citizens. For example, amendments to the act in the 1980s provided sizeable funding to states by the federal government. These grants are primarily the result of the federal government's desire to stress the importance of each state updating its drinking water systems[11].

A brief examination of a case study in rural Santa Cruz, Arizona illustrates how an act such as the Safe Drinking Water Act has been modified to address the needs of a community.

Throughout the latter half of 1990, Santa Cruz experienced heavy rains, which Epidemiologists claimed contributed to the already polluted waters by producing numerous hazardous compounds such as Tetrochloroethylene (PCE) and Trichloroethylene (TCE). The levels of PCE and TCE were so high that the Santa Cruz Board of Supervisors declared a state of health emergency. By February 1994, 2000 local citizens were evacuated because of the possibly volatile fumes coming from the nearby wash, where petroleum products were being dumped into the local rivers. Because Santa Cruz was such a heavily polluted region, studies were conducted to find the possible links between the contamination and the area health problems. It was determined that cases of deadly diseases such as myeloma and lupus were beginning to plague the area between 1989 and 1993, the same time period in which the local contamination level was on the rise[12].

Since the public drinking water in Santa Cruz was concluded to be unhealthy, local government officials declared that the federal Safe Drinking Water Act was being profoundly violated. Yet, when the EPA came to Santa Cruz to enforce the act, their recommendations were very costly for the area residents. While research found that the health risks were lessening, it was becoming more expensive to seek treatment because the suggestions provided via the Safe Drinking Water Act were not tailored for rural areas such as Santa Cruz. After analyzing these issues, the EPA advised Congress to amend the Safe Drinking Water Act to reflect the needs of rural settings by providing the option to suggest new environmental management systems if the Safe Drinking Water act did not properly suit the needs of the community being assisted[12].

In summation, this case study demonstrates the flexibility built into U.S. policies and regulations. The Safe Drinking Water Act was adapted to better address the needs and concerns of a rural community and allow for the enforcement of environmental laws to be more applicable

for a broader range of communities in the midst of environmental afflictions. This law is an example of how U.S. laws are continuously striving to empower individual citizens to improve their environment[12].

2.2.2 Emergency Planning and Community Right-to-Know Act

Another example of a U.S. law that empowers local citizens to gain information and seek environmental protection is the Emergency Planning and Community Right-to-Know Act. This piece of legislation may serve as a beneficial model for environmental management as its main goal is to inform the public of environmental contaminants. In order to gain a better understanding of the implications of this act, we will examine key background information pertaining to its origins, as well as an example of the types of projects generated from this act.

In 1986, Congress passed the Emergency Planning and Community Right-to-Know Act with the goal of bringing environmental health management into the hands of local communities by creating a hierarchical reporting structure to be regulated by the EPA. This law mandates the EPA to assign State Emergency Response Commissions, under which the Emergency Planning Districts appoint Local Emergency Planning Committees. This law serves as a vehicle by which individuals can express their needs for public health, safety, and environmental protection, to administrators who have the legislative power to investigate these needs[13].

When claims made by local citizen are investigated by the EPA and determined to be environmental problems, the Emergency Planning and Community Right-to-Know Act requires that all findings be publicly reported. In turn, the EPA releases publications and action plans, based on reported cases, such as air contamination surrounding a local plant. The publications that are released are intended to provide citizens with up-to-date information on environmental

conditions affecting them on a local level, so that if need be, citizens can voice their concerns with concise corroborating facts and figures[14].

The Toxic Release Inventory (TRI) is an example of such a community awareness publication. TRIs are continuously updated bulletins released by the EPA under the Emergency Planning and Community Right-to-Know Act. This inventory, which is mandated by the federal law and updated by the State Emergency Response Commissions, serves as an imperative source of public information. It provides key data regarding toxic chemicals that are being used, manufactured, treated, transported or released into the environment in local areas[15]. TRI also contains information pertaining to waste management activities and the steps being taken by facilities that harness hazardous materials[16]. With this inventory, the public can gain detailed information about their current environmental conditions. TRIs also help companies and government agencies to plan strategies for controlling their levels of contamination[17].

Thus, through the Emergency Planning and Community Right-to-Know Act, the U.S. government has developed a concrete method to reach communities undergoing environmental changes. By employing a hierarchal forum through which individuals can access accurate data related to their environment from the government, local citizens gain the awareness needed to manage the environment.

2.3   Decentralization and its Effects in Thailand

Along with environmental laws, decentralization is another step towards empowering local people. Decentralization in many developing countries has been instituted in order to broaden people's access to formal political power. Thailand is still in the midst of decentralization, where responsibility is being distributed to rural local governments. Local self-

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governing bodies, primarily at the sub-district level are gaining more responsibility in the administration of their communities. Through case studies, of other countries that have implemented decentralization policy, such as Japan and Mozambique, the ideas behind this restructuring of political power, how it is often put into place, and problems that are associated with it can be shown. Through the following case studies we will examine ideas and problems that mirror the issues surrounding the decentralization of the Thai government that we will be coming back to later. Some of these ideas and problems include distributing central powers to local governments, the fact that this process will take time, and

2.3.1 Decentralization Case Study: Mozambique

Mozambique is an example of a developing country where decentralization of government power has taken place. This case study provides a platform on which to introduce two primary ideas in decentralization: deconcentration and municipalization. The example of Mozambique also shows the problems that a developing country can face in this endeavor, such as a lack of training and resources in newly created local governments.

In the early 1980s, it was realized that there was an excessive centralization of decision making in Mozambique that contributed to the wastefulness and ineffectiveness of the government. Mozambique's government was both top-heavy at the central level and very weak at the provincial and local levels. As an attempt to alleviate this problem a political and legislative process was designed to decentralize the governmental power using two objectives: municipalization of the government and deconcentration of the central government ministries[18].

Municipalization, the creation of local governments with certain degrees of sovereignty, is being achieved in Mozambique, through a number of changes in national policy.

Mozambique's 1990 Constitution provided the framework for structure of local government. A more detailed framework was developed in September of 1994 that guided the development of the "Philosophy of the Local Government Reform Program." These principles encouraged municipalities to be self dependent, participation of citizens in local affairs, the election of local officials through direct voting using secret ballot, the respect of traditional local governments by the municipalities, allowing municipalities to become effectively operational over time. Other laws have been implemented to provide further legal framework for the local government and establish local electoral processes. Many international governmental organizations as well as Non-Governmental Organizations (NGOs) have financially supported the cause of municipal development[18].

In these new local governments, deconcentration of the Mozambique ministry functions is happening slowly and unevenly across ministries. The slow pace of ministry deconcentration, expanding ministry powers to the municipalities, is due to a lack of a modern standardized administrative process. A common system of personnel administration, budget preparation standards, and execution procedures, however, is now being implemented to fulfill this need. These new and improved administrative systems require skill development for local government personnel. Deconcentration relies heavily on the development of sufficiently skilled people, but developing countries like Mozambique often lack funds for training of personnel[18].

Many groups, such as the United States Agency for International Development (USAID) and the Danish International Development Agency (DANIDA) support Mozambique's decentralization process, and are willing to contribute money to the endeavor. Donor agencies such as these can influence the pace and extent of deconcentration through their willingness to fund training programs for officials and citizens. These donating agencies, however, do not

often like to contribute to the deconcentration process because trained personnel are likely to leave public office, due to inadequate public sector wages and working conditions[18].

In conclusion, the case of decentralization in Mozambique illustrates two of the main objectives in decentralizing governmental power, municipalization and deconcentration. This case study also shows that Mozambique, like Thailand, has a lack of resources to develop sufficiently skilled personnel at the local levels. The need for funding from outside sources exists in developing countries of the world.

2.3.2 Decentralization Case Study: Japan

Japan is an example of how decentralization is an evolving process that takes time. Legislation, giving local municipalities in Japan more autonomy, has been instated since the 1940's. Even today, Japanese citizens feel the need for more involvement in many issues in the country. As this case study shows, effective decentralization, creating public participation and a more democratic way of governing, takes time[19].

Local autonomy was introduced in the late 1860s in Japan, but local governments did not function as completely autonomous communities until 1947 when Japan adapted the principle that matters of the local communities should be managed independently according to the wills of local residents. This move was to give municipalities autonomy in administering their own affairs. It gave the citizens the ability to be heard by participating in the policy-making decisions and elections through popular vote to decide local officers[19].

Although citizens were now supposed to have more control over community decisions, in reality, national laws have been dictating issues that were perceived as being local. National laws have been applied to smaller local cases, and the administration of these laws was delegated

to local officials, making them in effect extensions of the central government. Similarly, the Local Tax Law, a piece of national legislation, determines local taxes. Some revenue in the local sector is obtained directly through local taxes, while most tax money that is used for local issues is redistributed from the national government. Thus, the local governments are still structurally dependent on the national government for a majority of their annual revenue, contrary to the ideas of local autonomy. National government agencies have doubted the administrative capabilities of local political entities and authorities in the past, and have created resistance to transferring authority to the local governments[19].

In recent years there has emerged a strong desire among the residents in local communities to participate more actively in the process of policy formation. Each community feels that they should have the right to determine their own environmental regulations. The citizens of local communities have come to demand from the national government greater local sovereignty for themselves and clearer division of responsibility between the national and local governments. Many Japanese citizens feel that the extent of the national government should not go beyond foreign policy, defense and other such issues. The local government should manage all other issues concerning childcare, education, health care, labor, social welfare, environment, and land use[19]. Thus it is shown that public participation in Japan is still not fully developed, even after many years of public urging to do so.

2.3.3 Thai Government Structure and Decentralization

Thailand's government is undergoing changes in the structure of its administrative authority. Thailand is ruled as a constitutional monarchy in that there is a combination of both appointed and elected officials at almost all levels of governance. Since the inception of the

constitutional monarchy, Thailand has been moving towards the goal of an elected government. Although Thailand has been moving towards a more democratic system, the king still holds power, and many officials in the government are chosen from within rather than being directly chosen by the people. This distribution of power is reflected in the two forms of local government that are present in the country, local self-governing bodies, and local governments. The difference between the two being that local self governing bodies are comprised of elected citizens, where as local government officials are appointed by the Ministry of Interior (MOI). By providing details of the Thai government, it is clear that the government structure has been moving towards giving more power to localities. The current push towards decentralization is aimed at giving the country's smaller, rural municipalities more of a voice in determining what happens around them. Delegating responsibility and accountability in to local governing bodies creates the need for skill training and awareness within them to deal with the problems associated with their new stature.

The Thai government is separated into three branches, all of which are overseen by the king. The king exercises his judicial powers through the courts, his legislative power through parliament, and his administrative powers through the ministries. Thailand's executive branch of government consists of thirteen ministries, and is led by the Prime Minister, who is considered to be the head of the government. The executive branch carries out all of the day-to-day activities of the government[20].

The Ministry of Interior (MOI) oversees all local administration in the country. There are government officials that are appointed from the MOI at the provincial, or Changwat, district, and sub-district, or Tambon, levels. Districts are comprised of sub-districts and sub-districts are made up of villages. The appointed officials from the MOI are trained civil servants and are

there to aid in policy making. This hierarchy of appointed officials is called the local government administration and can be viewed as deconcentrated factions of the MOI[21].

In addition to these appointed officials at the province, district and sub-district level, there are elected governing organizations at the province, district and sub-district levels. These elected organizations are all forms of the local self-government. The local self-governments have limited budgetary authority, and are independent in some decisions within legal boundaries. They are also able to perform many duties that are in accordance with laws that are set by the MOI[21].

The local self-government at the sub-district level, Sub-district Administrative Organizations (SAOs), consists of a group of officials, which are elected from within the villages of the sub-district. Since sub-districts were officially recognized in 1956, the SAOs have had limited financial resources and organizational capability. They have had to depend heavily on monetary distribution and policy development from the central government[21].

According to Walden Bello's book, *A Siamese Tragedy*, laws and programs, in Thailand are not always effective, for they are imposed from the federal level without the consultation of local people who are affected by the program. It is probable that the local citizens for whom these programs are aimed at are often suspicious of the government's motives to begin with. The central government uses these programs often times for gaining further control over specific areas. Such was the case in The Forrest Village Program. The central government installed most of these programs to wield more power over northeastern Thailand before the actual implementation of The Forest Village Program and the improvement of "man-forest-relations"[22]. Programs implemented from the national level, with intentions of exerting more control over local areas increase mistrust amongst citizens and the central government.

These obstacles are especially apparent in rural Thailand, where local governments traditionally have less bargaining power than groups more centrally located or situated in large urban areas[22]. More specifically, many rural regions in the north of the country have been separated from the Thai political and commercial center of Bangkok, and the surrounding plains, for as long as they have been a part of Thailand. The isolation of these often over-looked areas is partially due to Thailand's mountainous northern terrain. In the past, people in more isolated areas were ruled over as if they were vassal states, with little to no communication with the central government. This regionalism, which has spawned cultural differences between inhabitants of the north and south, has caused the villages of the north to develop their own sort of political independence. This regionalism has consequently played a part in inhibiting the voice of the isolated northerners in the national government, even on issues that have direct effects on the people who live in the region[23]. Decentralization is occurring so that governmental power is spread more evenly throughout the country, and to give smaller, more rural areas of the country more opportunities to participate in the decision-making process of government policies[24].

Although decentralization is explicitly stated in the Thai constitution of 1997, it can be argued that this process began when the country became a constitutional monarchy in 1932, to realize the goal of a popularly elected government[20]. Since then, legislation has been passed to create municipalities and strengthen their abilities to act as independent organizations, such as the Tambon Authority Act of 1956[21]. Most recently, the Thai constitution of 1997 has called to decentralize the government by delegating more power to the SAOs. The current responsibilities of the SAOs includes the functions of sanitation services, fire fighting, maintenance of local roads and waterways, and prevention and suppression of disease[25]. Once decentralized, SAOs

will have greater freedom in determining policies, budget administration, and personnel administration[24]. It will take time, however, before individual sub-district leaders begin making their own policies. SAOs require education, resources, and training; however there is currently very little money budgeted to train sub-district and village leaders in technical areas, such as environmental health management[24]. Relevant education and training can be achieved through a process called capacity building.

2.4 Capacity Building and Community Programs

Community programs have proven to be an effective way to build capacity. According to Valentine Udoh James' book *Capacity Building in Developing Countries: Human and Environmental Dimensions*, capacity building in developing nations is a process necessary to empower local people to create and implement policies and programs that are suited to their conditions[26]. Many organizations, world wide, interested in building capacity accomplish their goals through community programs. Although capacity building programs have been applied throughout the world, including parts of Thailand, the village of Huay King in Mae Moh District, of northern Thailand has not benefited from any of these examples, including models for environmental health management. To illustrate different approaches in capacity building, we more closely examine various ways to increase knowledge, skills, and awareness and highlight several on-going programs. Each of these programs focuses on three main goals: increasing community involvement, improving communication between stakeholder groups, and providing a facilitation process; however, these case studies are presented in a manner that spotlights only one of these aspects.

2.4.1 A Closer Look at Capacity Building

Capacity building is an excellent tool to help strengthen the communication link between governing authorities and local citizens and to give a community knowledge and skills necessary for participating in decision and policy-making. In order to take a closer look at capacity building, we explain some areas commonly in need of improvement and describe a few tools used to enhance education and awareness. To further understand common approaches to capacity building, we describe a few steps taken by the U.S. Environmental Protection Agency (EPA) to evaluate the needs of a community. This information builds background for the models we will later discuss in detail.

Communities around the world often share similar reasons for implementing capacity building programs. These reasons often include poor communication, lack of quality educational materials, under-appreciation for the problem, and lack of adequate funding[27]. For regions in need of efficient environmental management, a proposal for improvement would typically begin with a focus on human resources, organization, legal framework, and the generation of policy. Enhancing human resources, another way of describing capacity building, provides groups and individuals with the skills, education, and training necessary to make informed decisions concerning the environmental situation.

Organization requires not only a clear definition of what roles the different groups involved play in the decision-making and implementation process, but also a designation of the relationships between these factions. The groups involved, also known as stakeholder groups, may include government agencies, non-governmental agencies, citizens, and health professionals, among others. One way to achieve a system of organization is by developing a legal framework in which the desired program, such as effective environmental health

management, can operate. Specific laws and policies give governments and institutions the power to make decisions[28]. Legal power, however, does not always translate into effective action if there is a lack of knowledge, skills, and resources.

In order to develop a relevant definition and course of action for building capacity, the groups in a community, in need of capacity, must first be identified. Interviews conducted with experts on community participation and capacity building in 1999, by the U.S. EPA evaluated whether capacity-building efforts should be aimed towards local citizens or reserved specifically for stakeholder groups or groups in the community with a vested interest in environmental health management and community leaders[29]. In general, both approaches to capacity building were found to be equally valuable, depending on the situation. Community members are worthy targets because community leaders and members of stakeholder groups tend to already be overworked. Also, once citizens are trained and educated, they may in turn become leaders themselves. In some cases, however, it is best to rely solely on capacity building amongst established leaders because they are most likely to have a vested interest in learning to participate in the policy-making procedures that affect them. A specific focus on community leaders, which tends to have a high probability of results, conserves valuable time and resources[30]. Thus, according to the EPA, identifying groups that require capacity and other stakeholder groups is the first step in a capacity building process.

Next, the EPA's 1999 study identified specific tools that respondents were interested in utilizing for a capacity building program. Most interviewees agreed they would like to see an increase in information, technical assistance, participatory education, access to documents, and law education. Ideally, each of these areas of capacity should be easily accessible, inexpensive, widely available, and written or taught in easily understood terms. Many interviewees also

believed that raising the capacity of the community through educational methods will "level the playing field", so that everyone interested has the ability to participate and work together on an equal level[30].

This closer look at capacity building has provided a clear definition of the need for education and awareness in local communities. The EPA's recommendations for carrying out capacity building, which are based on a study they conducted, are applicable to the village of Huay King. This community, as well as others like it, could initiate a capacity building process by identifying stakeholder groups and problem areas. There are several parts to a capacity building process or action plan, such as community involvement, communication, and facilitation. A review of several international capacity building case studies that outline the aforementioned characteristics will provide a basis from which a process for Huay King and other rural villages can be developed.

2.4.2 Building Community Involvement and Capacity in Rural Thailand

One important aspect of capacity building is community involvement. Without this participation, policies and decisions tend to not reflect the needs and desires of the local citizens. In rural Thailand, involving the local citizens, in issues such as environmental health management, has had varying results. As the following case studies demonstrate, encouraging community input is necessary to ensure a successful structure for an efficient capacity building action plan. By providing a glimpse at an unsuccessful attempt to involve the local Thai citizens, supported with successful community involvement projects in rural Thailand, it becomes clear why local involvement is necessary.

EGAT has been involved in many capacity building and community programs; however, not all of them have been completely successful. In 1988, EGAT attempted to involve the community by launching a publicity campaign. The purpose of this promotion was to build capacity by raising awareness in the community and gaining support for EGAT projects. One such venture, a proposed hydroelectric dam on the Mun River in Northeastern Thailand, was anticipated to have a great environmental impact on the surrounding areas. In an effort to combat the controversy the dam would stir in the neighboring villages, a publicity campaign was implemented[31]. This course of action included over a thousand programs aimed at educating and involving the local citizens, including the dissemination of information via mass media, reading material, seminars, and educational funds. EGAT officials also participated in local community events in order to make themselves more visible and accepted in the villages[32].

The results of this campaign were only somewhat successful because the community was not the initiator. Consequently, the local citizens did not develop a vested interest in the publicity efforts, and therefore were somewhat unreceptive to EGAT's attempts at involving the community. Since the public relations campaign was developed and implemented by EGAT, it is likely that provisions were not made for adequate feedback from the local citizens and other groups affected. EGAT has since recommended that similar endeavors in the future must be implemented with more assertiveness and community participation[33].

Thus, from this case study, we begin to understand the importance of involving the local citizens from the start of a similar publicity campaign or other capacity building programs. Without the initial input from the community, the people do not take an active role in a project's development and success. By encouraging the villagers to communicate and work more closely

with EGAT to ensure that their desires for a publicity campaign are met, the first step in a capacity building action plan is initiated.

Cases in which Thailand has successfully applied capacity building and community participation to environmental health management are relatively rare; however, with a small measure of capacity, a community can participate in such local governmental issues as environmental health management. One participatory program, known as the "Noi River Conservation Project", employed local citizens in supervising pollution levels in the Noi River. According to the Thailand Development Research Institute Foundation, the community is still a critically underutilized resource, particularly in rural Thailand, where local governments are often ill equipped for handling environmental policy and management[34]. This lack of skills, resources, knowledge, and involvement at the local level indicates the need for capacity building throughout the region.

In Thailand, community involvement is a necessity for providing medical attention to as much of the population as possible, especially in the rural, northern part of the country. A lack of doctors and other health care professionals has placed a great deal of responsibility on the communities to provide basic primary health care, such as first aid, modern health information, and screening for common diseases[35]. The decentralization of the government, which is expected to take effect within the year 2001, creates an even greater need for the empowerment of a community in order to ensure the local citizens have a voice in the making of policies and distribution of funding.

Many of the provinces, districts, and sub-districts, in Northern Thailand have begun increasing community involvement with respect to health care. The health care officials have created village health volunteers, or people who donate their time to promote health awareness in

the village. These volunteers are often provided with free health care as an incentive, and every three years or so, there is an opportunity to "elect" someone else to the position. Village health volunteers are trained by health officials in the medical areas that are most prominent in their village. These people can then work at the Community Primary Health Care Center (CPHCC) to provide the basic primary health care and recommend people to the sub-district or district hospitals[35].

The CPHCC, a place centrally located in the village to make health care more accessible to local citizens, caters to a broad spectrum of the villagers' needs. This facility serves the community's needs for primary health care, such as first aid, measuring blood pressure, screening for common diseases, and care for diarrhea, to take place. Although CPHCCs are not utilized fully in most villages, with the help of volunteers, they are able to offer a variety of services to the local people while creating a greater sense of community[36].

In addition to village health volunteers, there is often a family health leader within each family. This person is concerned with the health and well being of the family by encouraging and promoting health awareness and a healthy lifestyle. Informal training for this position is provided, with respect to health related topics the individuals feel are of greatest importance to their family and/or village, such as dengue fever, HIV/AIDS, malaria, and other prominent diseases. Family health leaders are volunteers who promote healthy choices, like practicing safe sex to reduce the chance of contracting HIV/AIDS, or avoiding mosquito-ridden areas to prevent dengue and malaria. Unlike the village health volunteers, these individuals do not receive incentive, other than the benefits of helping one's family[35].

By working closely with the community and village health volunteers, medical officials are able to understand better what areas of health care need improvement[35]. The community

programs also give the local citizens a sense of belonging and provide them with the opportunity to become involved in issues that directly affect them. There are many benefits to allowing the family health leaders and village health volunteers to determine which areas of health care and awareness are most important to their community. This involvement not only creates less work for the already over-burdened health care professionals, but it also encourages the local citizens to have a stake in their village, which results in a greater desire for successful health care and cooperation with the officials involved[36].

By increasing community involvement in health care, northern Thailand has begun the capacity building process. With villagers helping to increase the knowledge and awareness of other community members, the local citizens develop a vested interest in the development and success of programs and policies that will affect them. Thus, empowering the local citizens initiates the capacity building process.

2.4.3 Improving Communication Between Stakeholder Groups In Order to Build Capacity

Communication is another essential aspect to building capacity. Several models from around the world illustrate the importance of contact between stakeholder groups. For example, several Native American tribes are currently working with governmental groups in order to gain skills in applying for grants. Another case study in Tanzania illustrates the way in which cooperation between private and public sectors plays an important role in building management capacity. These two models are presented in order to clearly demonstrate the value of communication in any capacity building process.

The American Indian Rehabilitation Research and Training Center (AIRRTC) at Northern Arizona University is one of many groups around the world conducting capacity building projects. The goal of this continuous effort is to increase Native American competition for grants and contracts that would allow them to receive government funding and aid. Capacity building, in the form of education, is needed to make Native Americans aware of the Rehabilitation Act of 1973 and its implications. This act was designed to allow Native Americans to receive government funding for programs such as vocational rehabilitation for disabled Natives. Due to a lack of knowledge and awareness however, this rehabilitation program was not fully taken advantage of until the AIRRTC became involved in the 1980s[28].

The AIRRTC focuses on several core areas of development. The first area is technical assistance for those tribes that wish to apply for grants but lack the capacity to file a claim. The AIRRTC has also expanded vocational rehabilitation program curricula in order to accommodate the Native American culture. Part of the AIRRTC capacity building program facilitates communication between tribes that have implemented similar vocational rehabilitation programs. This communication is especially valuable to new grantees needing experienced assistance. Finally, the AIRRTC trains Native interns in the art of applying for grants[28].

It is important to be aware that the AIRRTC does not work in isolation. Nearly every capacity building plan involves a number of stakeholder groups, which have a vested interest in becoming involved. The AIRRTC often cooperates with state vocational rehabilitation facilitators, American Indian vocational rehabilitation groups, American Indian tribal service agencies, and related federal service agencies, including the Indian Health Service and the Bureau of Indian Affairs[28].

This case study shows how capacity building is used to teach Native Americans the skills necessary to take advantage of opportunities provided by the U.S. federal government. Without this training, funds available to Natives might be granted to other groups. The AIRRTC project is significant to this project in that it illustrates the need for communication between groups and the importance of using people who have experienced the same situation as mentors to build capacity.

Tanzania, while different than the U.S. in many ways, faces many social and economic problems, which may be improved by building capacity, similar to the Native American situation. In November 1995, the African Governors of the World Bank held a workshop on the need for capacity building. This meeting was held due to the popular belief that the decline of "human and institutional capacity" was the predominate cause of Tanzania's economic plight[37]. The first two steps of this project were to determine the areas of Tanzanian life that need capacity building and to develop a working definition of capacity building. The initial step resulted in the distinction of capacity building for the public, private, civil, and educational sectors of society. Then, it was resolved that capacity building should be defined as developing "professionalism, institutional autonomy and managerial effectiveness"[37]. This definition is especially significant, as this project will focus on building "managerial effectiveness," as it relates to environmental health. Thus far, the results of this Tanzanian workshop have focused mainly on specific issues such as poverty alleviation, AIDS, environmental concern, and decentralization. The emphasis has been on self-reliance and decreasing the need for foreign donors[37].

Like the Native American project, the Tanzanian capacity building involved stakeholder groups from many different interests. These groups included the Prime Minister's Office, Ministry of Education, Planning Commission, civil service, the private sector, universities, and

the Center for Energy, Environment, Science & Technology[37]. This case in Tanzania further implies the importance of collaborating with related parties when developing a capacity-building program. This model also allows us to see the step-by-step process that develops a capacity building action plan, which typically begins with identifying areas needing improvement and defining capacity building based on those findings.

2.4.4 Capacity Building as a Facilitation Process

Capacity building processes are most effective when an outside party initiates the preliminary steps, while ultimately leaving the power in the hands of the local community. This method of facilitation encourages the stakeholder groups to take initiative and responsibility for their actions. Many capacity building programs built on this concept in Africa, Malaysia, and Thailand are detailed in order to demonstrate the usefulness of objective facilitators.

In Africa, the need for effective management is the focus of many capacity building programs. The problem stems from the way in which the continent practiced reliance on foreign capital, resources, and management during the years under European colonization[38]. Current programs in Africa are focusing on several major areas to build management capacity. The first of these strategies is to improve social conditions through political stability and support. The second is to halt the rapid rate of "brain drain" in developing countries, which not only deprives communities and governments of educated leaders but also prevents a country from reaping the benefits of investing in education[39].

Several different groups are currently working as facilitators in Africa, and have made suggestions for ways to alleviate these problems. Felix Edoho, an analyst of capacity building programs in Africa, recommends programs, which address management motivation by re-

evaluating the salaries of highly skilled positions, to realistically reflect the worth of an individual to the country in order to encourage valuable employees to remain in Africa[39]. Specialized institutions are created with the purpose of providing a pool of skilled managerial employees, management training, and up-to-date information necessary for effective management. Technical assistance, often in the form of foreign aid, is another area needing improvement.

Throughout Africa, emphasis has been placed on the need for outside help to be purely consultative, as putting the responsibility of management in the hands of Africans is the purpose of this capacity building process[40]. Capacity building in Africa also stresses autonomy and the utilization of local talent. Most importantly, career-oriented education provides training for young Africans for positions in industry and management. In each of these focus areas, the emphasis is to convince average African people that they can make a difference in the current political, economic, and social situation[41].

Providing knowledge and awareness in order to accomplish the task of improving political, economic, and social issues is the vital element in most capacity building programs. From the post-colonial Africa model, it can be seen that it is important in most capacity building programs, including this project, for the researchers to act only as facilitators in determining how much is known about environmental health management and what areas need improvement, since the goal of capacity building is to empower the people.

Throughout the Asia-Pacific region, there is also a greater need for capacity building. Like many developing nations, this region needs the capacity to build more lasting and healthy communities, which, in turn, would improve the overall quality of life. Often times, however, without help from an outside party, areas trying to improve the way of life struggle with building

capacity. With the presence of a facilitator, many developing nations find the capacity building process to be expedited because the community can utilize the skills and knowledge of this more experienced group.

One such group working in the Asia-Pacific region is the Institute for Environment and Development (LESTARI). Working with Local Agenda 21 (LA21), an action plan to create more sustainable development action plans, the Institute for LESTARI, a multi-disciplinary research institute at the Universiti Kebangsaan, Malaysia, acts as a facilitator to promote more sustainable communities. By providing support services, such as workshops, training and basic education, technical assistance, resource material, and policy research on effective ways to implement LA21, LESTARI encourages the creation of programs to improve the current way of life[42].

In order to be an effective facilitator and encourage the development of programs specific to a certain region, this institute also develops partnerships with many stakeholder groups in the area to become acquainted with the needs and desires of the community. With an understanding of the areas which need capacity building, LESTARI is able to assist the local citizens and other stakeholder groups in creating an action plan that is specific to their needs and desires. By tailoring the action plan to the stakeholders' wishes, the effectiveness of the programs that are developed, which in turns leads to the sustainability of the community, is generally increased[42].

Other organizations in the Asia-Pacific region interested in promoting sustainable communities and capacity building through facilitation include the King's Royal Project in Thailand. At one time, many of the hill tribe people were dependent on the growth and selling of opium for survival. In an effort to reduce the production of this drug and save the forested land in the north, the project began providing these communities with alternative crops. The Royal

Project aids the communities in establishing sustainable crops in contrast to opium that will not only increase the tribe members' quality of life, but that will also benefit the entire country. These crops include winter fruits and vegetables, herbs, flowers, and other items, which are not native to Thailand. The overall goal of the King's Royal Project is introduce crops that will sustain the community as well as provide the local people with an income and better way of life[43].

Volunteers of the King's Royal Project help the local citizens determine which crops will grow easily and successfully for a certain region by testing a variety of plants in a sample of the soil. Once it has been concluded which crops are appropriate for the region, it is up to the community to encourage the growth and success of the plants. The project helps the villagers sell their products to various markets, which creates income for the people; however, it is the responsibility of the entire community to help each other and ensure that the crops are successful. Thus, by creating capacity within the community to support itself while earning a living, the local people are empowered and a more positive attitude toward outside organizations results[43].

Often times, with the objective opinions of an outside party, capacity building action plans are more successful than other plans because there is a neutral group that can facilitate the process. As detailed by the previous case studies, since many areas lacking capacity do not have the means to begin building it for themselves, the advice and encouragement from a more knowledgeable party is useful in initiating the capacity building process. Starting such a process, can involve much time, as there are many different methods in which capacity can be built.

2.4.5 Methods of Building Capacity

Capacity building can be accomplished through many different methods. Advisory boards, workshops, and classes, are a few of the more common tools, which are used to increase communication, knowledge, and understanding between stakeholder groups. By looking at two case studies, one in Asia and one in the United States, various techniques of building capacity, which could be applied to Mae Moh, are explored.

In Asia, the Human Settlements Development (HSD) program is currently researching capacity building possibilities similar to those in Tanzania, but with a focus on urban management. The HSD acts as a consultant to urban areas interested in improving their human quality, which involves topics such as social equality, participation in the government, poverty reduction, and environmental improvement. The HSD plans to accomplish these improvements using a panel of experts, workshops, and consultations in order to educate citizens and policy-makers. Like most capacity building programs, the focus is decentralization and the empowerment of local communities. Again, there are several key stakeholder groups involved in this project, including the United Nations Development Program and the United Nations Center for Human Settlements, both international governing bodies with a special interest in improving the quality of life in urban centers[27].

This Asian case study depicts several examples of methods that can be used to build capacity, such as advisory boards, workshops, and classes. These dissemination tools provide a good basis of possible suggestions for the Mae Moh project, as they have proven effective in other parts of the world. It must be realized, however, that the local citizens will ultimately create the most effective capacity building method for themselves.

Similarly, in the United States, many local governments have applied community programs to help disseminate information to residents, thereby increasing capacity. A number of these programs, such as one created in Western New York State, have proven very effective. This particular program was established in 1997 to help identify regional groups in need of information and education concerning environmental health, while creating a sense of community. The program is based not only on the needs of the community, but also relies on research conducted by the local Environmental Health Sciences Center[44].

As part of this program, a community advisory board, consisting of members of local agencies and community groups, was developed to reflect the community and the environmental health concerns in the area. After determining the aspects of environmental health knowledge that needed improvement, the community advisory board established goals and created subcommittees to oversee the development of the objectives. These goals designed by the advisory board, included the development of activities to encourage community awareness and understanding on the major environmental issue in the area and the correlation between environmental health and the formation of new public policies[44].

The board also created educational programming in the community to demonstrate some of the preventative measures that can be taken to reduce and/or prevent the risks associated with environmental problems. In addition, the community advisory board took measures to assure that the lines of communication stay open between the Environmental Health Sciences Center and the members of the community[44]. Thus, these goals accomplish not only the establishment of more environmental awareness and knowledge in the area by creating more communication between community members and the Center, but they have also created an educational outreach

program based on the needs and desires of the community to demonstrate the various aspects of environmental health.

This western New York case study depicts the use of a community advisory board as well as educational programs to help increase awareness and knowledge with respect to environmental health management. The advisory board, which included members of the community, determined what types of action plans and programs the people would not only benefit most from, but would also have the most interest in. Although these methods may be applicable to Mae Moh, it is important to realize that each community must be responsible for deciding what is and is not feasible.

2.3.6 Difficulties in Building Capacity

Involving the local community in policy and decision-making is often a difficult task. Community members are often unaware or uneducated as to the details of a particular topic, thereby creating a need for capacity building. Encouraging citizen involvement in this process can be limited by conflicting roles, a lack of interest, disagreement regarding the need for community participation, and the popular opinion that the contribution of the individual will go unheeded. These common difficulties in establishing an effective capacity building process are presented in order to aid in recognizing and overcoming future environmental problems.

A simple four-step environmental management program, according to William L. Andreen, legal advisor to the National Environment Management Council of the United Republic of Tanzania, involves policy, law, organization, and capacity, is unrealistic in most developing countries[45]. These key areas cannot be distinctly separate or in a specific order; for each depends upon the other. Furthermore, new environmental management and capacity

building strategies rarely begin with a clean slate. Most countries already have some type of environmental regulations, even if they are not complete or comprehensive. These policies are often outdated and half-forgotten, sometimes causing oversight and confusion and resulting in overlapping jurisdiction and conflicting regulations, making it a challenge to refine the system. Consultants, advisors, public officials, and citizen groups alike find it difficult, as they are often working in isolation from one another. In some cases, parallel environmental programs exist in competing institutions, thereby creating further inconsistencies in policy. All of these factors contribute to a loss of faith in the ability of developing nations and communities to successfully carry out environmental management[45].

There are several other barriers to successful capacity building in local communities, as identified by the respondents of interviews conducted by the EPA. A common concern is often the belief that the voice of the people will go unheard, especially to large organizations and corporations such as the EPA or EGAT. This perception often leads to a decrease in participation and lack of interest. Many people believe that a decision is already made before the community is consulted[46]. Then, even if the community does participate in environmental health management and decision-making, it is not guaranteed that the purpose of community input is clearly defined, or even necessary. Finally, time and resources often affect the level of participation[47]. Most families, especially in the U.S., already have busy schedules that do not allow for community involvement, particularly when the issue of concern does not directly affect their daily lives. This apathy leads to "crisis-driven participation", in which local citizens tend to increase their level of participation as the situation becomes more serious[48]. According to the EPA findings, it is helpful to explain to the community how each issue is relevant to them and their surroundings. For example, while a particular regulation may not seem to immediately

affect the villagers, it could decrease emissions that could in turn prevent future health and environmental problems[48].

By detailing ways in which to build capacity, such as increasing communication between stakeholder groups, encouraging community involvement, and the use of facilitators, a better understanding of possible capacity building action plans relevant to Mae Moh, and more specifically Huay King, results. Although capacity building is a necessary step in improving environmental conditions in the village of Huay King, there are also many difficulties in doing so successfully. Keeping in mind the ways in which capacity can be built will help us facilitate the development of a capacity building action plan with respect to environmental health management.

[1]"About ISO/TC 207." ISO/TC 207 Official Website. Accessed: 28 Nov. 00.
http://www.tc207.org/aboutTC207/index.html.

[2]"ISO 9000 + ISO 14000 News Service." ISO 9000 and ISO 14000. Updated: Nov. 00. Accessed: 18 Nov. 00.
http://www.iso.ch/9000e/9k14ke.htm.

[3]Sheldon, Christopher. ISO 14001 and Beyond. Greenleaf: 1997, p. 23

[4]EGAT Informational Tour. 10 Jan. 01

[5]Khun Pramote. Personal Interview. 25 Jan. 01.

[6]Kinter, Marcia. "Environmental Management Systems—Protecting the Planet...and Your Bottom Line" Update: 2001. Accessed: 17, Jan. 01. http://www.screenweb.com/business/cont/ems990211.html.

[7]"Cambior Environmental Management System Awarded Prestigious ISO 14001 Certification." SGS Canada Inc. Accessed: 10 Feb. 01. http://www.sgs.ca/Ics/Press/CambiorPress.html.

[8]"Canadian Mine Strikes Gold with ISO 14001." International Environmental Systems Update, CEEM Inc. Updated: 30 Aug. 99. Accessed: 10 Feb. 01.
http://www.cambior.com/communique/cambior/1999/anglais/02_99e.htm.

[9]"The Safe Drinking Water Act." EPA Office of Water. Accessed: 28 Nov. 00.
http://www.epa.gov/safewater/sdwa/sdwa.html.

[10]"President Signs Safe Drinking Water Act Amendments." EPA Press Release. Updated: June 86. Accessed 28 Nov. 00. http://www.epa.gov/history/topics/sdwa/04.htm.

[11]"EPA Safe Drinking Water Go into Effect Today." EPA Press Release. Updated: June 77. Accessed: 28 Nov. 00. http://www.epa.gov/history/topics/sdwa/03.htm.

[12]Sprouse, Terry. "Aquifer Contamination and Safe Drinking Water: The Recent Santa Cruz County Experience." Udall Center for Studies in Public Policy. Updated: 1996. Accessed: 11 Jan. 00. http://udallcenter.arizona.edu/publications/santacruz.html.

[13]Kelley, Jeff. "Emergency Planning and Community Right-to-Know Act." Major Environmental Laws. U.S. Environmental Protection Agency, Office of Public Affairs. Updated: June 99. Accessed: 11 Dec. 00. http://www.epa.gov/region5/defs/html/epcra.htm.

[14]Schierow, Linda. "Emergency Planning and Community Right-to-Know Act." NCSE Summaries of Environmental Laws Administered by the EPA. Accessed: 28 Nov. 00. http://www.cnie.org/nle/leg-8/m.html.

[15]"What is the Toxic Release Inventory?" U.S. Environmental Protection Agency. Updated: Mar. 2000. Accessed: 18 Nov. 00. http://www.epa.gov/tri/whatis.htm.

[16]"IDEM-OPPTA: What is Toxic Release Inventory (TRI)?" Office of Pollution Prevention and Technical Assistance. Updated: Oct. 00. Accessed: 18 Nov. 00. http://www.state.in.us/idem/oppta/tri/testwhatistri.html.

[17]Eck, Mike. "Emergency Planning and Community Right to Know Act (EPCRA)." United States Army Environmental Center. Updated: Jul 00. Accessed 18 Nov. 00. http://aec.army.mil/prod/usaec/et/p2/epcra.htm.

[18]Connerley, Ed, Carol Lynn Martin, and Louis A. Picard. "Support for Local Government in Southern Africa: Mozambique, Namibia, and South Africa". Updated: 11 Sep. 1999. Accessed: 5 Feb. 2001. www.imdi.gspia.pitt.edu/Publications/SLGSA/Mozambique.html.

[19]"Decentralization of Japanese Government". Accessed: 20 Feb. 2001. http://jin.jcic.or.jp/insight/html/in_persctive/decentralization/.

[20]"Government and Politics". Accessed: 18 Feb. 2001. http://www.mahidol.ac.th/Thailand/governm-politic/politics.html.

[21]Leoprapai, Boolert. "Social Sector Decentralization: The Case of Thailand". Updated: July 1997. Accessed: 18 Feb. 2001. http://www.idrc.ca/socdev/pub/thailand/Thailand.html.

[22]Bello, Walden, Shea Cunningham, and Li Kheng Poh. Siamese Tragedy. White Lotus Company: Bangkok, 1998; p. 193-194.

[23]Van Roy, Edmund. Economic Systems of Northern Thailand: Structure and Change. Ithaca, NY: Cornell University Press, 1971; p. 30.

[24]Thai Department of Local Administration Website. Accessed: 9 Nov. 2000. http://www.dola.go.th.

[25]Fitzpatrick, Martin and Andreas Kappos. Environmental Health Services in Thailand. Bangkok, Thailand: Desire, 1999; p. 59-60.

[26]James, Valentine Udoh, ed. Capacity Building in Developing Countries: Human and Environmental Dimensions. Westport, Conn.: Praeger, 1998; p. 8.

[27]"Human Settlements in Asia". Urban Management Center. Updated: 30 Jun. 00. Accessed: 13 Nov. 00. http://www.hsd.ait.ac.th/.

[28]"Capacity Building for American Indians Project". Updated: 2 Feb. 00. Accessed: 13 Nov. 00. http://www.nau.edu/~ihd/CBAIP/index.html.

[29]Environmental Law Institute. "Building Capacity to Participate in Environmental Protection Agency Activities: A Needs Assessment and Analysis". 1999; p. 5.

[30]Ibid, p. 7

[31]"Environmental Impact Mitigation: Pak Mun Hydroelectric Project Units 1-4 Completion Report". Oct. 1996. Hydropower Construction Division, EGAT; p. 34.

[32]Ibid, p. 35

[33]Ibid, p. 40

[34]Kaosa-ard, Mingsarn and Sunil S. Pednekar. *Environmental Strategy for Thailand*. Thailand Development Research Institute Foundation. Bangkok, Sept. 1996; p. 52.

[35]Siraprapasirir, Taweesap. Lampang Provincial Health Office Interview. Jan. 10, 2001.

[36]Budtakoon, Pornnipan. Wangprao Health Center Interview. Jan. 12, 2001.

[37]Mpango, Phillip. "Workshop for Development of and Training on Approaches and Methods for National Capacity Building". Updated: 1 Jun. 1998. Accessed: 19 Nov. 00.
http://www.oneworld.org/ecdpm/en/events/98003/mpango.htm.

[38]Edoho, Felix. "Management Capacity Building: A Strategic Imperative for African Development in the Twenty-First Century". *Capacity Building in Developing Countries: Human and Environmental Dimensions*. Westport, Conn.: Praeger, 1998; p. 240.

[39]Ibid, p. 248

[40]Ibid, p. 249

[41]Ibid, p. 250

[42]"Asia-Pacific Local Agenda 21 Resource Guide." ICLEI. Updated: 99. Accessed: 5 Dec. 00.
http://www.iclei.org/la21/map/intro.htm#contents.

[43]"The Royal Project Foundation." Accessed: 20 Jan. 01. http://www.cyber-image.com/royalproject/.

[44]University of Rochester Medical Center. Accessed: 12 Nov. 2000.
http://www.niehs.nih.gov/centers/coep/roc-coep.htm.

[45]Andreen, William L. "Environmental Law and International Assistance: The Challenge of Strengthening Environmental Law in the Developing World". *Columbia Journal of Environmental Law*. 25, no. 17. (2000).

[46]Environmental Law Institute, p. 43

[47]Ibid, p. 44

[48]Ibid, p. 45

3.0 Methodology

The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental health management in rural Thailand. The objectives of the capacity building facilitation process therefore includes identifying stakeholder groups, defining environmental health management, evaluating current capacity and determining roles and responsibilities, and finally developing a capacity building action plan. Interviews and focus groups were used as data collection techniques to accomplish each of these objectives and SWOT (Strengths-Weaknesses-Opportunities-Threats) and content analyses were then applied to utilize this data and make recommendations for increasing education and awareness of the environment. In order to provide a framework for a capacity building process with respect to environmental health management, section 3.1 outlines the general objectives necessary in the process, applicable to any similar environmental health management capacity building process in rural Thailand. Then, section 3.2 describes the way in which the village of Huay King was used as a model to test that process.

3.1 Applying a Capacity Building Facilitation Process in Rural Thailand

In order to assess environmental health management needs and current capacity in a rural Thai village, there are several objectives that must be accomplished. The first of these objectives is to identify stakeholder groups through background research, as well as in the course of data collection techniques such as interviews and focus groups. Then, a working definition of environmental health management, as perceived by the various stakeholder groups, and an

assessment of the current capacity and responsibilities of those groups is necessary. The information, opinions, and perceptions required for fulfilling these objectives is best obtained through interview questions designed by the facilitator to ellicit responses pertaining to each of the objectives at the same time, and geared toward the current level of understanding of the respondent. The purpose of these objectives is to involve the community at the very beginning of developing an action plan for capacity building with respect to environmental health management, in order that recommendations for action plans are those of the stakeholder groups. Policy and decision-makers are then reassured that the ideas and suggestions will be acceptable to and serve the needs of the community. The process itself initiates capacity building, since the local citizens and the other stakeholder groups begin thinking about their environment and what can be done to alleviate the problems.

3.1.1 Identifying Stakeholder Groups

The first objective is to determine which individuals and groups have a vested interest in environmental health management in the village of interest. This objective is necessary because stakeholder groups are the primary targets of capacity building. A thorough review of background literature will indicate potential stakeholder groups in the area, such as the local citizens, governing bodies, private businesses, community groups, or non-governmental organizations. Due to the often sensitive and political nature of environmental health management, it is best if the facilitating party is external and unfamiliar to the citizens of the region, as neutrality can be emphasized. If externality is the case, a preliminary trip to the data-collection site will offer a valuable opportunity to speak informally to various groups and individuals in order to verify the potential stakeholders in the environmental health management

of the community previously identified by background literature. The citizens and the other stakeholder groups are involved early in the project in order to make the process their own responsibility and interest, which is an important goal of capacity building. This occasion also provides a chance to network and make contacts within the stakeholder groups for future use when returning to collect more formal data using methods such as interviews and focus groups.

3.1.2 Defining Environmental Health Management

In order to develop an understanding of the environmental problems and how they should be addressed, it is necessary to obtain a working definition of environmental health management from each stakeholder group. In academic circles, environmental health management is generally defined as a set of steps designed to efficiently assess environmental issues and the health risks involved, evaluate control options, and develop action plans. This definition, however, is not specific to a given situation or stated in terms understandable to the environmentally uninformed. Therefore, it is extremely useful in a capacity building process to aid the community in defining environmental health management for themselves through specific interview questions that ask the respondents to identify current environmental problems affecting their community and possible solutions. The data gathered from these interviews should then be analyzed to identify common themes for each stakeholder group. Differences between these points are useful in determining where gaps in understanding and communication occur between the groups, and how these areas can be improved in the future.

3.1.3 Assessing Current Capacity and Determining Roles, Responsibilities and Resources of Stakeholder Groups

After identifying a working definition of environmental health management, it is useful to evaluate the current capacity of each stakeholder group and recognize opportunities for improvement within each group. The purpose of this objective is to identify abilities and needs of stakeholder groups that could benefit a capacity building action plan, as well as what limitations need addressing. Using the information obtained from background research and the views and opinions of the stakeholder groups, a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis can be conducted to compare and contrast strengths and weaknesses.

The roles, responsibilities, and resources that would be needed for an environmental health management capacity building action plan can be determined from focus group and interview responses, followed by a SWOT analysis. By gaining an understanding of each group's function in aiding the capacity building process and environmental health management, key motivators and organizations that could disseminate information can then be identified. The facilitator can accomplish this objective by asking questions pertaining to the respondent's view of their own group, as well as of the other stakeholders, as to how they contribute to the cause of and can aid in providing solutions to environmental problems. This objective also enables community members to empower themselves in the decision-making process in environmental health management.

3.2 Testing the Process in Huay King: Data Collection and Analysis Techniques

While testing the capacity building facilitation process outlined above in the village of Huay King, we applied several different tools to collect and analyze the data pertaining to each of the objectives in the process. Focus groups and interviews were chosen as data collection methods in order to provide insights into the opinions and perceptions of the respondents, and were carried out in a manner designed to maximize participation in our study. A SWOT analysis was then adapted for use in comparing responses between the various stakeholder groups. These techniques are described in order to illustrate the way in which the process was applied to Huay King. Due to the fact that we were an external facilitator and unfamiliar to the Huay King area, it was necessary to first identify stakeholder groups through background literature. Focus groups and interviews were then used not only to accomplish the next two objectives, defining environmental health management and evaluating current capacity, but also to verify the stakeholder groups that we originally identified. (Refer to Appendix A for an overview of these data collection and analysis methods.)

3.2.1 Data Collection Methods: Focus Groups and Interviewing

Focus groups and interviews served as the primary data collection tools for this study. In order to illustrate how the aforementioned objectives of the capacity building facilitation process that we developed were tested in Huay King, it is necessary to describe these tools used to test the process, the methods used to elicit truthful and in-depth responses, and measures taken to maintain consistency and accuracy of translation. Each of these objectives required the

application of several different practices and theories commonly used in sociological studies such as this project.

We chose to begin our data collection process with focus groups in order to give the community the opportunity to flesh out their opinions and perceptions on environmental health management in a group setting. We conducted these group interviews so that the respondents were able to interact, elaborate, and "piggyback" on each other's ideas. Piggybacking enables respondents to come up with new ideas based upon previous comments in the group interview. Focus groups, or discussions addressing a particular topic of interest or relevance to the group and the researcher, are usually more informal than individual interviews, thereby allowing respondents to voice their opinions to their peers without fear or embarrassment[1]. Focus groups typically included 5-10 respondents and were conducted in a temple, as it was an informal, central location, where we served as mediators[2]. Our focus groups specifically addressed the citizens' opinions on the topics of environmental health management, EGAT, SAOs, and community participation. Focus groups are also beneficial in that they allow us to gain an introductory understanding of common themes in the community's opinions on their environment. Focus groups, however, are also susceptible to several kinds of biases, including normative response, in which one outspoken member of the group speaks for everyone[3]. Many distractions also make it difficult to gain the insights of everyone involved in the group.

While providing a valuable opportunity to become familiar with the community, focus groups did not permit sufficient one-on-one interaction for our study. We began this project with a series of four focus groups with local cititzens in Huay King in which the participants were divided based on age and gender. It was thought that these separations would aid in generating discussion amongst the group, especially since Thai culture teaches people to yield to their

elders. These focus groups included a set of youth, men, women, and local government officials, consisting of about ten people per group. Throughout each of these sessions, however, it was found that most of the responses came from one outspoken person in the group, thereby giving us only one general opinion. As anticipated, many other distractions, such as side conversations within the group, background noise, extraneous children, animals, and mobile phones, also prevented everyone from fully participating. While the focus groups provided a valuable overview of the isssues, we heavily relied on individual and family interviews to follow up on the initial focus groups and avoid these common difficulties. By first conducting focus groups, we were able to design more effective questions for interviews. These interviews proved useful because they allowed us to spend more time helping the respondent to develop their ideas more thoroughly. It was also easier to ask for clarification and to interject follow up questions with one person or family. In general, these interviews were more successful than focus groups, as they provided more in-depth responses.

In order to develop a complete picture of the perceived definition of environmental health management and current capacity, roles, and responsibilities, we interviewed various members of each stakeholder group, as identified by both background research and preliminary focus groups. First, we worked with translators, the village leader, and our own contacts to find potential participants for our study within the community of Huay King. Then, several respondents were asked to provide a reference of someone he or she thought would also be interested in participating in the study. We then followed up with the recommendation so as to build the variety of the sample. In order to set up interviews with several families in Huay King, we randomly selected households from different areas of the village to conduct interviews. These sampling methods were chosen because they were the most feasible given the time constraints

and language barrier. Interviews were set up with six individual families, one SAO official, and one member of the Ministry of the Interior so as to follow up on data gained in focus groups. Two interviews were necessary for the village leader so that his views could be fully addressed and clarifications could be made on issues raised in other interviews. In order to fully explore the opinions of EGAT, we interviewed members of several different departments, including the director of the Mae Moh Community Development Project, the health and safety manager, an environmental monitor, a member of the mine operations division, and a contract controller and planning director for the two contractors currently conducting the mining operations in Mae Moh.

In both focus groups and interviews, the Social Exchange Theory (SXT) and the Total Design Method (TDM) were applied to increase the comfort level of the respondent and encourage truthful responses. The Social Exchange Theory (SXT) was a vital concept in the interviewing process planned for our project. This concept explains that all social interactions and relationships involve a series of cost/benefit analyses[4]. If the costs of an interaction outweigh the benefits, then the individual is not likely to tell the entire truth, disclose all information, or even to participate. By understanding SXT, we made an effort to avoid situations where respondents felt uncomfortable being interviewed and overcame the perceived costs an individual had in revealing information. (For more information on SXT, TDM, and cultural awareness, please see Appendix B.)

In order to apply SXT, we pre-tested all of our interviews with several different Thai people such as the local citizens, the interpreters, and other Thai students. They were able to notify us if our questions, style of dress, manners, or behavior were in any way offensive or inappropriate to Thai culture. In turn, we were able to explain to the interpreters the purpose of

the project and the importance we placed on communicating with the people and in understanding their exact meaning despite the language barrier. We also pre-tested our data collection techniques by conducting a preliminary focus group in a village located near Huay King. This experience provided an opportunity to closely examine how our questions would be received by Huay King, how long the questions would take, and how to work with translators. The questions we used were altered throughout the data collection process in order to be specific for the level of education and knowledge of the various respondents and stakeholder groups. We also found it necessary to add and revise questions as we learned more details about the village and the situation. (For the exact questions that we used in each interview, as well as the responses received, please refer to Appendices C through F.)

Whenever possible during focus group discussions, each member of our research team played a different role. Two people fielded questions and interacted with the participants, while recording responses in the forms of cryptic, shorthand field notes. The remaining team members recorded any other observations such as facial expressions, body language, subtle nuances, and general opinions and impressions of the community members and the physical surroundings[5]. These two people also kept a chronology of the order in which comments and events took place to facilitate the re-creation of the conversations later. Our roles were adapted to suit different interviewing situations, as interviews with single individuals only required two people: one to ask questions and one to record responses and observations, as more than two people may be considered intimidating to the participant. We attempted to retain these responsibilities throughout the study in order to maintain consistency; however, when it was not possible for all group members to attend, responsiblities were combined and redistributed among those.

We also utilized six different translators, each with different backgrounds and affiliations, in order to assure the validity and accuracy of the interpretations. This technique is called triangulation. We often had two or more translators present at each focus group and interview. The majority of our interviews were also re-interpreted later, using audio tapes of the interviews. Triangulation provided us with clarifications and further insights as to the ideas the respondents were attempting to convey, thereby reducing biases and miscommunications.

3.2.2 Data Analysis Methods: Content and SWOT Analysis

In order to evaluate the opinions and perceptions of the various respondents, we applied two types of data analysis. A content analysis was employed as a means of compiling the data and extrapolating trends and patterns from it, so that we were able to draw conclusions and make recommendations. An adaptation of a SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis was especially useful to us in determining roles, responsibilities, and current capacity of the stakeholder groups. We explain these analyses in order to show exactly how we came to our specific results.

Throughout the data collection process, we conducted a content analysis on the information gathered from the stakeholder groups. This analysis allowed us to become aware of common themes and patterns valuable to this study. A content analysis also aided in drawing conclusions and making recommendations based on the responses we received during focus groups and interviews. These recommendations included options for a capacity building action plan specific to the Huay King case, as well as limitations and needs for continuation and improvement in the process.

Following the compilation of the information and general analysis collected from the stakeholder groups and the citizens, a type of SWOT analysis was performed to evaluate and classify the data. SWOT is a common tool used in the business and marketing world to measure capacity and to identify areas in need of improvement[6]. We adapted this analysis to simply weigh the strengths and weaknesses of each stakeholder group as they affect participation in environmental health management. It was expected that self-perceived strengths and weaknesses of each stakeholder group would not necessarily coincide with the strengths and weaknesses indicated by other parties. In this case, we recognized that the actual strengths and weaknesses were most likely located in between the two points of view. This gap in perceptions and information is where the need for capacity building lies. Investigating the reasoning behind the opinions of each group gave us a more accurate assessment of the situation. For example, if a community member perceives the SAOs to be inadequate in one particular area, it was in our best interest to gain an understanding of why they feel that way. It is possible that they simply did not have a lot of contact with that SAO in the past, and therefore were only relying on general impressions rather than concrete experience.

The SWOT analysis also aided in obtaining a concise focus on the problem at hand and an angle for the solution. During our SWOT evaluation of the data, we paid close attention to the views of the citizens as well as the other stakeholder groups. We needed to have a firm understanding of these trends so as to facilitate the process of developing the capacity building action plan.

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[1]Berg, Bruce L. *Qualitative Research Methods for the Social Sciences.* Boston: Allyn & Bacon, 1998; p.100

[2] Crawford, I.M. "Marketing Research and Information Systems". Rome: Food and Agricultural Organization of the United Nations, 1998. Chapter 4. Accessed: 10 Dec. 2000. http://www.fao.org/docrep/W3241E/w3241e00.htm#Contents

[3] Berg, p. 104

[4] Dillman, D. *Mail and Telephone Surveys: The Total Design Method.* New York: John Wiley and Sons, 1998: Chapter 1.

[5] Berg, p. 142

[6] "SWOT Analysis". Updated: 1999. Accessed: 30 Nov. 2000. http://businessmajors.about.com/education/businessmajors/library/weekly/aa021099.htm?terms=SWOT.

4.0   Results and Analysis

To test the facilitation process, we developed, in a rural Thai setting, we used the village of Huay King. This test provided us with an overview of how a capacity building process will be received by other Thai villages. First, we present the current environmental health management capacity of each stakeholder group. Then a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis is used to identify areas in which there is the greatest opportunity for growth within each stakeholder group. Finally, we present recommendations for these groups to enhance their current capacity. Thus, a detailed analysis of the application of this environmental health management capacity building process is provided.

4.1   Current Environmental Health Management Capacity

There are many groups and organizations that hold a vested interest in environmental health management in Huay King. We constructed a list of primary and secondary stakeholder groups that are relevant to building capacity in environmental health management in this village. The primary list, which was initially generated from background research and verified by the respondents of our study, includes officials from the Electricity Generating Authority of Thailand (EGAT), the local governing bodies, and the community members, and was the focus for this test. By presenting these primary groups' perceptions of their own capacity as well as that of the other stakeholders, we made an assessment of the environmental health management needs and capacity of each of these parties in Huay King.

4.1.1 The Electricity Generating Authority of Thailand

EGAT, the main industry in Mae Moh District, Thailand, is generally perceived as the major polluter in the area, consequently making it an important stakeholder group for building environmental health management capacity in Huay King. We examine the ways in which several different departments in the company view the environment and the current and future capacity of EGAT, the local governing bodies, and the Huay King villagers. More specifically, in detailing current efforts by EGAT to build environmental health management capacity, we begin to understand the areas that need enrichment.

EGAT acknowledges many environmental problems that are plaguing the surrounding communities. Dust, noise, air and water pollution, and vibrations are the main problems that have been identified by the various departments of this company. Much of the dust comes from the mining activities, however, unpaved roads add to this problem as well. The mining trucks, coupled with the conveyer system that is used to transport coal from the mine to the power plant, create a great deal of noise, which disturbs the villagers of Huay King. Another serious problem is the air pollution, stemming from mining and power plant emissions. EGAT also considers the villagers to be contributors to this pollution because they often burn garbage and organic materials on their own property. Coal sediments that are present in the soil and get washed into the Huay King reservoir, the main water source for the village, cause water contamination, another environmental concern. Vibrations caused by the spontaneous combustion of lignite in the mine also create environmental distress. Since a majority of these problems stem from the Mae Moh mining project that EGAT is responsible for, the company has begun taking a more pro-active role in improving the environmental conditions in the area.

In order to develop knowledge and awareness about the environmental problems in the area, EGAT is trying to become more involved in the communities while establishing a more positive public image. The Mae Moh Community Development Project, designed by EGAT to increase communication between EGAT and the other stakeholder groups, is an example of how this company is improving its community presence. This project brings EGAT officials together with local government officials to discuss environmental concerns in the area and EGAT personnel into the villages to talk about concerns the local citizens may have about the environment, as well as help answer questions about the company. By working with these contacts, the company can better understand what problems are affecting the area, and gain feedback and additional ideas on ways to improve the situation. The EGAT officials we spoke with admitted that gaining entry to the local communities, without facilitators, is a challenging task because of EGAT's current negative image in the area. With this project, as well as ISO 14001 standardization, EGAT hopes to develop a better reputation not only locally, but nationally and internationally. Although by working with ISO 14001 and the Mae Moh Community Development Project EGAT has begun improving their public image and relationships with the other stakeholder groups, the company believes these other groups should also be responsible for developing better environmental health management in the area.

EGAT feels there are two other groups with a vested interest in the village of Huay King that should contribute to improving the current environmental situations the community is facing. The first of these groups is the local governing bodies, which include the village leader, members of the SAO, and the area representatives of the central government. These people, according to EGAT, should help the village set up a better education system and improve communication between the stakeholders, so that all parties involved can participate equally in

solving the environmental problems in the community. The second group identified by EGAT is the local citizens. The villagers of Huay King, in the opinion of EGAT officials, should be more responsible for their environment; however, in order to do so, these people need more education and awareness on the issues that are affecting them. In addition, the representatives of the departments we worked with at EGAT feel that once the government decentralizes, the local citizens will work more closely with the local officials in developing specific environmental health management, thus augmenting the need for the villagers to have more knowledge and awareness of the current problems.

4.1.2 Local Governing Bodies

With the decentralization of the Thai government, another important stakeholder group in a capacity building action plan for Huay King is the local governing bodies, which include the members of the SAO, a local representative from the Ministry of the Interior (MOI), and the community leader. Due to the ongoing structural changes to the government, these administrators will be working more closely with the local citizens to better represent the views of the community in policy and budgetary decision-making. Thus, this group's ideas on environmental health management, along with their perceptions of the current and future capacity of EGAT, the villagers, and themselves, are presented. By describing the current endeavors of the local governing body to build environmental health management capacity, we begin to comprehend the areas that may need development.

Like EGAT, the local governing bodies have identified many environmental problems that have an impact on Huay King. Dust, noise, air and water pollution, and vibrations are the major problems in the area according to the local governing bodies. These governing officials

believe the main cause of these problems is EGAT's mining activities; however, these officials have also admitted that the local citizens contribute to these problems by burning garbage and other wastes. In efforts to improve the current environmental situation in the village, the local governing bodies have set up some ways in which to begin increasing awareness and knowledge concerning the environment.

The local governing officials have realized their roles and responsibilities in the community will be increasing once decentralization takes affect. With the decentralization of the Thai government, the local government will be moved into the villages, and have more interaction with the local citizens. Although the 1997 Thai Constitution mandates this move, and the local governing officials feel they are not ready for all of the added responsibilities without more resources and training. The interviews we conducted with the various stakeholders showed that decentralization is seen as a positive attempt to help distribute power more evenly, and will be a very effective tool in helping to manage the environment. Since decentralization also creates an opportunity for more public participation in the government, the local citizens should be more informed about issues affecting them, so as to provide the governing officials with a better sense of what is needed and desired in the community

One way in which the local governing bodies have begun increasing awareness in the communities is by providing the villages with a message board and public announcement system. The message board is designed to provide the community members with information about the environment and EGAT. This board, maintained by the village leader, is where EGAT's emissions reports get posted, and since it is in public view, the villagers are then able to read the information themselves to better understand what is happening with the environment. The local governing bodies feel that although EGAT provides them with information concerning the

environment, there is a greater need for explanations and descriptions about the data. The public announcement system, also managed by the village leader, is often used in Huay King for emergencies or to relay important information only. According to many of the villagers, the public announcement system is an effective way for keeping the community updated on important issues. By having the village leader make announcements to the entire village, people do not have to make an effort to go to the message board, and even people who are unable to read can get the information. Although the local governing officials admit to having a necessary role in improving and preventing environmental problems, they recognized that the other stakeholder groups must also take an active interest in the environment.

In the opinions of the local governing bodies, EGAT and the local citizens are two other groups that are responsible for the environment in Huay King. The government officials we interviewed acknowledge EGAT's current attempts to improve the environment in the area, but they feel that this company should be doing more. Since the local government is being decentralized, they do not have much money or resources for the environment and think EGAT should be responsible for providing funding and programming to the community for the current environmental problems. The local governing bodies also feel that the local citizens should also be held accountable for improving the current situation in Huay King. These local governing officials admit that there is currently a lack of knowledge about the environment among the villagers, but they feel that these individuals need to become more aware of the problems and ways in which to prevent any additional ones from arising.

4.1.3 Local Citizens

In addition to EGAT and local governing bodies, the community is an important stakeholder group for a capacity building process in Huay King. The local citizens, because they are directly affected by the policies and decisions made by EGAT and the local government, hold a vested interest in developing options for building capacity. To begin, we detail the community's definition of environmental health management. Then, we take a look at the villagers' insights and perceptions of both the current and future capacity of EGAT, the local governing bodies, and that of the Huay King community. By presenting the views of the local citizens, the villagers' current and possible future responsibilities in a capacity building action plan with respect to environmental health management are identified.

The local citizens, like EGAT and the governing bodies, feel that the major types of environmental problems Huay King is facing are dust, noise, air and water pollution, and vibrations, all of which stem from the mining facility, but these individuals did not always agree on the causes of these problems. Many of the villagers did not recognize themselves as contributors to the problems; however, those people who did understand that the burnings were adding to their environmental issues expressed their opinions against it very strongly. For example, the villagers who disagreed with the burnings said they do not like the smoke and the smell. These people stated that they often try to explain to their neighbors who are burning that burning garbage and organic waste is harmful and contributes to the air pollution, but these concerns are rarely heeded. After talking to the people who are burning, the next step is to talk to the village leader, who then explains to the people the importance of not burning. Within a few days, however, the people are burning again, and because it is on their private property, nothing can be done about it. We also determined, through the interviews, that often times, the

villagers are confused about where the pollution, especially with respect to the water, comes from and who should be contacted when problems arise.

In talking with the local citizens about these problems, we also learned that they are very willing to work with the other stakeholder groups to become more informed about the environment and offer suggestions on ways to improve the current conditions. The villagers acknowledge that the other stakeholders are doing things, such as increasing community involvement and disseminating information, to improve the environmental conditions in Huay King; however, there is still a need for more communication and involvement between all the parties. Many villagers suggested that often times, the attempts by EGAT and the local governing bodies to help with the environmental problems in the community are overshadowed by confusing, contradicting, or misleading information. One citizen, an EGAT employee, feels that he is fortunate to work for this company because he has information available to him to learn about the environment, but in the village, the people do not have access to this information. He said that the information on the message board, which is utilized by the youngsters who are more educated than the elders, does not contain environmental information. Although some information from EGAT is posted on this board, it is only "raw," or uninterpreted and complicated, data with respect to emissions.

While we gathered many opinions on the environment in our interviews, we found that many of the individuals have more pressing concerns regarding the village infrastructure, unemployment, and medical care, which need to be addressed before they can start focusing on their surroundings. For example, currently, while there are only pay phones scattered throughout the village, many of the villagers have expressed interest in having telephones in their homes. With individual phones the local citizens would be able to call EGAT's hotline more easily, to

report or learn more about the environmental problems. Another area of interest, which was brought up a couple times by the local citizens, is to have workshops or classes to learn how to sew and cook in order to obtain a career and improve their quality of life. Some villagers also mentioned that EGAT should send a mobile health unit to the village once a month to provide medical attention to the community. Although these issues are not associated with the environment, in the opinions of the villagers, these areas have a great impact on their daily life and should therefore be addressed as well.

4.1.4 Other Groups

Although we have identified three primary stakeholder groups, there are many secondary groups that we found to be relevant to this test project as well. These groups include health care professionals, educators, and governmental ministries, such as the Ministry of Agriculture, the Ministry of Education, and the Ministry of Science, Technology, and the Environment. While these secondary stakeholders may have long-term roles and responsibilities in environmental health management, due to time constraints, we were unable to accurately examine the capacity of these parties. Thus, we present the information relevant to these secondary stakeholder groups, which we attained from EGAT officials, members of the local governing bodies, and the Huay King villagers.

The health care professionals were mentioned by EGAT, the local governing bodies, and the villagers, as a group that has an interest in the health and well being of the community. There are currently no village health volunteers, or people in the community to promote healthy lifestyles in Huay King, nor are there any sub-district health offices in Mae Moh. Therefore, when a problem arises, the local citizens are forced to either go to EGAT's health office or to the

District Hospital. The villagers feel that EGAT health officials do not tell the entire truth about their health and situation, but the Mae Moh District Hospital is farther away and often more expensive. If the health care officials, in general, became more involved in the environmental issues in the area, they could then help the local communities take a more active role in preventing health effects and improving the quality of life.

Since many of the villagers lack the knowledge and awareness of the environmental issues surrounding them, and what causes the problems, involving educators and ministries may be beneficial to developing recommendations for solutions. If there were more education on the environment, what the local citizens can do to improve it for themselves, and what EGAT's emission monitoring results represent, the Huay King community would become more confident and comfortable in contributing to the solutions. The local government officials were expecting the central government to provide education and support to increase the capacity within Huay King. By including members of the various ministries in the environmental issues of the village, the local citizens and government could be shown by knowledgeable people how to improve the environment. One official suggested that the various ministries come to the community and provide training in specific areas to give the villagers skill to obtain jobs. EGAT also benefits by working with the ministries, more specifically the Ministry of Agriculture, which oversees the Department of Forestry. This department provides money, support, and training to EGAT's reclamation department, in order to enhance the company's current attempts in managing the environment by restoring the land to a natural state. While these efforts were acknowledged, there are still opportunities to improve the environmental situation.

4.2   Opportunities for Development of Capacity

While the primary stakeholder groups have already begun taking measures to improve the environmental conditions in Huay King, each party has suggested opportunities to increase the effectiveness of their efforts. Increasing communication, understanding, and awareness between the stakeholders will lead to greater success in environmental health management. With more capacity, EGAT, the local governing bodies, and the villagers can enhance their current efforts and work more closely with each other when developing action plans for improving the environment. Using the opinions of all three stakeholder groups and a SWOT analysis, communication and education/awareness are identified as the two areas having the greatest opportunity for growth in Huay King. Please refer to Appendix G for a SWOT analysis chart.

4.2.1 Communication

The stakeholder groups have expressed a great need for better communication. Increasing communication between the groups would not only improve the relationships of the parties, but it would also lead to a better understanding of what problems need addressing the most, and how to begin going about correcting those issues. Thus, communication is a necessary aspect of developing suggestions for improving the environmental problems. By providing examples of the lack of communication between the stakeholders in Huay King, as well as more detailed reasons for bettering communication, the importance of this aspect of environmental health management and how it benefits the community will be developed.

Although there are many areas that have the need for improved communication, there is great confusion among the stakeholder groups on the issue of water. For example, the local citizens misunderstand where the water supply in the village comes from and what water is

contaminated. One villager we spoke with, who was also an EGAT employee, said that the drinking water is supplied by EGAT, and the tap water comes from the ground. This citizen also said that the all the water is dirty. Another citizen we talked with said that all the water comes from the ground and is only suitable for cleaning toilets. In speaking with the local government officials, we learned that they are responsible for supplying the Huay King village with tap water that they get from the reservoir, and EGAT supplies the drinking water to tanks located in the middle of the village. The EGAT officials we spoke with confirmed this information and explained that all the water in the Huay King reservoir is monitored to keep the pollution under control. These officials also explained that the local government does not treat the tap water, but EGAT does filter and clean the drinking water. Therefore, all stakeholder groups agree that the tap water is not suitable for consumption; however, the opinions vary on the quality of the drinking water. There is a lack of knowledge among the villagers as to the different types of water, the source of each, and how they are treated. Since both EGAT and the local governing officials have this knowledge, there is a communication gap between them and villagers. With improved communication between the stakeholders, such misunderstandings could be avoided, and ways to improve the water quality can be determined.

Another area that has shown the need for better communication is the message board in the village. This board, which is used to post information from EGAT about the environment, is maintained by the village leader. EGAT and the local governing officials think there is sufficient information about the environment posted; however, according to the villagers, there is very little posted and the data that is present is incomprehensible. Thus, the message board is another example the need for communication between the stakeholder groups. With a more effective

means of communication between the stakeholder groups, the board could be utilized more effectively, and the local citizens would receive information that is beneficial and useful to them.

Better public relations for EGAT could also result from improved communications. Currently, many of the complaints from the villagers about EGAT are centered on the fact that they receive conflicting or incomplete information about the environment from the officials of the company and the local government. If the local citizens were provided with detailed information, which they can understand and which is not contradicted by the other stakeholders, the community would view EGAT and the local governing bodies to be trustworthier and could begin to see these parties as allies in improving the environment.

By increasing trust, these stakeholder groups, especially EGAT, could begin building a more positive public image. According to the local governing bodies and a few EGAT officials, through greater public relations, the Huay King stakeholders could gain resources, such as money, man-power, and management assistance from other organizations. With these additional resources, EGAT officials and the governing officials feel the stakeholder groups can begin to enhance the suggestions that are developed, while realizing other areas of the environment that could be improved.

4.2.2 Education

Before the local citizens can actively and effectively participate in improving the environment, they need a better understanding of the causes of the pollution, as well as the attempts that EGAT and the local government are making to better the situation. Without the knowledge of how to interpret data and process information, the stakeholder groups, especially the villagers, will be unable to fully participate in providing suggestions for improving the

problems. Other groups and organizations that could help bring more knowledge and awareness to the Huay King stakeholder groups is presented, along with an example of the need for more education.

Since EGAT and the local governing bodies have the most information and understanding of the current environmental problems, the villagers feel that these two stakeholders should be the most responsible for providing them with programs and information to increase their knowledge and awareness. EGAT, the local governing bodies, and the villagers, also feel that due to the decentralization of the government, there should be outside help, for example, from the central government ministries and non-governmental organizations, to further increase the education of everyone involved in the Huay King area. Assistance from these outside organizations would be beneficial because these officials have more experience and knowledge in dealing with the environment than the local governing officials. With more knowledge and awareness concerning the environment, the communication and interactions between the stakeholder groups will improve, leading to better, more sustainable suggestions for improvement of the community's environmental problems.

4.3 Suggestions for a Capacity Building Action Plan in the Village of Huay King

While the three primary stakeholder groups have begun increasing their capacity to manage the environment more successfully, there are still many areas that need further development. After identifying areas that have the greatest opportunity for growth, we analyzed suggestions that were made to build environmental capacity in Huay King. EGAT, the local governing bodies, and the local citizens, have all provided insight to the areas in environmental

health management that need improvement and development. We outline suggestions, as made by the Huay King stakeholder groups, to improve communication and education, as well as ideas presented to us by these groups on ways to improve the current environmental situation in the community.

Capacity building, or empowering the local people to make informed decisions, can be achieved through communication and education. Communication is necessary so that all parties, or stakeholder groups in this case, are informed of the efforts at improving the environmental situation in Huay King. Having open lines of communication also allows respect, trust, and relationships to be built, which aid in solving problems. Education also develops understandings between stakeholder groups. With greater knowledge of the issues, the groups involved, and what needs to be done, rectifying the problem becomes easier. With respect to improving the environmental problems in Huay King village, communication and education both need developing. We present ways in which EGAT, the local governing bodies, and the local citizens, have suggested that capacity, namely communication and education, be enhanced.

In order for the stakeholder groups to better understand the needs of the other parties, it has been suggested that meetings with the top officials of EGAT, the local governing bodies, and the villagers, be held more regularly, possibly once or twice a month. Although meetings are currently held through the Mae Moh Community Development Project, they are perceived to be not regular enough, not publicized enough, and do not involve all of the stakeholders. At more regularly scheduled meetings, the local citizens would express their concerns and needs to the officials of EGAT who have the power to help improve the situation rather than talk to "subordinates" who sometimes may not relay information fully or correctly, or may not have the power to follow through with the ideas and recommendations. EGAT would also hear, from the

villagers, what problems they perceive. The local governing officials would hear what is said, and then develop the ability to facilitate the other stakeholders in finding ways to improve the environment. In studying other capacity building programs from around the world, we found that have regular meetings in which all affected parties are represented are generally met with success because everyone feels they are able to voice their opinions to the right people.

Another idea that has been presented by the local governing bodies and the villagers is to have "site seeing" tours of the environmental monitoring systems that EGAT uses. By actually seeing the way in which EGAT monitors the pollution, the local citizens would realize that the company does have the technology to keep the environment in check, as well as begin developing an understanding of what the emissions data and other information provided to them means. With this knowledge, the citizens might begin to trust EGAT and the local governing bodies to provide truthful and accurate information concerning the environment.

If EGAT would provide training to the villagers, so that the local citizens could attain skilled labor jobs with the company, the community members as well as EGAT would benefit. If the villagers could improve their overall quality of life by earning more money, they would be able to focus on the environment more rather than what they are lacking. By hiring local citizens, EGAT could improve its public image because the employees would then talk about all that EGAT does to help the environment. For example, a local citizen working at EGAT could explain to his family and other community members that EGAT has an extensive reclamation project to return the mining area to a natural state, or that the company is ISO 14001 standardized.

The local government could also provide many things to improve the current environmental situation. Educational programs, not only classroom learning, but workshops,

would help the local citizens understand the information that EGAT provides them. These programs, designed for the illiterate as well as the literate, could encourage the villagers to seek more information on things presented to them that they do not understand. One such program, which EGAT is just beginning, is to help the villagers use their organic waste to make composts and fertilizer instead of burning the trash. Then, EGAT could buy the fertilizer from the people and use it in the reclamation project. In addition to taking steps to improve the air quality of the village, this idea would also create a source of income for the local citizens. Also, by providing more education, the people would better understand what causes environmental problems, and simple, everyday things, that can be done to help solve these issues. There have been suggestions by the local citizens as well as the governing bodies that EGAT could help in more of these programs.

The local governing officials should also take a more active role in helping to disseminate the information they receive from EGAT. The village leader feels that the message boards should not only be bigger, but there should be more of them in the same location. The boards would then be more useful in displaying all relevant information while making sure the type is large enough for people to read. Pamphlets could also be distributed to the villagers to make them aware of important changes occurring with the government or EGAT, which would affect the lifestyle. For the people in the village who cannot read, it has been suggested that there should be more news about the environment on the television, and that the village leader should make more public announcements.

EGAT, the local governing bodies, and the local citizens have all expressed an interest in working together to improve and prevent the environmental problems. With increased communication and education among all parties, ideas for solutions to issues will develop further

and in more detail. By sharing ideas about the environment, all the stakeholders will be able to come to a consensus on ways to solve the problems.

Although, for the most part, the stakeholder groups have just begun developing recommendations for improving the environment, many ideas have been suggested. As EGAT, the local governing bodies, and the local citizens work together to increase their environmental health management capacity, more ideas will arise, and the current ones will become more detailed. One idea, presented by an EGAT official, was to find a way to separate the mining area from the village. In doing so, it was this official's hope to reduce the vibrations and noise from the mining pit. Although most of the other ideas we heard from the EGAT officials have already been presented and/or are in the beginning stages of implementation, the other stakeholder groups need to be made aware of these ideas before things are initiated to provide feedback on what would and would not be feasible and accepted in the community. The local citizens have also offered a few suggestions for ways to improve the environment. Some of the ideas included building a roof or similar structure over the entire village to protect the community from the dust, relocating if the problems persist, being able to sue EGAT for damages done by the mine explosions, and installing a large filtering system in the village to clean all the water before it reaches the homes. With more awareness and knowledge concerning the environment, all stakeholders in Huay King will generate more solutions to the problems in their community.

5.0   Conclusions and Recommendations

Once we had analyzed the information gathered from our pilot study in Huay King we could provide general options for the village as well as ways to refine the capacity building process. Based on the information we learned from the Huay King community about their environmental problems, we provided suggestions to the stakeholder groups for a capacity building action plan. Some of these recommendations include the enhancement of the educational and communicational programs currently being used to bring environmental awareness to the community. Since Huay King served as a test study, we were able to make further recommendations for conducting this process in the future, both in Huay King and in other parts of rural Thailand facing similar situations. Aspects we highlight with these recommendations include the examination of secondary stakeholder groups, the use of third-party facilitators and possibly the analysis of two villages at the same time. Hence, to offer a more refined process for future facilitations, in this chapter we present an overview of our analysis of the Huay King study, recommendations for improving the capacity building process, and some final remarks.

5.1   Summary of Recommendations for Huay King

The pilot study conducted in the village of Huay King generated many current problem areas and ideas for future environmental management to be carried out by the stakeholder groups. Through an in-depth analysis of the data obtained from these groups, we concluded two specific themes that need to be focused on when continuing environmental health management in Huay King. Thus, we summarize the suggestions made for the Electricity Generating Authority

of Thailand (EGAT), the local governing bodies, and the local citizens in order to gain a better understanding of how these stakeholder groups can strive to manage the environment in Huay King.

The two main recommendations for EGAT are to develop a better communication system with the Huay King community and to build a more trusting relationship with the local citizens. The communication system encompasses several different problem areas including the ability to disseminate information to the public and to the local governing bodies in a more comprehensible manner. A recommendation spawned from this need is having monthly meetings in the village temple with both EGAT and local governing officials present. The other recommendation is for EGAT to build stronger, more trusting, ties with the community. One way to improve the community's opinion is for EGAT to provide skill training and jobs for the Huay King citizens. By exposing the citizens to the efforts being made by EGAT at the work place to resolve the environmental conditions, such as attaining ISO 14001 standardization, the villagers will be more susceptible in trusting EGAT. Not only will these recommendations help to improve ties between EGAT and the community, but also help with the environmental education system for the community.

Enrichment of the present environmental education currently provided in the village and a stronger community presence are the two main recommendations we that we proposed for the local Huay King governing bodies. First, it was determined that the local government should provide educational programs, geared towards making the community more aware of the environmental conditions in the village. These programs need to be tailored to meet the different learning abilities of the citizens. An example of how to improve the educational programs in Huay King is to use more pictorial flyers and pamphlets when posting information on the main

bulletin board in the village. Another recommendation for building capacity is for the local governing bodies to strengthen their community presence, by becoming more actively involved in the problems the villagers are facing. The benefits of following through with this recommendation will be further amplified once decentralization has occurred and members of the Sub-District Administrative Organization (SAO) and the views of the citizens will be taken into account more on things such as budgetary issues. By the local government having a more prominent role in Huay King, the local citizens may be more apt in voicing their concerns.

The residents of Huay King have already begun voicing their concerns to EGAT and the local governing bodies, but there still needs to be more of a willingness to learn and change the way in which the community deals with environmental problems. While we realize that more pressing issues are concerning many of the villagers at this time, our findings show that a more active role must be taken by the citizens in order to make environmental health management more effective. Education and communication are key tools that will help to nurture this growing need for individuals to seek out solutions to environmental contamination. Thus, our recommendation to the Huay King villagers is to continue acquiring more information and awareness about the environment.

5.2   Recommendations for the Capacity Building Process

After evaluating the test of the process in Huay King, it was important to recommend ways to refine the capacity building facilitation process. The assessment of the secondary stakeholder groups, the role of a third-party facilitator, and an analysis of more than one village, are the main areas that our recommendations will be focused on. By offering the following alterations, it will become easier for this process to be adapted for other similar situations.

The first way to improve the capacity building process would be to allow enough time to assess the capacity of all of the stakeholders, which includes the primary and secondary groups. As discussed in our content analysis, a secondary stakeholder group list was also compiled but never fully examined due to time constraints. But if given the opportunity, these secondary stakeholders would be instrumental in providing pro-active solutions for environmental health management. For example, in the Huay King pilot study, we identified local health officials as one of the secondary stakeholders. These officials were classified as stakeholders mainly because they offer the best atmosphere to educate and communicate with the local citizens. Establishing a local health center in each village primarily run by trained volunteers from the village itself is an example of how the health officials could play a key role in making the villagers aware of health effects of environmental problems. These officials were not, however, interviewed for the Huay King study, and so a recommendation, such as provisions for a health center, could not be fully explored. Hence, we propose that enough time be allocated so that the views of the secondary stakeholders can be properly included in the development of options for a capacity building action plan.

Another important aspect of the capacity building facilitation process is the use of a third-party facilitator. While capacity building aims at empowering local citizens to take a more active role, an impartial facilitator is necessary to initiate the process. Many of the problems that are associated with environmental health management in a rural village, as seen from the Huay King case, are partially due to a lack of communication and trust amongst the stakeholders. For instance, in the village of Huay King, many of the residents are employed by EGAT, and some fear losing their jobs if they voice their opinions to EGAT officials as to how the company business affects the environment. But with a neutral mediator, the villagers were more willing to

discuss the problem areas and even offer solutions. Furthermore, if the third-party facilitator maintains confidentiality throughout the process, the stakeholders will begin developing a more trusting relationship with each other. Once, the capacity building process has been initiated and the lines of communications between the stakeholder groups have been filtered, the option of removing the mediator can be addressed. But at the beginning of the capacity building process, it is our recommendation that a third-party moderator be used.

The final method proposed to enhance the capacity building process is to incorporate a collaborative study of other villages with different environmental capacities. By generating views from different communities, not only would more options be presented but also the entire area would be working collectively in solving the environmental problems. One example of a collaborative study would be if the village of Huay King, which is currently only beginning the process of capacity building were to work with a community that has already established an effective environmental health management system. This study may add more depth and understanding to the participants as to what the final result of an action plan would be. Thus, it is our recommendation to expand the facilitation process so that villages can work together to their environmental capacities.

5.3   Final Remarks

This type of participatory capacity building process will be needed in many rural areas if the decentralization of the Thai government is to achieve its promise to empower the local citizens. With more knowledge and awareness created among the stakeholder groups, especially the local citizens, more effective and lasting policies will result. Also, with more capacity, these individuals will be able to better understand what is happening, and what can be done to solve

the problems and prevent them from re-occurring. Thus, to empower the local citizens to aid the local governments in developing policies, which are beneficial to their needs and desires, knowledge, awareness, and skills must be increased, a process known as capacity building.

6.0 Appendices

Appendix A – Overview of Methodology
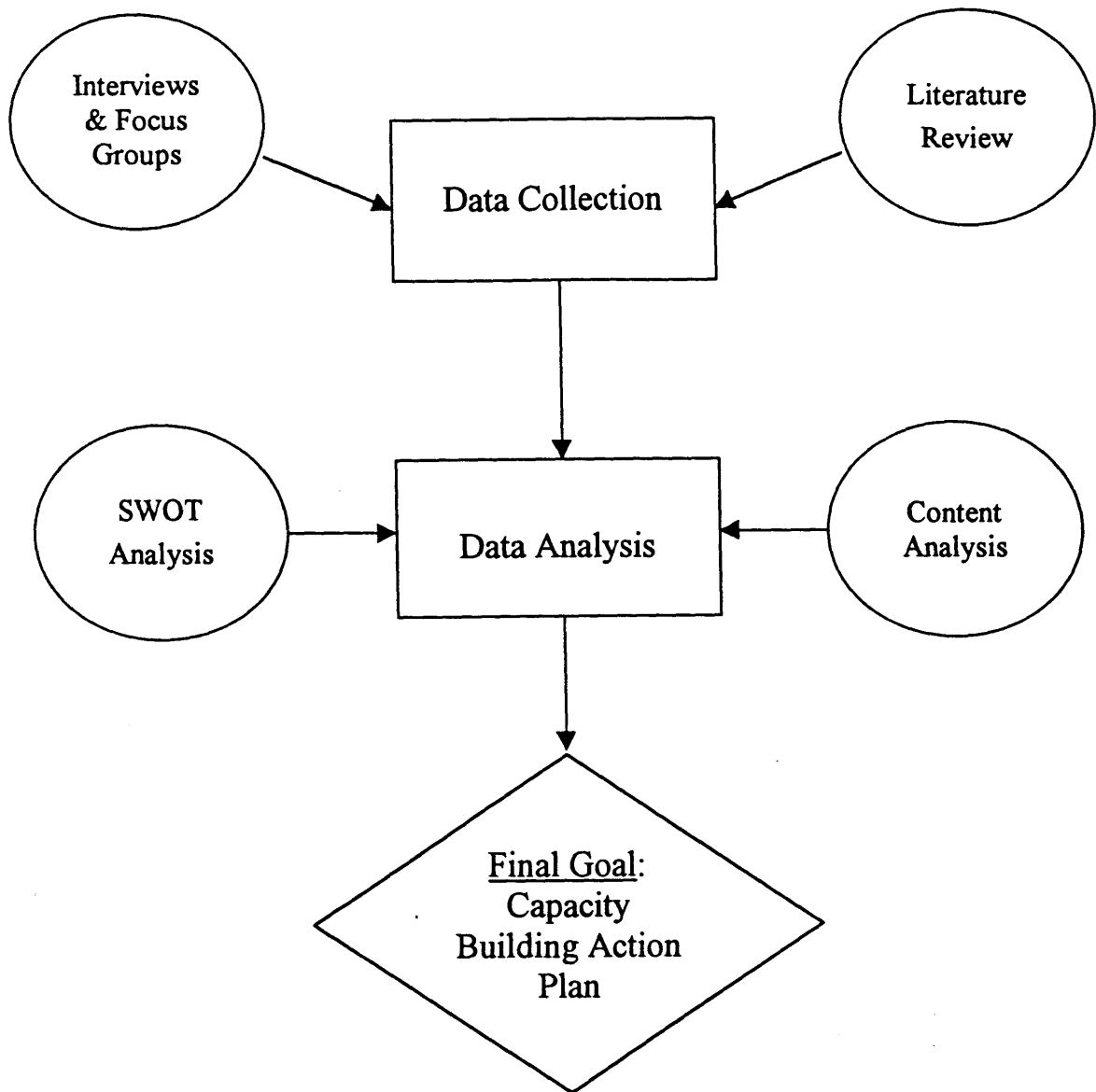
Appendix B – Social Exchange Theory, Total Design Method, and Cultural Awareness

The Social Exchange Theory (SXT) dictated the introduction we made about the project and ourselves to possible participants. This brief opening included information on who we are, what we wanted, the nature of the study, and the possible applications of the results. While our translators were from the Electricity Generating Authority of Thailand (EGAT), we believe that explaining the purpose of our study, which is to encourage communication between stakeholder groups, assured the respondents of our neutrality in controversial environmental issues. This statement also conveyed our appreciation to the respondent for his or her help and the fact that there will be no repercussions to his or her participation and truthfulness. This introduction began the development of a level of trust and openness that we believe carried into the interview itself[1].

In order to facilitate the comparison of the results of the various field studies, the questions used in focus groups and interviews were semi-standardized, in that we had a core group of questions that remained the same in all cases, while others were adapted to specific respondents or situations. Before contact with participants in the study, we carefully planned the interviewing process using the Total Design Method (TDM). This strategy carefully maps the goal of the interview as well as the frame and sample, or categories of people to be questioned[2]. As in any manner of qualitative field research, these interviews incorporated the opinions of a variety of types of people affected. In this case, the goal was to gather the most honest and relevant responses with respect to the various stakeholder groups' perceptions of environmental health management and their current capacity.

In addition to these standard TDM and SXT procedures, there were several other simple ways that we found useful to build trust with respondents that we applied to our study in Thailand. We showed the various signs of respect used in Thai culture, such as bowing the head, displaying the "wai", sitting without pointing feet towards anyone, and speaking Thai whenever possible. It was also beneficial to spend time in the village prior to the interviews, so that the participants were able to become familiar with us as well. First, we walked around Huay King as observers of another study in order to meet community members and enter households. Then, we attended religious ceremonies held at the Huay King temple in celebration of Magha Puja, a holiday commemorating the preachings of Buddha. By making ourselves more visible, we created opportunities to interact with the villagers in an informal setting and alleviate any fears in speaking truthfully with us. We also took these chances to introduce ourselves in the manner previously discussed. It was our objective here to reduce the fear and suspicion of the project and us, while gaining an understanding of the respondent's opinions and ideas[3].

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[1] Berg, Bruce L. *Qualitative Research Methods for the Social Sciences.* Boston: Allyn & Bacon, 1998; p. 124.

[2] Dillman, D. *Mail and Telephone Surveys: The Total Design Method.* New York: John Wiley and Sons, 1998: Chapter 1.

[3] Berg, p. 124

Appendix C – EGAT Interview Questions and Responses

I. Interview Questions for Khun Surawut

Thank you for taking time to talk with us. We're working on a project to attain our BS degree at our university in Massachusetts. Our project, as you may be aware, involves working with the village of Huay King to develop a process of improving environmental awareness while establishing better communication with EGAT and the SAOs. We would just like to talk with you concerning EGAT's role within the community currently. Do you mind if we tape record this interview? Thank you.

1. What types of programs are set up in the community now? What do you see to be some strengths and weaknesses of these current programs? In what ways do they help to build capacity within the community? Within EGAT?

2. Will decentralization affect the programs that you have in place now? If so, how, and how will it affect future programs?

3. What about past programs? What were the strengths and weaknesses of the programs? (Were they successful or unsuccessful? Why?)

4. Have you thought of instituting vocational programs for the citizens so that EGAT does not need to hire outside of the community?

II. Interview Responses from Khun Surawut

Date   :   January 30, 2001

Time   :   2:30pm-3:30pm
Location   :   Mae Moh Community Development Project at EGAT
Respondents   :   Khun Surawut, Director of Community Development Project
Translators   :   (not necessary)
Others Present :   various members of the Community Development Department

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To gain a better understanding of EGAT's current approach to community interaction and involvement.
- To assess EGAT's current capacity for involving the community in environmental health management.
- To discuss EGAT's role in our project.

Data Obtained:
- The introduction of western technology 20-30 years ago brought environmental problems to Mae Moh.
- Timeline:
    o 1991: SO_2 released by EGAT brought complaints from local citizens. The government responded by ordering EGAT to use FGD.
    o 1993: EGAT still has not installed FGD, and more problems with SO_2 occur.
    o 1995: Problems continue.
    o 1997: Government orders EGAT to take care of the people. The Mae Moh Area Community Development Project is initiated.
- Areas of interest to the Community Development Project:
    o Agricultural development
    o Water management
    o Communication between community and the people
    o Infrastructure
- What does the Project do?
    o Build a relationship between stakeholder groups:
        ▪ Province (Governor)
        ▪ Private Organizations (trade commissioner, businesses, groups like Rotary)
        ▪ Media
        ▪ Amphoe Mae Moh Official (and people like the Sheriff)

- Elected Community Authority (SAOs)
- Community Leaders
- THE PEOPLE

- Input:
  - Budget
  - Management
    - Professionals
    - Health
    - Education
    - Religion
    - Youth Groups
    - Infrastructure
    - Financial
    - Media/Public Relations
  - Materials & Resources
  - Strategy
    - EGAT officials go out into the community and listen to the people's needs
    - Problem solving and trouble shooting
- Process:
  - PDCA of QC-Plan, Do, Check, Action of Quality Control
  - Plan- developed out of the strategy
  - Implement
  - Quality Control- check and re-plan
- Output:
  - KPI (Key Performance Indicator)
  - Targets:
    - What caused the environmental issue? On purpose or by accident?
    - Make the bargaining power more equal in negotiation.
    - Communication and understanding are the keys to the project (according to EGAT). They want to generate a positive attitude, which takes patience and continuous reassurance.
- Getting the community involved: One year ago, the local citizens were very dissatisfied and it was difficult to get them to participate. This program has been beneficial, and Surawut now believes that the community is about 70-80% satisfied.
- Decentralization: In Surawut's opinion, the people of Thailand are not ready for decentralization because of the lack of capacity, but it will come in time. To prepare for decentralization, more consultation is needed between the community, SAO's, Amphoe officials, and, community leaders in order to knowledge for living (i.e. sustainable agriculture), education, and professions.
- In order to present information to the community, EGAT goes through the local government. The local government is elected, and therefore trusted by the villagers for the most part (~60%). EGAT walks behind them in order to see problems and gain facts.
- Most important: the needs of the people must be understood. The SAO's, community leaders, and the local citizens meet to brainstorm needs. These needs are then ranked according to priority. The budget is then set based on these needs, in order of importance. Then, the SAO's, Amphoe government, the EGAT Quality of Life Fund

(~30 million bath/ year), and the Community Development Project budget cover as many needs as possible. Each of these groups determines their own budget. (Note: The Quality of Life Fund is managed by an elected committee. 3 elected board members per sub-district and 6 people from EGAT. This committee also needs capacity building.)

- According to Surawut, the community sometimes feel that the government does not tell the whole truth, so this project tries to fill in the gaps.
- The Project covers all of Amphoe Mae Moh, including 5 sub-districts and 34 villages. Stakeholder groups #1-6 are considered allies.
- Cooperation between stakeholder groups: It's a step-by-step process. First, they have to understand why they need to work together, and they must communicate to understand. EGAT first listens to their opinions, then suggests training.

III. Interview Questions for Khun Buntien

Thank you very much for taking time this afternoon to talk with us. As you may be aware, we are working to begin building capacity in environmental health management. We would like to ask you some questions concerning EGAT, environmental issues in Huay King, and the local governments.

1. What is your job description? How long have you worked for EGAT? In your current position?

2. What other groups do you work with, from within EGAT? Otherwise?

3. What does your office do in relation to ISO 14001? What do you think are some strengths and weaknesses of ISO 14001?

4. What do you think is the best way to involve the community in environmental health management?

5. Is there a specific way that EGAT could convey results of the environmental monitoring to the citizens? Do you feel the citizens need more training and/or education in order to be aware of their surrounding?

6. What ways have you tried to monitor within the village in the past?

7. How does the government play a role in informing the citizens? How will decentralization affect this?

IV.   Interview Responses from Khun Buntien

Date   :   February 12, 2001
Time   :   2:10pm-2:40pm
Location   :   ISO cafeteria
Respondents   :   Khun Buntien, Environmental Monitoring Department
Translators   :   (not necessary)
Others Present :   none

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To determine who members of EGAT perceive to be stakeholder groups.
- To gain a better understanding of EGAT's current approach to community interaction and involvement.
- To assess EGAT's current capacity for involving the community in environmental health management.
- To discuss EGAT's role in our project.
- To ascertain how the community is or could be involved in environmental monitoring.

Data Obtained:
- Job description: environmental monitoring, responsible for entire section, research, synthesizes data collected from many sections, makes recommendations based on research and data.
- Time worked for EGAT: 16 years, 9 in current department
- Other groups his department works for:
  o Internal: EGAT's environmental division in Bangkok; Mine Planning (major customer)
  o External: many different people (local and otherwise), PR people, monitoring teams
- Information they seek: general environmental information, general operation details, monitoring teams checking on regulations
- Relation to ISO 14001: regulations affect many departments, connections between groups
- Strengths and Weaknesses of ISO: EGAT is a very large, complicated organization, so it's difficult to regulate every department at the same time (everything from industry to office); rigid regulations are good, but not common in Thailand, especially for such a big mine; it will be a good opportunity if they can get the certification, as they will be the first mine in the country (sets an example)

- EHM- What can be done about the environment?: There are gaps right now in the government's project (?), so no SGs currently participate now, but they will when the project (ISO?) is approved. He believes it will be approved. Knowledge between project owner and SGs is very different, so they must learn together from the start. Thai constitutional law will also facilitate this participation. For Mae Moh, the problem is very complicated now, for political reasons.
- Ways to involve the community: won't be applicable for everyone, due to size (?); community needs skills to understand monitoring levels; in his opinion, EGAT should educate the people, and for these they need communication tools; the local government does not need to be very involved in this education process; NGOs should play a more prevalent role and EGAT should just support such actions. He's heard about the government (Department of Pollution Control) doing this kind of thing before, working with NGOs. (note: he is interested to know what the community thinks on this point.)
- NGOs: He's heard about some groups in Bangkok who are working to reduce the dust levels in the city and increase cooperation between the government, the people, and the pollution source. They have the skills to involve the community. However, he doesn't know of any local NGOs.
- Unclear about decentralization (translation issue.)
- More on monitoring: the plant section is responsible for monitoring sulfur dioxide, dust, and other gasses; His department is responsible for dust, water quality, and soil quality monitoring (that's all they have the money and equipment for); Vibration monitoring is the responsibility of yet another department
- Recommendation: talk to the monitoring network (?) and Pollution Control Department, especially for sulfur dioxide information.

V. Interview Questions for Khun Thawron

Thank you for taking time to help us with our study. We are students from Chulalongkorn University, and we are working on a project to help increase communication and involvement within the community, with respect to the environment. We would like to ask you some questions concerning the environment. Do you mind if we tape record this interview? Is it alright if someone takes notes? Thank you.

1. What is your job description? What do you do? What is your department responsible for? How long have you worked at EGAT? How long have you been at your present position? Where do you live? Why?

2. Is your department affected by ISO 14001? If so, how? What are some strengths and weaknesses of ISO?

3. What problems do you see with the local environment? Who is responsible for these problems? How can EGAT, the local government, and the citizens help to rectify these problems? What info and resources do they need?

4. Do you have any interaction with the community, especially the community of Huay King? If so, what do you do? If not, do you think the community should be more involved in what you do? How? Why or why not?

5. Do you have any interaction with the local government or oboto? If so, what do you do? If not, do you think the local government should become involved in what you do? Why or why not? How? How will decentralization affect this?

6. What other departments or groups do you work with at EGAT? What other groups outside of EGAT do you have contact with? What are the strengths and weaknesses of each of these groups?

VI.   Interview Responses from Khun Thawron

Date   :   February 14, 2001
Time   :   1:15pm – 2:00pm
Location   :   Safety Control Department
Respondents   :   Khun Thawron
Translators   :   (not necessary)
Others Present   :   Chanin (for a short time)

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are, as perceived by EGAT.
- To assess current environmental problems in the area and how EGAT and other stakeholder groups could get involved.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- Responsibilities:
  o Modern Safety Management (MSM) for the mine
  o 4 years, EGAT didn't have the policy to use this system
  o Monitoring of the mine
  o Proactive (not reactive) safety measures such as morning exercises to make people physically prepared to do intensive physical work
  o Make healthy environment for workers
  o Decrease accident rate
  o Educate workers before accidents occur.
- Other groups:
  o Safety officer in a labor-intensive factory in Lampang- compare ideas to improve the quality of life in the workplace (union)
  o Government officials is third party to this MSM program
  o Works with Employee Health Monitoring to compile health data on employees to give to supervisor. The data is then used to determine
  o Safety Dept. in Power Plant
  o Safety Division in Bangkok
  o Government Safety Officer
  o No current interaction with local government.
    - System must be set up within EGAT before working with outside parties.
    - EGAT must figure out things on their own.

- EGAT would like to have more work for people, to make sure they have the necessary training and prevention skills.
  - Only went to the Amphur office once. They are understaffed- only ten people doing all the work.
- These groups share ideas, discuss improvements, evaluate current procedures, share experiences, and learn about regulations.
- Due to poor working conditions, 45+ year old workers have especially have difficulties
- He worked at EGAT for 32 years, including 3 years in current position. The first 29 years were spent working in the field.
- He lives in Lampang.
- ISO 14001: The department will have to assist and support ISO, but will not see many changes in his department.
- Material Safety Data Sheets (MSDS): He developed a manual for managing chemicals that workers come into contact with in the mine. (We spent a lot of time on this.)
- Identification of Environmental Problems: He believes that globalization doesn't affect EGAT. After the economic crisis, many EGAT people sat down and talked about what to do. Social and environmental problems have become more important. Prices have to be kept low enough so people can afford them, but high enough to make a profit in order to improve the quality of life and work environment.
- Solutions: It is up to EGAT, the government, and local government to make sure the environment is good. Need education and awareness for the villagers, with a focus on what is good for the community, not just for the individual. It is up to the government and local government to work together to provide the knowledge and awareness. Government has to change the structure of the education system for this. Key Performance Indicator (KPI) should be monitored and evaluated by a third party.
- Decentralization: Decentralization is good, but this is not the proper time for it. It would be more effective 14,13, or 20 years in the future. Decentralization will develop the knowledge and grow with the people.
- Community Interaction: EGAT has contracts to employ Mae Moh people. The contract assures that the employee gets the full advantage (insurance, compensation, etc.).

VII. Interview Questions for Khun Damlong

Thank you for taking time to help us with our study. We are students from Chulalongkorn University, and we are working on a project to help increase communication and involvement within the community, with respect to the environment. We would like to ask you some questions concerning the environment. Do you mind if we tape record this interview? Is it alright if someone takes notes? Thank you.

1. What is your job description? What do you do? What is your department responsible for? How long have you worked at EGAT? How long have you been at your present position? Where do you live? Why?

2. Is your department affected by ISO 14001? If so, how? What are some strengths and weaknesses of ISO?

3. What problems do you see with the local environment? Who is responsible for these problems? How can EGAT, the local government, and the citizens help to rectify these problems? What info and resources do they need?

4. Do you have any interaction with the community, especially the community of Huay King? If so, what do you do? If not, do you think the community should be more involved in what you do? How? Why or why not?

5. Do you have any interaction with the local government or oboto? If so, what do you do? If not, do you think the local government should become involved in what you do? Why or why not? How? How will decentralization affect this?

6. What other departments or groups do you work with at EGAT? What other groups outside of EGAT do you have contact with? What are the strengths and weaknesses of each of these groups?

VIII. Interview Responses from Khun Damlong

Date   :   February 14, 2001
Time   :   3:05pm – 3:40pm
Location   :   Mine Contracting Department
Respondents   :   Khun Damlong
Translators   :   (not necessary)
Others Present   :   none

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are, as perceived by EGAT.
- To assess current environmental problems in the area and how EGAT and other stakeholder groups could get involved.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- Responsibilities:
    o Planning and contracting
    o Checks the work of EGAT and the contractors.
    o Inspects the work of ITD and CMC and their pollution control measures, such as spraying water to alleviate the dust problem and combustion.
- He has worked for EGAT for 17 years, including 2 years and the current position. He lives in Lampang.
- ISO 14001: There are many environmental management programs to control the environment. This is good, because there is a consistency of control. But there is too much to do in too little time, without sufficient manpower. (There are only seven people in the department working on ISO.) Also, there aren't as many community programs as environmental management programs.
- Environmental problems:
    o Mining causes dust, smell, vibration, noise, and perhaps water pollution in the village of Huay King.
    o Burnings are a problem. He sees them on the way home to Lampang.
    o Solid waste problems and water pollution result from a poor sanitary system.
    o Water is poor because it has too many solutes (Total Dissolved Solutes- TDS), but it is okay for agriculture. Drinking water from EGAT is very good, as is the water from the other reservoir (Mejah Dam)
- No interaction with the villagers. Doesn't want to say whether their involvement is needed. He has enough to do. Maybe in the future he will work with the community.

- EGAT is not the best group to disseminate information to the community because they are not believable. The community leader should be in charge of keeping the community aware. More knowledge might make the community able to believe EGAT, depending on the facts.
- Mine Expansion: The expansion will begin this year, coming within 300-500 meters of Huay King. Mining will only occur there for ten years.
- No interaction with the local government, but EGAT, the community, and the government could benefit from involvement.
- He thinks the relations between EGAT and the local people is currently good.
- Decentralization: First, he wanted to know why we were asking about decentralization and then replied that he didn't know.
- Other groups: the Power Plant and local construction companies
- He hasn't tried to tell the people how to lessen vibrations, but other people have tried.
- There are plans in the works for a barrier between the mine and the village in order to reduce noise and vibration pollution. The noise pollution is due to the explosions, trucks, and conveyer system. The smells could be due to the burning of the coal, some sulphur dioxide, maybe other gases. When stored for two weeks or so, it will also start burning.
- Spontaneous combustion: Sometimes, when the coal is exposed to air, it spontaneously catches fire. This is a normal property of coal.
- He then wanted to know how many other EGAT people we've talked to, what the villagers think of EGAT, and our own opinions.

IX. Interview Questions for Khun Chanin

Thank you for taking time to help us with our study. We are students from Chulalongkorn University, and we are working on a project to help increase communication and involvement within the community, with respect to the environment. We would like to ask you some questions concerning the environment. Do you mind if we tape record this interview? Is it alright if someone takes notes? Thank you.

1. What is your job description? What do you do? What is your department responsible for? How long have you worked at EGAT? How long have you been at your present position? Where do you live? Why?

2. Is your department affected by ISO 14001? If so, how? What are some strengths and weaknesses of ISO?

3. What problems do you see with the local environment? Who is responsible for these problems? How can EGAT, the local government, and the citizens help to rectify these problems? What info and resources do they need?

4. Do you have any interaction with the community, especially the community of Huay King? If so, what do you do? If not, do you think the community should be more involved in what you do? How? Why or why not?

5. Do you have any interaction with the local government or oboto? If so, what do you do? If not, do you think the local government should become involved in what you do? Why or why not? How? How will decentralization affect this?

6. What other departments or groups do you work with at EGAT? What other groups outside of EGAT do you have contact with? What are the strengths and weaknesses of each of these groups?

X.   Interview Response from Khun Chanin

Date   :   February 15, 2001
Time   :   1:30pm-1:55pm
Location   :   ISO library/office
Respondents   :   Khun Chanin, Assistant in Environmental Management Systems (EMR)
Translators   :   (not necessary)
Others Present :   none

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To gain a better understanding of EGAT's current approach to community interaction and involvement.
- To assess EGAT's current capacity for involving the community in environmental health management.
- To discuss EGAT's role in our project.
- To ascertain how the community is or could be involved in environmental monitoring.

Data Obtained:
- Responsibilities: Applying ISO 14001 to Mae Moh EMR
- He has worked for EGAT for 19 years, but has only been an EMR for the past year. Before joining ISO he was in charge of reclamation to improve the environment after the land is used for mining and dumping. He lives in Lampang.
- ISO:
    o EGAT has a problem with the environment and the people. If he can get ISO, then EGAT has credibility to back them up when people complain. EGAT will be able to explain to them that they are following regulation.
    o A third party (MASCI- Management System Certification Institute of Thailand) confirms the certification to control the impact of the mining.
    o Difficulty lies in getting the other departments and employees to cooperate because they don't want more work and paperwork. But after the top manager of EGAT explained the importance of ISO and put emphasis on obtaining it, people understood.
    o ISO will affect all of the mining departments. There are 18 total now that ISO is being implemented, 16 before. One department was divided and the ISO department was added.
- Environmental Problems:
    o Dust, polluted water, vibrations, noise, bad smell from spontaneous combustion.
    o Emissions and polluted water, mainly from the power plant, affect the crops.
    o SO_2 used to be a problem, but now EGAT (power plant) uses electrostatic precipitator to trap the dust and FGD to trap SO_2 emissions.

- Proposed solutions:
  - o EGAT has K. Surawut and the Mae Moh Community Development Project to make friends with the area citizens, and keep them involved and informed.
- Decentralization: Decentralization won't really affect his interactions with the people, but it is good because the local government will have more authority and they can directly contact EGAT. This will improve relations between stakeholder groups.
- Communication:
  - o There are problems with disseminating information, but that is why EGAT has the Community Development Project and K. Surawut as liaison between EGAT and the community.
  - o Now, there are monthly meetings with top EGAT officials, such as K. Surawut, the top manager of EGAT, K. Pramote, Dr. Nuntavarn, K. Chanin, and an official from the environmental department, the AuBoTo, and the Village Leader. The purpose of this meeting is to discuss issues with EGAT's activity. The VL acts a liaison between this group of individuals and the community.
  - o K. Surawut's subordinates go to the village to discuss problems and issues with the local citizens.
- More education will be good for the people to understand. K. Surawut would have some ideas and projects for that.
- People need job skills so EGAT can hire them. By hiring more local citizens, the relations between EGAT and the communities would improve.
- Reservoirs:
  - o There are problems with the Mae Moh reservoir. Water from the plant and the mine, both, hits the MM reservoir and spills over into the natural creeks.
  - o But now both the mine and plant are working on ISO. The plant, however, is behind the mine in terms of deadlines.
  - o So the reservoir water is mostly used for irrigation.
  - o K. Buntien's department tests water quality.
  - o During the rainy season, more sediment naturally washes into the reservoirs. Reclamation prevents erosion and sediments and the wetland system treats water before it goes into the creeks.

XI. Interview Questions for Khun Thirasa

Thank you very much for taking time this afternoon to talk with us. As you may be aware, we are working to begin building capacity in environmental health management. We would like to ask you some questions concerning EGAT, environmental issues in Huay King, and the local governments.

1. What is your job description? How long have you worked for EGAT? In your current position?

2. What other groups do you work with, from within EGAT? Otherwise?

3. What does your office do in relation to ISO 14001? What do you think are some strengths and weaknesses of ISO 14001?

4. What do you think is the best way to involve the community in environmental health management?

5. Is there a specific way that EGAT could convey results of the environmental monitoring to the citizens? Do you feel the citizens need more training and/or education in order to be aware of their surrounding?

6. What ways have you tried to monitor within the village in the past?

7. How does the government play a role in informing the citizens? How will decentralization affect this?

XII.   Interview Responses from Khun Thirasa

Date   :   February 16, 2001
Time   :   11:10am-12:05pm
Location   :   Mining Operations Division Office
Respondents   :   Khun Thirasa, Mining Operation Division Manager
Translators   :   Opal
Others Present :   none

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To gain a better understanding of EGAT's current approach to community interaction and involvement.
- To assess EGAT's current capacity for involving the community in environmental health management.
- To discuss EGAT's role in our project.
- To ascertain how the community is or could be involved in environmental monitoring.

Data Obtained:
- Background Information:
  o K. Thirasa has worked at EGAT for 26 years, but in his present position for 2 years.
  o Previously, he was the manager of the reclamation project.
  o He lives in Lampang.
- Responsibilities:
  o Management of equipment used in digging the mine.
  o Maintenance of the roads (dust control: pave unpaved roads or spray them with water).
  o There are 2 components of the operations:
    - First is the sub-contractor, and second is EGAT. K. Thirasa is in charge of the EGAT component.
    - Both components have the same environmental regulations they have to follow though.
    - The regulations are designed and carried out by EGAT. It is the responsibility of each department to send the information about the regulations to the committee.
  o ISO 14001:
    - The ISO certification will affect him and his department. The number of reports that need to be submitted are increased because of the need for reports and monitoring comments.

- The operating system will not be affect though because it is already in compliance with the environmental standards. Everything is ok with the environment.
- The main weakness of ISO is the extra burden and work that is put on the staff.
- The strengths of ISO include proving that EGAT is not a bad polluter and it is really concerned about the environment, as well as better public relations, especially with the media.
  - o Environmental Problems:
    - The main environmental problems stem from EGAT and the mine. These problems include dust from the mine, noise from the big truck and conveyors, smell from the charcoal and spontaneous combustions, and the water because the rain caused contaminates to wash out of the ground.
    - EGAT should and does take responsibility for these problems because the community, Village Leader, and AuBoTos can't do anything do anything about these problems except for notify EGAT. The local citizens talk to the VL who takes the problems to the ABT. The ABT then talks to EGAT to get things corrected.
    - EGAT has found that there are 3 main causes of the dust. The first, and main cause, is the mine. The second cause, which doesn't affect Huay King, is the building of a road from Lampang. This mainly affects the village of TaSi. The third cause of the dust is the burnings in the villages. A program needs to be set to educate the local citizens about using the organic wastes for composts and fertilizers. This is just a start to solving the problems though.
  - o Community Invovlement:
    - EGAT has a special PR division (K. Surawut) that sends an investigator to each village in Mae Moh District. This investigator listens to the citizens' complaints and finds out how they feel, and then they report back to EGAT officials.
    - The data is collected and compiled and then sent to the boss, who will decide what, if any, action EGAT will take. EGAT fixes some problems, depending on the conditions. For example the tap water and infrastructure of the water system is a big problem. If the ABT has money to fix this problem, then EGAT will not help, but if the ABT doesn't have the budget to fix the problem, then EGAT helps.
  - o Government Involvement:
    - This is mainly K. Surawut's tasks, so he doesn't know too much about it. *Talk to K. Surawut *(we already did)*.
    - Decentralization is good because once the ABT is in the village, it will be easier for everyone to work together. The ABT will release the good information about EGAT to the community, which will better relations.
    - *Opal asks about corruption and fear of EGAT.* EGAT and ABT are definitely separate, so the ABT will not worry about repercussions from EGAT.
  - o Other Groups:

- All of EGAT works with the Forestry Department and the Resources Department. They have to ask permission and fill out a lot of paper work to reclaim and build on the land.
- The weakness of working with these departments is that every 4 years the government officials change, so it is very hard to establish a good understanding and relationship with these officials.

Appendix D – Huay King Community Interview Questions and Responses

I.   Interview Questions for Villagers

Thank you for taking time to help us with our study.   We are students from Chulalongkorn University in Bangkok, and we are working on a project to help increase communication within the community. We would like to ask you some questions concerning the environment. Do you mind if we tape record this interview? Thank you.

1.   What is your family name? How big is your family? What do you do for a living? What is your primary source of income? How long have you lived in this village?

2.   What do you see as current environmental problems in Huay King? What about things besides EGAT, such as the sewage system, waste disposal, and burnings?

3.   How do you think you can begin correcting the environmental problems in Huay King? What information do you need to help you learn about the environment? What kinds of programs would help you learn more about the environment? Who should be responsible for providing this program?

4.   How would you like the government to help with the environmental problems in Huay King? And how would you like EGAT to help with the environmental problems? What kinds of programs do you think they should use?

II.   Interview Guidelines

- Introduce our study thoroughly so that the villagers do not fear repercussions from EGAT and the government.

- Stress that we are not trying to solve any environmental problems. The purpose of our study is to generate discussion and assess current knowledge of environmental problems.

- Keep focus of discussion on environmental problems, what can be done about the problems, and what types of programs they'd like to see implemented. Avoid discussions about relocation.

- Keep interview under 1 hour.

- Try to bring everyone into the circle for discussions.

III.   Interview Responses from Family #1

Date   :   February 1, 2001
Time   :   6:45-7:30
Location   :   Huay King Village, Mae Moh District.
Respondents   :   College student who lives in the village, sophomore, 21 years old major
                        in " Physical Education"
Translators   :   Khun Mou and Khun Chanin
Others Present :   Khun Chanin's wife, Village Headmaster

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are perceived to be
- To assess current environmental problems of the village.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- The current environmental problems are dust from the mine, and smell from spontaneous combustion of the coal.
- The dust problems are worse during the winter, and begin at 3:00-4:00 in the afternoon, and continue throughout the evening.
- The smell problems begin around 6:00-7:00 am, and then disappear later in the daytime.
- The dust problem is from the vibrations, from the explosions and the operation in the mine. The dust is at its worst around 5:00.
- The vibrations are a problem in them selves. They caused a picture to fall off of his wall in his house at one time.
- The water is another problem. The rainfall is dirty with dust.
- There is a lack of opportunity to learn about environmental problems. Especially amongst the older people who cannot read.
- The people need more information from EGAT, especially about air condition, such as dust monitoring and stuff like that. He would like EGAT and the official organizations to do as they said or promised they would. To do things to improve the situations. He would like to know more about the progress of the programs.
- He would like EGAT officers and government officials to be involved in village meetings, which are held once a month.
- Most of the people have low levels of education. The best way to inform is to be involved in the meeting. Older people cannot read. Only the young people like him can read (21).

- The appropriate time to call meetings is on Sunday mornings. It is not good to call meetings in the evening. The villagers need to cook and take care of their farms.
- The place that the meetings should be held is the temple.
- They would like to listen directly from top officials of EGAT and the government, because sometimes, information from top officials and their subordinates is different. This causes problems for the citizens.
- He would also like the top officials of EGAT to come around and tour the village and talk to the citizens, once a month maybe.
- The mining contractors should be involved too, as well as the local representatives of the village.
- He thinks that because the community does not make the problem, (the problem comes from the mine), they cannot solve it themselves.
- The groups (EGAT, presumptuously) need to talk within the community, because they used to just send a letter.
- The citizens want to talk with the groups and try to solve the problems, but cannot solve them by themselves.
- He said that some of the villagers want to move because the mine is expanding closer to their village, and the problems come from the mine.
- He says that they think that they will feel better if they move to the other area. They feel like the problem would not be solved, but they would feel better to move to the other area, how far they do not know.
- In his mind they need to meet two times a month, but he is uncertain and unsure that this could happen because people are busy. So once a month is a start.
- Besides the meeting, he needs EGAT to come here and share some sponsorship for the temple and the school. He would like them to join in the local festival and give some sponsorship to that too.
- They do not want to go to a new area, because it takes a long time to regrow trees and settle in. So they want EGAT to solve environmental health problems for them, the dust, the smells and the vibrations from the spontaneous combustions.

IV. Interview Responses from Family #2

Date	:	February 11, 2001
Time	:	3:55pm – 4:50pm
Location	:	Huay King Village, Mae Moh District.
Respondents	:	The Ringkhaw Family (Husband, Wife, and four daughters)
Translators	:	Prao, Boy, and Non
Others Present	:	Brian, Nadia, and various friends of the family

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are perceived to be
- To assess current environmental problems of the village.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- Personal Information:
    o Family name Ringkhaw
    o Have lived in Huay King for 42 years. She came from Ubonratchatane (Northeast)
    o Husband does not work for EGAT; he does odd jobs around the village
- Environmental problems:
    o Drug Addicts
    o Air pollution, dust, "bomb" shakes village
    o Shortage of Drinking water
    o Garbage is not a problem, but she suffers from dust.
    o There is no crop burning, because she has no land for agriculture.
    o She earns her living through unskilled labor.
    o She has no with sewage system. There is a truck for excrement.
    o The main problem is from the explosion, the vibrations make cracks in their house.
    o There is also a smell from the lignite burning.
    o Couldn't drink tap water, because it was crude water.
    o There is no problem with the soil. The percent of villagers that grow crops is small. They don't have enough land. Some suffered from crippled products.
- How the environmental problems be solved:
    o Move the villagers to a different area
    o She wants EGAT to install an air filter for the entire community, because the FGD system does not fully purify the air.

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- o There should be a large filtering system installed that cleans all the water supplied to the villagers
- o They want groups of doctors to check up on the villagers and tell them about dangers of air pollution.
- o She really wants the government to pay the most attention to them.
- o They also want the hospital to observe their health and send the medical findings to the "big government" (central government)
- o She is confused about all of the questions. So many people have come to talk to her and left. Nothing happened. She might have died before anything was solved by the government.
- Programs this family would like to see from EGAT: to send a doctor to check on their health status twice a month, and also bring medicine.
- When asked what other groups should help solve Huay King's environmental problems, the family said that just EGAT and the local government should fix these problems.
- She would like a program for both adults and children to learn about the hazards of environmental problems and how to protect themselves from them. Some villagers cannot read.
- But the family also said that this problem is too large for the government to handle alone so the central government should also play a key role in this process
  - o 1st: EGAT and the central government should come and talk face-to-face about problems surrounding environment in Huay King
  - o 2nd: EGAT and the central government should look into solving these problems any way possible
- The family feels that EGAT and the local government should talk to the villagers directly rather than through the community leader—they feel that if this contact were made direct the problems would be solved quicker
- Other issue: The husband needs a job because he is currently jobless. He wants to work for Italian Thai but lacks the education or skills to get a job. He wants the government or EGAT to provide him with this education
- She wants EGAT to solve the environmental problems.
- Many villagers are unemployed. EGAT should restrict the labor that they hire to Mae Moh district. Most of their employees are hired from outside.
- EGAT is unable to solve the problem directly for the citizens. According to law, the local government plays the important role for the village, since the citizens pay tax to them.
- The SAO leader (Aubadoe) will set the five year plan. Each village will sit down and figure out what they need. Then the Aubadoe will figure out the money allocation.
- Nobody took action in solving the problems, not even local government or EGAT. That is why the citizens kept quiet about the drinking water. They made requests via the Aubadoe, and now the situation is still the same. Irregular running. Unable to drink.
- She would like the big government to come visit village. Right now, the villagers know that they can ask for assistance from the Aubadoe.
- The government should provide the villagers with jobs, because now they are unemployed.

V. Interview Responses from Family #3

Date   :   February 12, 2001
Time   :   5:30pm – 6:05pm
Location   :   Huay King Village, Mae Moh District.
Respondents   :   The Punyasoop Family (7 members of the family)
Translators   :   Prao and Boy
Others Present   :   Brian, Nadia, and various friends of the family

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are perceived to be
- To assess current environmental problems of the village.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- Personal Information:
  o Family name Punyasoop
  o Woman's father has lived in Huay King for 70 years. She was born there and is 38.
  o Husband works for a sub contractor that sometimes works for EGAT.
  o Wife works as a waitress
  o Wife's father lives with them.
- Environmental problems:
  o Mainly from dust.
  o Water is bad for drinking purposes. Tap water is for household purposes. Drinking water is supplied but there is sometimes a shortage.
  o The water from Huay King reservoir smells bad like fish.
  o In the past she smelled the water mainly in the mornings in the winter time.
  o She doesn't have crops to burn. Sometimes people burn leaves or garbage, but she cannot remember if she owned land or not.
  o Local government provided them with a water system because the water coming from the Huay King dam is not good
  o The air smells sometimes (4am-5am)
These environmental problems come from EGAT
- She said that the villagers know that the problems are from EGAT. They did'nt protest against EGAT like others who tried to sue them and always make claims about sulfur.
- EGAT provided them with free medication.
- This village is not "Anti-EGAT"

- Whenever the community feels there is a problem, they go to the community leader and he tells EGAT and the local government
- It is impossible to solve the problems. To solve the problems, she says that the families have to learn how to deal with the dust and ash.
- EGAT provided free respitory treatment for those who live close to the mine.
- How the environmental problems be solved: The village leader should provide the village with the village with school program. It was unsuccesseful because the villagers work for the company, and had no time to audit the program.
- Other issues:
    o The wife would like to learn how to cook and sew or something that she can keep as a career. This should be from the government via the institute of developing skill.
- Programs this family would like to see from the local government: The government should improve the water system by adding a pump and then fix the air pollution.
- Programs this family would like to see from EGAT:
    o EGAT should create a system to control the air pollution
    o EGAT should educate the students of the village about the environment and provide scholarships

VI.   Interview Responses from Family #4

Date   :   February 14, 2001
Time   :   6:20-6:55 pm
Location   :   Huay King Village, Mae Moh District.
Respondents   :   The Yawud Family (4 members in the family)
Translators   :   Opal, Khun Mou, Prao and Boy
Others Present :   Brian, Nadia, and two children

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are perceived to be
- To assess current environmental problems of the village.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- Personal Information:
    o Family name Yawud
    o The family has lived in Huay King for 14 years
    o Husband is a skilled laborer but not for EGAT
    o Wife works for cleaning company that is subcontracted by EGAT
    o Husband's mother also lives in the village
- Environmental problems:
    o The burning of the garbage and leaves
        ▪ Husband's mother burns leaves everyday
        ▪ This household burns garbage & leaves once a week
    o The smell of charcoal burning is strong in the winter time and very strong in the mornings and she knows it comes from EGAT because when she goes to work she can smell the same thing
    o There is an inadequate supply of water, not enough for the entire village, but the SAOs is responsible for this problem
    o Every family says the tap water is dirty and that the villagers shouldn't trust the testing conducted by the SAOs
    o SAO brings water from the Huay King reservoir
    o Sewage System: she does not know anything about a sewage system in the village
        ▪ Khun Mou said there is no sewage system in this village because it is too small of a village that it doesn't need a sewage system
- How can the problems be solved

- o The most important environmental problem she feels is the charcoal smell, she thinks an agency (part of the government) should find a solution
- o She knows the smell is bad for her health
- o EGAT or the SAOs should work together to solve the problems
- o Villagers should reduce burning because when plastic bags are burned there is an even stronger smell
- o SAO trucks only come once a week to collect the garbage
- o Garbage is not separated just picked up and put out all together
- What should the government do?
  - o The government should help citizens find jobs
  - o EGAT wants to cut back on Huay King villages, wanting to employee through contractors to avoid paying welfare
  - o EGAT finds people from outside of Mae Moh, and she wants them to be employed from the village; wants EGAT to talk to sub-contractors and make them employ the villagers
  - o Tap water should be cleaner than it is today and this is the responsibility of the local governement
  - o In Mae Moh it is had for the citizens to work for private organizations due to lack of education
  - o The SAOs put a concrete road in front of her house, she says this has helped reduce the pollution
  - o Almost all of the villagers lack of knowledge keeps them unemployed—nepotism is prevalent
  - o The villagers are willing to accept their current educational status, but can EGAT or the government provide education and skill training so that they can acquire jobs? Either way the citizens will be fine
  - o How to educate the community about the environment: Best way is to provide training courses from the government (this is better than TV or radio) that informs the citizens on how to protect themselves from air and water contamination
  - o The government should help the poor find jobs and in the winter she wants the government to provide blankets and education for the children
  - o She wants the government to provide scholarships for the poor, because in her opinion the government solves problems better than EGAT
- Decentralization
  - o Doesn't know much about decentralization (it was explained to her by the translator)
  - o She feels this may be good for the village because it'll give them more contact with the local government and when they need something, quicker action will be taken

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VII. Interview Responses from Family #5

Date : February 14, 2001
Time : 5:00-5:45
Location : Huay King Village, Mae Moh District.
Respondents : Huay King Villager
Translators : Khun Mou, Phroa
Others Present : Brian, Nadia

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To try to determine causes other than EGAT for the environmental problems the community if facing.

Data Obtained:
- The respondent lives alone. He is 65 years old and has lived in Huay King his entire life. He is an unskilled laborer who does not work at EGAT
- He was asked about burning and initially said that there was no burning.
- Then he said that most of the burning was in the rice fields.
- Yesterday he was burning, but it was exceptional, because he usually doesn't burn stuff. He said that he had just cut down a tree, and he was burning it to make charcoal for cooking. He uses wood instead of gas.
- Usually he collects…(Trash?)… outside of the house and burns twice a week.
- He says that there is no great sewage problem.
- There is trash collection once a week. (I don't think that this is completely right.)
- He thinks that the pollution that he creates is okay, if he only burns a few times a week.
- He wants to know more about environmental problems, but he thinks that he should of learned back in school. He needs training from school. He does not have much schooling.
- For health knowledge, he needs to learn more from the Doctors and Nurses.
- Maybe at temple once a month he needs training for health and environmental problems.
- (I missed some stuff about his work here, time = 5:24.)
- He says that there is small dust and air problems, but it is good. It was bad, much worse two to three years ago.
- About the water, he drinks from the tank from local government. The tap water is good for things other than consumption.
- Because he is uneducated, he wants the government to help them. Everything should be better.

- He has no opinion, but he wants to see things get better. He has no comment on EGAT helping out.
- He heard his neighbor talk about environmental problems, but he doesn't care about it. He doesn't know about the solution.
- He knows a little bit about decentralization. It is better because the central government is in Bangkok. It will help solve environmental problems. He says that the local government will manage to fix the environment, as they did with the drinking water section.
- Decentralization will make process faster and more efficient.
- He would like to see EGAT and the local government to shake hands and work together to solve problems.

VIII. Interview Responses from Family #6

Date   :   February 14, 2001
Time   :   5:05pm-5:55pm
Location   :   Huay King Village, Mae Moh District.
Respondents   :   The Naowarat Family (man and woman of household)
Translators   :   Opal and Boy
Others Present :   Heather and Leah

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To learn who the various stakeholder groups are perceived to be
- To assess current environmental problems of the village.
- To learn the perceived needs for an educational program in the village, and how they can be implemented.

Data Obtained:
- Personal Information:
  o Family name: Naowarat, 4 people in his family
  o Have lived in Huay King for 13 years
  o Husband has been unemployed for the past month, so he goes fishing in Huai Sai Reservoir. He sells the fish and makes about 100 baht a day *(Not a lot of money for a family of 4)*. He used to work for EGAT 20 years ago as a temporary technician to install pipelines. Then he worked for a small company, which sub-contracted to EGAT, in maintenance of pipelines. This company had too many employees, so they layed off people who weren't relatives.
- Environmental problems:
  o EGAT Problems:
    - The main environmental problems come from the mine explosions at EGAT. Although these explosions only happen about once a day, there are multiple "bang" at the same time.
    - Opal had to ask him about air pollution. Air pollution, from EGAT, isn't a very serious problem. In the morning, he has a slight irritation in his nose, probably from the dust and explosions. The air has gotten better since the power plant installed FGDs on the stacks. The amount of SO_2 has decreased, but he thinks EGAT still may lie about the true amount of SO_2 that comes out.
  o Other Problems:
    - The other major environmental problem, aside from EGAT, is the unpaved roads. When the wind blows or vehicles drive by, the dust is bad.

- There are also a lot of burglers and thieves because of the drugs. Many of the teenagers in Huay King do drugs. The restaurant down the road from this house is also a problem because it's open all night long. There is a lot of noise coming from it late at night.
- The neighbors like to burn garbage, leftover food, and leaves. He tries to stop them, but no one listens. People burn more often at the end of winter to the beginning of the summer.
- The water is supplied by the AuBoTo. There are tanks in the middle of the village, which hold drinking water. They can't consume the tap water; they can only use it around the house. The villagers don't believe the AuBoTo when they say they treat the water before sending it to Huay King.
- He doesn't know anything about the soil because he is landless.
- Solutions to Problems:
  o In his opinion, they can't solve the burning problem. Every time someone is burning, he tells the Village Leader. The VL then comes to investigate and tell the people to stop burning, but since the burning is on private property, they just start burning again within a couple days.
  o About the water, they told the AuBoTo about the problems they were having, and they did a good job of correcting it.
- What Resources are Needed:
  o First, he would like to see more news on the TV about the environment. Things that cause the problems as well as possible solutions to them would be helpful.
  o Secondly, he thinks the AuBoTo should produce a leaflet with ALL the information. The people don't believe the AuBoTo now because they think that only 50% of the information is relayed. The villagers want 100% of the information to be relayed. He thinks the AuBoTo is afraid to tell the community everything for fear of repercussions from the local citizens.
- Current Methods of Relaying Info:
  o Announcements by the VL are better than the message board because older people can't read. Many people that work outside of the community may not have time to go to the board.
- What Should be Done to Help the Community:
  o The AuBoTo, EGAT, and the VL should meet at least once a month to collaborate to form training, in order to help people learn how to protect themselves from the pollutions.
  o The AuBoTo and EGAT should set programs for training to let them know when EGAT measures the pollution. The villagers would like to know as soon as EGAT knows, what the pollutions tests say, and be able to understand them. He thinks the AuBoTo may be afraid to inform the community about the truth because EGAT has a lot of power.
- Decentralization: When asked about this topic, he didn't know. Opal explained it to him. He thinks it is good that the AuBoTo has more power in the sub-district because the central government is corrupt. With the central government, there are many hands the money must pass through, so by the time the money gets to the community, they only get

about half of what they should. The AuBoTo and VL can now balance and check each other.

Appendix E – Huay King Community Focus Group Questions and Responses

I. Focus Group questions for Huay King Villagers

II. Focus Group Guidelines

III. Focus Group responses for Huay King youths.

IV. Focus Group responses for Huay King men.

V. Focus Group responses for Huay King women.

VI. Focus Group responses for Huay King local government/village leaders.

I.   Huay King community focus group questions

Thank you for taking time to help us with our study. We are students from Chulalongkorn University, and we are working on a project to help increase communication within the community, with respect to the environment. We would like to ask you some questions concerning the environment. Do you mind if we tape record this interview? Is it alright if someone takes notes? Thank you.

1.   What environmental problems currently exist in your village?
For example:
- *How is the water quality in your village?*
    o *What do you think causes these problems?*
    o *What do you think can be done to solve these problems?*
    o *Who do you think should be responsible for solving these problems?*
- *How is the soil quality in your village?*
    o *What do you think causes these problems?*
    o *What do you think can be done to solve these problems?*
    o *Who do you think should be responsible for solving these problems?*
- *How is the air quality in your village?*
    o *What do you think causes these problems?*
    o *What do you think can be done to solve these problems?*
    o *Who do you think should be responsible for solving these problems?*

2.   Do you have any programs or anything in place to educate or train the community on current environmental problems?
- *If some of your programs have not been fully successful in the past, why do you think that it was so?*
- *What other groups do you work with on environmental programs?*
- *What other groups do you think it would be beneficial to work with on environmental issues?*

3.   What could be improved for the future in terms of communication between the groups involved with solving environmental problems?

4.	How can the community become more informed of environmental problems?
	- *Why do they exist?*
	- *How they might be able to prevent these problems in the future?*

* Note: questions in *Italics* were added as the conversation progressed in order to follow up the above questions.

II. Focus Group Guidelines

- Introduce our study thoroughly so that the villagers do not fear repercussions from EGAT and the government.

- Stress that we are not trying to solve any environmental problems. The purpose of our study is to generate discussion and assess current knowledge of environmental problems.

- Keep focus of discussion on environmental problems, what can be done about the problems, and what types of programs they'd like to see implemented. Avoid discussions about relocation.

- Keep interview under 1 hour.

- Try to bring everyone into the circle for discussions.

## III.	Focus Group responses for Huay King Youths

Date		:	January 31, 2001
Time		:	7:30pm-7:50pm
Location		:	temple at Huay King village
Respondents	:	9 youths- 4 male, 5 female (one boy dominated most of the discussion)
Translators	:	Khun Mou

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To introduce the project to the village of Huay King.
- To begin gaining an understanding of how young villagers view their environment.
- To learn what the youth believe is the solution to their environmental problems and what issues they'd like to learn more about.

Data Obtained:
- When first asked how they felt about the condition of the environment in their village, the youths responded that they thought it was fine- not a problem or a concern.
- When air and noise pollution were specifically mentioned, they said the air is fine except for the dust. They attribute the dust to the mine and the roads. Noises from the power plant and explosions during the day from the mine cause vibrations. But these are not great concerns. It is to be expected because they live near the mine.
- Soil quality is normal.
- What should be done: One boy feels that the vibrations and noise will only get worse, especially after the mine expansion. When that happens, he feels the village should be relocated. *(This comment was followed by much laughter, perhaps from embarrassment and especially from the females.)* He also feels there should be more job training (agriculture and farming) in general. Basically, EGAT should do something about the vibrations, and if the mine comes closer, they should all move.
- Current communication with EGAT and the government on environmental issues: no current contact.
- Needs:
  - Monitoring of vibrations
  - Air quality testing
  - Training for the young on environmental issues, particularly the two above topics so they can do it themselves. The best method of educating the youth would be to have someone come into their schools once a month. Once they had the capacity, the youth could in turn spread the information to the rest of the village through the newspaper, flyers, and posters.

IV.   Focus Group responses for Huay King Men

Date   :   January 31, 2001
Time   :   7:30pm-8:00pm
Location   :   Huay King Village Temple
Respondents   :   Men of Huay King Village
Translators   :   Khun Boy

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To gain a better understanding of Huay King's environmental problems
- To discuss ways that Huay King can learn more about environmental problems as a community, how they can be more involved in solving these problems.

Data Obtained:
- The respondents said that the air is bad, and that it is caused by sulfur.
- The water was not usable about 10 years ago, but is now. The water is good for washing things, and bathing, but not for drinking. They often collect rain water, and water from a mountain stream. community and the people
- The village leader informs the villagers of environmental problems at village meetings.
- They want EGAT to take care of the environmental problems, however EGAT is better now than in the past. They are happy with them. They want more health help from EGAT, but they are grateful for the new school, and the temple that they built.

V.   Focus Group responses for Huay King Women

Date   :   January 31, 2001
Time   :   7:30pm-8:15pm
Location   :   Village of Huay King, Mae Moh Tambon, Mae Moh District, Lampang
                    Province
Respondents   :   12 Women
Translators   :   Prao, Non, and Khun Moo (from EGAT)

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To gain a better understanding of the environmental conditions which plague this community and to gather further information which may be relevant to our project.
- To get villagers to begin identifying stakeholder groups and begin to define environmental health management.
- To discuss different kinds of programs the community has either seen in the past or would like to see in the future.

Data Obtained:
- Kinds of pollution noticed in the village include:
    o Smell of Sulfur Dioxide is very heavy in the mornings
    o Soil is not good for growing crops
    o Water is not sufficient for drinking
    o Shock waves in the area are very disturbing
    o Noise pollution
- Kinds of steps that should be taken to solve the current situation
    o People from the village should work with EGAT
    o EGAT needs to solve the problem with the smell
    o EGAT and villagers need to have regular meetings to discuss the community's needs
    o Having a representative from the central government to take an active interest in the community's problems, because in the past the local government has not been very helpful
    o A good communication technique between EGAT and the villagers would be established if everyone had phone
- In one year the villagers have to produce a plan for the local government for budgeting purposes
- Currently there are no outside groups (NGO's and other organizations) that have created programs or made efforts to improve environmental health management in Huay King

- Currently whenever there is a problem, the villagers tell the community leader and then the issues are brought to the attention of the local government officials
- In the past the local government has come to help but has not solved the problems
- Other issues
    - EGAT has bought much of the land in the area so the villagers do not have enough land for their agricultural needs. And because they don't own much land anymore, there is a lack of jobs and income for the local citizens.
    - The villagers want phones in each of their homes. When the villagers spoke with the phone company, the company said that the villagers need to talk to EGAT, because EGAT owns the rights to the village
    - EGAT has provided jobs and compensation for other villages, they should do the same for the Huay King villagers

VI.   Focus Group responses for Huay King Local Government/Village Leaders

Date   :   January 31, 2001
Time   :   7:35pm-8:45pm
Location   :   Huay King temple
Respondents   :   9 men (the Village Leader, 2 SAOs [1 of which is the chairman of
                   tambon Mae Moh], 6 other middle-aged men) (one gentleman provided
                   most of the ideas; however, the VL and SAOs were talking a lot)
Translators   :   Khun Kaw

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To reintroduce our project to the Village Leader, and to introduce it to the SAOs and other members of the community.
- To begin to gain an understanding of the way these officials view their environment.
- To learn what the officials feel would be effective in beginning to solve their environmental problems and who they feel should play a role in the solutions.

Data Obtained:
- 10 to 20 years ago, the quality of life was good in Huay King because the villagers were able to cultivate; there was no pollution. Since the mining, however, there have many effects on the village, which have caused quality of life to decrease:
    o The area of cultivation decreased because EGAT took land from the village.
    o There have been earthquakes for the mining. After the first one, the villagers asked to visit the explosion point; EGAT said OK and then set up an earthquake check box about 1km away from the temple. When some villagers went to check it though, the battery was dead. EGAT said they would fix it; now the box is in the temple wall for 24 hour surveillance.
- The rain and ground water was good for the village 10 years ago. They were able to grow things well, and although the wells are not deep, the water was good for washing. But, within the past 3 years the water color has turned yellow and the quality is now bad. When they wash things, they have to use more soap and they still don't come out clean.
    o *The Village Leader consults the chairman of tambon Mae Moh.* There are a few ways they have tried to solve the water problem:
        - For drinking water, they built 11 tank that the government fills once a week.
        - For general water supply, the local government supported a budget to construct a water supply system. There were 3 different budgets which were supported:
            - 1994: They allocated 700,000 Baht for the first project.

- 1997: They added 400,000 Baht to improve the system by installing sand filtering systems. This project was better than the first one, but it still wasn't good because diseases were not filtered out (it wasn't chemically treated).
- 1999: They budgeted 1.5 million Baht to install a complete system, which included chemicals and polymers, etc. They were quite happy with the water supply, but within the last 2 months they started having doubts because they were still using the old pipes. They consulted the provincial and EGAT health officials to have the quality of water analyzed. They are still awaiting the results, so now everyone must boil their water to ensure safety.

- In the past, there had been streams and "perfect" surroundings. The people were able to fish and there was plenty of wildlife, but now, most of the wildlife has disappeared and the streams are gone because of the construction of dams by EGAT. *Khun Kaw, an employee of EGAT, agrees with this statement. He also said he agrees that something needs to be done.*
  - To rebuild the natural surroundings, reforestation seems to be the solution *(the guy with most of the ideas)*. The budget for this project should come from the central government, EGAT, and the local government; however, the labor would come from the villagers *[collaboration]*.
  - They should also have a reservoir or new source of water, especially for the summertime. But, they need a budget from the central government, EGAT, and the local government. EGAT should be most responsible for this budget because they are the cause of this problem.
  - Many of these problems are linked to problems with land titles. Since the government is decentralizing, the power is not 100%; the laws need to be rewritten to allow the development of land with respect to decentralization (the SAOs need a better place to meet since they will have more responsibilities, but they are unable to build anywhere because of the current laws). With this problem fixed, the local government will be able to focus on and begin working on the other problems.
- With respect to the air quality:
  - It is very noisy, and many buildings have been cracked by explosions.
  - They are afraid of the new expansion by the Italian Thai Development Company (ITD) because the mine will come very close to Huay King village.
  - The noise and dust will affect the air and quality of life in the future. There should be more pensions for doctors then.
  - Suggestions to prevent or decrease these anticipated problems:
    - ITD and EGAT should set emitting standards with the local government to find ways to decrease the emissions.
    - *Suggestion by Khun Kaw that seemed to be met with a lot of enthusiasm.* The community should write a letter to EGAT/ITD to set a meeting with these officials to discuss the concerns of the community. *Gentleman fed off this statement:* After the meeting, representatives of the community could work with EGAT/ITD to monitor the expansion's dust control.

- How are the air quality problems handled with respect to health care? The winter to summer months (January to April) are the worst for emissions. Some of the villagers go to EGAT doctors, which is free with a yellow health card, but most go to Mae Moh hospital because they are more comfortable there and it is more convenient. The Mae Moh hospital provides health cards too, mainly to help with people that have low income.
- To help solve the noise pollution problems, they could have a 3 part meeting—EGAT, ITD, and the community.
- To help with the problems caused by the earthquakes, they would like to be able to sue EGAT and ITD when cracking occurs.

Appendix F – Local Governing Body Interview Questions and Responses

I. Interview Questions for Sub-District Administrative Officials

Thank you for taking time to help us with our study. We are students from Chulalongkorn University, and we are working on a project to help increase communication within the community. We would like to ask you some questions concerning the environment. Do you mind if we tape record this interview? Is it alright if someone takes notes? Thank you.

1. As local government leaders, what are your responsibilities?

2. In your opinion, what are some environmental problems in the area right now? What is the water like? How is the air quality? How is the soil?

3. What do you think could be some possible causes for these problems? How can these problems be prevented in the future?

4. What is your role in dealing with the environment? Keeping the water clean, sanitation, and air?

5. How will decentralization affect your job in the village?

6. Do you look at decentralization as a good opportunity to improve the community's current environmental problems? Why or why not?

7. Do you think that the community is aware of environmental problems? If so, what do you feel can be the best way to improve the way that the community can learn about environmental problems?

8. What resources do you have access to that will be of use in helping to keep the environment clean?

9. What other groups do you work with? What other groups have you worked with in respect to the environment?

10. What do you feel are some of the strengths and weakness of the other groups? With regard to the environment?

11. Were your experiences with that group(s) positive or negative? Why? Do you find it easy to work with them?

12. How would you suggest the community work together in order to improve communications between groups?

II. Interview Responses from Sub-District Administrative Officials

Date   :   February 13, 2001
Time   :   10:10am-11:40am
Location   :   Local Government Office
Respondents   :   Khun Ong-art, chairman of Tambon Administrative Organization Mae
                     Moh and Khun Anak, Mae Moh representative from Ministry of Interior
Translators   :   Khun Mou
Others Present :   Brian, Nadia, Heather, Leah and an associate of Khun Mou's

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To determine whom SAOs perceive to be stakeholder groups
- To assess the SAOs perceptions as to the capacity of each stakeholder group
- To gain a better understanding of SAOs' current approach to community interaction and involvement in terms of environmental health management

Data Obtained:
- Job descriptions (Question 1)
    - Khun Ong-art's job description: Chairman in a political post; Top leader in Tambon Mae Moh. He manages basic infrastructure, jobs, education, religion, the water system and other environmental issues.
    - Khun Anak's job description: Top position in civilian post; He works with both Khun Ong-art and the central government to create local policies. He is from the Ministry of Interior (department of local administration).
- Environmental problems in Huay King (Question 2)
    - There is a dust problem especially during winter and upcoming dry months
        - Made villagers get sick in respiratory system
    - Noise and vibration from mining is a nuisance to the people
        - In the evenings they can hear the mining activities.
        - In the daytime they feel the vibrations.
        - When they suffer from the vibrations, the SAO informs EGAT to solve the problem
    - Drinking water & Tap water need to be tested for contamination.
        - Citizens mistrust quality of water since SAO has no equipment to test
    - Soil is not really a serious problem because agriculture is not really a way of life in Huay King; only 5% of the people of Huay King grow crops.
- Causes of environmental problems and ways to solve these problems for the future (Question 3)

- o EGAT should be the one who take responsibility by monitoring, checking, and controlling the digging of the mine
- o In the future the local government will adjust / maybe even hire more people with more environmental awareness within the local government.
- o EGAT and SAO both have experts in the environmental issues, so if one cannot solve the problem then then one can ask for assistance from their network (other government officials)
- o EGAT should allow tours to visit the mine pit, so that the government and the people will get a better sense of the problems. They also want to test the levels of contamination as reported by EGAT.
- o People come to the local government to tell them about environmental problems, like the vibration, and they in turn tell EGAT.
- o In the future, they want to have a tourism area, and get people involved in the project by providing jobs and bring in more money.
- o In the future to confirm the results of all measurements (air, water, etc.) made by EGAT, SAO would like to send a representative to be a part of EGAT's activities.
- o The sewage system its suited for the urban area not in rural area like Mae Moh District, SAO wonder about the water which EGAT uses for cooling in their operations
- o Water in canal, little crack is treated by EGAT which pass the standard but the citizens are still afraid
- o There are three villages (Hua Pet, Hang Hung, Sob Moh) which EGAT provides water for drinking and consuming
- The role of the local government in dealing with the environment (Question 4)
  - o The water pollution in the houses is not very serious because EGAT provides drinking water. (needs clarification from EGAT interviews)
- The effect of decentralization on the local government (Question 5)
  - o In the future there will be reorganization and the environmental experts will be placed into local area
  - o Decentralization is good because local government can solve problems faster and better than central government
  - o The local government will do, as the villagers want.
  - o Decentralization is good for the small problems, but they have little money, manpower and resources / facilities.
  - o Maybe decentralization will help in solving big problems such as the current EGAT environmental issues quicker.
  - o There is some confusion over the task system that needs to be worked out, between the local and federal governments. Every agency should sit together and talk about the help needed in fixing the environment. Getting consultation from different ministries.
  - o Some related problems:
    - For example they wanted to make more buildings at a school, but had to ask permission from the ministries.
    - The ministries are still needed to be consulted with for important decisions (mostly the ministry of interior)

- EGAT working with the Ministry of Science, Technology and the Environment maybe co-operatively
- The effect of decentralization on the environment (Question 6)
  - It is a good opportunity to improve environmental problems.
  - The central government takes care of them, but they will have their own budget, personnel and be more strongly organized.
    - For example, they had a budget that they share between Amphur and Tambon. The community may have a road built where they do not want it, and the car driving by may generate dust.
  - The SAOs are part of the community, and can do as the citizens want.
  - There are no negative effects of decentralization.
  - Advantages of local government: own policy, own budget, own income, and knows the problem in the area and can solve the problems as soon as possible rather than the central government
  - The central government sill provides assistance and all follow-up monitoring is conducted by SAOs so that the SAO doesn't feel like abandoned
  - In the next 5 years 35% of the central government will be allocated to local government
  - In the past the central government has allocated money without asking the community first such as community A wants a concrete road, central government will allocate the money to community B
- Ways to improve community awareness of environmental issues (Question 7)
  - There is a bulletin board in every community that gives information on current situation.
    - SAO wants to send a representative to take part in EGAT testing, so that they know the data reported by EGAT is truthful (already clarified in the notes by Ms. Opal)
  - There is also a meeting every month in the village to give knowledge and training to the local citizens about the environment.
  - When asked whether the bulletin board was useful for illiterate citizens: They mentioned a mega-phone in the village, which may be useful for communicating with the people.
- Resources needed to keep the environment clean (Question 8)
  - For local government, decentralization is just in the beginning stages.
  - They need lots of outside help such as: money, material, and management
- Groups helpful for working with the environment (Question 9)
  - Other groups involved include the citizens, EGAT, local government, central government, and forestry department of the ministry of agriculture to dig channels and reforest.

Village People

EGAT

Central Government

Local Government

Forrest Dept. of Ministry
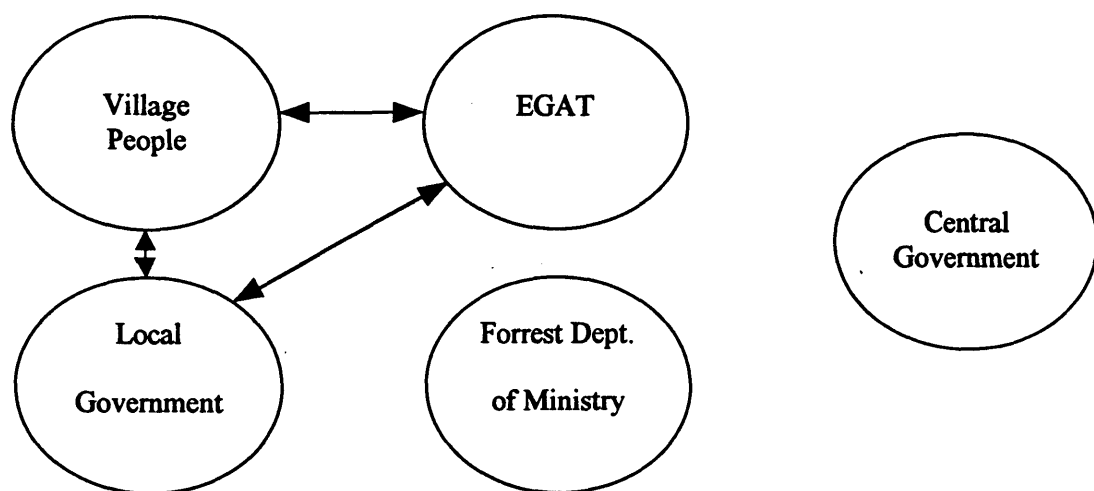
- The strengths and weaknesses of each group (Question 10)

	EGAT	Forrestry Department	Citizens	Local Government	Central Government
Strengths	Money, machinery, personnel, support from head EGAT officials, EGAT has a reforesting plan	Tell people that it is not good to cut forests Over 5000 rai (area measurement)	They think for themselves now and solve their problems on their own more than in the past. Better management skills and more ideas	With their own budget, they work quickly and more efficiently than Central government, and EGAT	They have many people with extensive knowledge.
Weaknesses	Advertisement to show the sincerity of the company, monitoring is not continuous or given to the people	Lack of Budget and man power. They cannot enforce laws on people not to cut down trees, sometimes.	Lack of training and education, lack of help at meetings, only a small group goes.	Lack of advertisement (PR?), people do not always cooperate well with them.	They are far from the localities, and there is too much procedure involved, when trying to solve problems.

III.   Interview #1 Questions for Huay King Village Leader

Thank you very much for taking time this morning to talk with us. We really appreciate everything you have done for us. We would like to talk with you some more concerning the environmental problems your community is facing. Do you mind if we tape record this interview?

1.   What do you see as current environmental problems in the community? What about things besides EGAT? Such as the sewage system, waste disposal, and burning of dead crops?

2.   What do you think your role is in helping to begin correcting these problems? What information and resources do you need? How does the community fit into this?

3.   What types of programs would be feasible and beneficial to the community?

4.   How do you see the government fitting into these? What role should they play and what resources do they need?

IV. Interview #1 Responses from Huay King Village Leader

Date   :   February 7, 2001
Time   :   8:30-9:50 am
Location   :   Huay King Village, Mae Moh District.
Respondents   :   Khun Sanun, Huay King Village Leader
Translators   :   Khun Mou
Others Present :   Brian, Nadia, Chrys, Prao, Boy

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To better understand the village leader's role in the community.
- To learn more about the village leader's role in environmental health management.
- To try to determine causes other than EGAT for the environmental problems the community if facing.

Data Obtained:
- The community if facing many environmental problems, such as air pollution, explosions, etc, but they all come from EGAT. The smell is the worse from 2am to 6am. *(Phroa and Boy)*
- There are a decent number of villagers employed by EGAT; however, there are also a lot of people unemployed too. *(Phroa and Boy)*
- The main responsibility of the village leader is to work for the community. He helps the citizens. *(Phroa and Boy)*
Khun Moo arrives and takes over the translation.
- There is no waste burning in this community. The waste disposal is handled by they local government through EGAT. Every week, a truck comes and empties the recepticals; the waste then gets dumped at the ash dumping area of the mine. There is no sewage system because there is no treatment plants or anything like that, but there is no problem with sewage. The problems stem from EGAT.
- Khun Sanan needs to have a meeting with everyone—the community, local government, and EGAT officials—twice a month to provide information on the environment, such as they monitoring systems and current situations.
- He would like to see training for the community to give more knowledge to the villagers. EGAT should have "site seeing" for the community to better understand what happens, which would enable them to monitor the activity. The community needs to see the EGAT process and management before they can begin to understand it.
- There needs to be more communication between head EGAT officials and the community. The "small" people of EGAT that come to talk to the villagers now, aren't

trustworthy. The citizens feel that the "small" people that come now to talk to them do not tell them the truth, nor do they relay all the concerns to the top officials.

- The village leader has a lot of good ideas, but he needs to see EGAT's processes and such first. He needs help from EGAT.
- Job training for the community to ensure a permanent improvement in their way of life is essential. Khun Sanan does not want money; he wants training.
- He wants the community to have good health (health department).
- The training should come everywhere: for agriculture, from the agriculture department of the government; for basic labor skills, from the labor department; and heavy machinery, from EGAT. The training needs to be continuous and last for long periods of time.
- If the quality of life is good, everything is good.
- Decentralization is good because the government will be smaller and more efficient. The local government can manage very well, but there is a lack of money; they have a lot of good projects and ideas but they don't have the money.
- The money comes from: mining tax from EGAT (main source), other taxes such as housing and transportation. In Khun Saran's opinion, they need to find more money.

V. Interview #2 Questions for Huay King Village Leader

These questions served as a follow-up interview with the village leader, to clarify certain topics.

1. How do you feel about the message board? Is it useful? What about the public announcement system? Are these useful for providing the community with information?

2. Where else, besides taxes, could the local government get money to do more programs?

3. How long have you been the village leader? What jobs have you had besides the village leader position?

VI.   Interview #2 Responses from Huay King Village Leader

Date	:	February 14, 2001
Time	:	6:10pm-6:20pm
Location	:	Huay King Village, Mae Moh District.
Respondents	:	Khun Sanun, Huay King Village Leader
Translators	:	Khun Mou
Others Present	:	none

Goal of Project:
- The goal of this project was to develop and test a facilitation process whereby community participation can be used to generate capacity building action plans for local environmental management in rural Thailand.

Goal of Interview:
- To clarify points of the previous interview.
- To back-up information learned from other interviews.
- To learn more details about his personal information.

Data Obtained:
- He thinks the message board is useful and one station per village is best. The board needs to be bigger for the elderly who have trouble reading, maybe 1-2 meters wide by 2.0-2.4 meters high. This board is useful for displaying more information like history and details about the environment. He thinks he needs more boards because there isn't enough room for all the information from the local government, central government, and EGAT.
- The announcement system is good, but he only likes to use it for emergencies because he doesn't want to disturb people.
- As for tax money, he thinks the discotechque in town is not a good source of tax money. The money from EGAT is enough. *(This is a little strange because in the previous interview he said there wasn't enough money.)*
- Personal Information:
  - He has been village leader for 2 years and 10 months. He didn't learn much at all from the government.
  - Since the salary from the government is very low, he has other jobs such as:
    - He owns 20 cows.
    - He also has a cleaning business, which he has a contract with EGAT that he sometimes washes their glass *(presumably windows)*.

Appendix G – Strength Weakness Opportunities and Threats (SWOT) Analysis

EGAT Perspective

Groups	Strengths	Weaknesses
EG`AT	- Have an active interest in the area communities - *Have provided communities with many resources (i.e. hospitals & schools)* - Have EGAT employees visit village to talk to community members and the local government. - ISO requirements help improve community relations	- Main polluters in the area - Have negative image that prevents them from getiing into the village.
SAOs & Govt. Officials	- Decentralization will allow them to work more closely with the citizens	- Lack of educational programs for the villagers. - Lack of communication between groups
Local Citizens	- They are concerned with the environment and have already begun to voice their concerns	- They also contribute to the pollution through burning. - Lack of education and knowledge needed to understand environmental problems

SAOs & Govt. Official Perspective

Groups	Strengths	Weaknesses
EGAT	- Provides them with reports of measurements. - Has money, personnel and resources.	- Provide them with data that is inexplicable to the community. - They have a bad public image - Lack of an effective advertisement scheme
SAOs & Govt. Officials	- Provide communication by message board and the public announcement system - Decentralization will help them become more involved	- Bad public image. - People do not always want to work together with them.
Local Citizens	- The citizens are able to realize and solve problems more now than in the past.	- Lack of knowledge and skills

Local Citizens Perspective

Groups	Strengths	Weaknesses
EGAT	- Provide some health care for free to villagers near the mine. - They are able to provide jobs and skill trainings related to the environment	- Do not have an active interest in the community. - Do not provide access to environmental information. - Cause many of the environmental problems (some say all of them).
SAOs & Govt. Officials	- They are trying to be more involved in the community. - They have made efforts to provide information to the citizens	- Do not provide access to comprehensible environmental information. - Do not include the local citizens in the decision making process
Local Citizens	- Some citizens do recognize that the community causes some problems. - Are willing to work with other stakeholder groups.	- Some citizens do not realize that they contribute to environmental problems. - Many villagers lack the education and skill training to get good jobs.

Appendix H – Journal of Data Collection Activities

Week #1

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		Jan. 24th	Jan. 25th	Jan. 26th	Jan. 27th	Jan. 28th
		- 6:00pm - Left BKK (via train)	- 5:30am - Arrived in Lampang - 7:30am - Arrived in Flat - 8:30am - Went to meet Dr. Nuntarvarn at EGAT facilities - 10:00am - Finally meet Dr. Nuntarvarn who then took us to ISO office. Met Chanin and Khon Moo - 10:30am - Assessed the library resources and researched - 12:00pm -Went to lunch at the canteen - 1:00pm - Returned to the office and continued research - 4:00pm - Dr. Nuntarvarn picked us up and took us to Huay King. Met Village Leader and many of the students - 7:00pm - Went to Lampang market - 8:00pm - Went to dinner with Dr. Nuntarvarn and met Khon Surawut - 10:30pm - Returned to flat	- 7:30am - Left flat to go to the office using the gray bus - 8:00am - Arrived at the office and continued working on our schedule and interview questions - 8:30am - Called Chrys and Steve in BKK - 12:00pm - Went to lunch at the canteen - 2:00pm - Met with Dr. Nuntarvarn to review schedule and plan for the following weeks - 3:30pm - Went back to the flat - 4:30pm - Went with Prao to go to Mae Moh market and then go to Huay King village with Health Study Group - 7:30pm - Returned to flat - 9:30pm - Leah and Nadia eat dinner with Health Study Group	- Morning: worked on Lit Review - Afternoon & Evening: went to Lampang to use internet café for research for Lit Review	- Worked on Lit Review - Leah and Heather went to Mae Moh market briefly - Waan (friend from Hang Hung) came to visit - Found a place to eat (EggHouse) and a small store (EBK) in the EGAT complex

Week #2

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Jan. 29th	Jan. 30th	Jan. 31st	Feb. 1st	Feb. 2nd	Feb. 3rd	Feb. 4th
- Holiday due to elections - 9:30am - Lost running water until 11:30am - Stayed at flat and worked on the Lit Review as well as the Interview Questions - Went to the Mae Moh market for lunch - Continued working on Lit Review and Introduction - Went to EggHouse for dinner	- 7:30am – Left flat to go to the office using the gray bus - 8:00am- Arrived in the office and finished Lit Review and Interview Questions - 11:45am - Went to lunch - 12:30pm - Came back and double checked our interview questions - 1:00pm - Met with Khon Pramote and Khon Khaw & Khon Moo - 2:00pm - Leah and Heather try to go see Khon Surawut - 2:30pm - Leah and Heather finally meet Khon Surawut - 2:30pm - Back at the office Brian and Nadia finally get internet access to work - 4:00pm - Regrouped and left for the flat using the gray bus - 4:30pm - Went to EggHouse for an early dinner - 5:30pm - Arrived back at the flat and waited for Khon Moo and Khon Khaw to take us to village - 6:45pm - Left for Huay King, but arrived in Hang Hung. No one was there, so we went to Huay King. Village leader told us to come back tomorrow. So we went back to Hang Hung - 7:30pm - Began a focus group led by Khon Khaw - 9:30pm - Left for the flat - 10:00pm – Arrived back to the flat. Lost water until 11:30pm. - 10:30pm - Talked to Prao and Boy (students from Health Study) to help us with our focus groups on Weds.	- 7:30am - Left flat to go to the office using the gray bus - 8:00am - Arrived in the office and worked on transcribing notes and methodology revision - Finally checked email - 11:30am - Talked to Dr. Nuntarvarn on the phone - 12:00pm - Went to lunch - 1:00pm - Meeting with Khon Pramote to discuss events of the previous night - 2:00pm - Worked on methodology - 4:00pm - Left for the flat using the gray bus - 5:30pm - Met with Khon Moo and data collectors (Prao, Non, and Boy) discussed adjustments made to focus group questions and guidelines for conduct - 6:30pm - Arrived in Huay King. - 7:30pm - Began focus group "Olympics" - 9:00pm - Left Huay King and had dinner with Prao and Non - 10:00pm – Arrived at flat and re-grouped	- 7:30am - Left flat to go to the office using the gray bus - 8:00am - Worked on Introduction, Methodology, and Results and Analysis Outline until lunch - 9:30am – Nadia had telephone conversation with Steve - 12:00pm - Went to lunch - 1:00pm – Continued working on Intro, Meth, and R&A - 4:00pm - Left for the flat using the gray bus - 6:00pm - Brian and Nadia interviewed village youth in Huay King - 8:00pm - Returned to flat	- 7:30am - Left flat to go to the office using the gray bus - 8:00am – Transcribed field notes from previous days, worked on Lit Review, Appendicies, and R&A - 12:00pm – Went to Lunch - 1:00pm – Meeting with Dr. Nuntarvarn until 2:00pm - 4:00pm – left for flat using the gray bus - 5:00pm- Left for Lampang bus station to go to Chiang Mai with Non	Chiang Mai	Chiang Mai
Lit Review Revision Due			*Meth Revision Due*			

Week #3

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Feb. 5th Chiang Mai	Feb. 6th - 12:30pm - Left for Lampang by bus with Chrys Demtry - 2:00pm - Arrived at Kim City hotel in Lampang - 5:00pm – Presentation and meeting with Chrys Demetry - 8:00pm – Went to dinner with Chrys Demetry	Feb. 7th SPORTS DAY - 7:30am – Left Kim City Hotel by van to go to Huay King - 8:30am – Arrived in Huay King and interviewed Village Leader - 10:00am – Arrived in the office and continued discussions with Chrys Demetry - 12:00pm – Went to lunch with Khon Pramote and associates; Dr. Nuntarvarn joined us soon after - 1:00pm – Came back to the office and met with Dr. Nuntarvarn and Chrys Demetry - 1:30pm – Left for field to observe Sports Day - 4:00pm – Went back to flat - 6:00pm – Left for Sports Night Dinner with Dr. Nuntarvarn and Khun Pramote	Feb. 8th - 7:30am – Left flat to go to Huay King village to observe Magha Puja with Prao and Boy - 9:00am – Had breakfast in Huay King - 10:00am – Brief meeting with Dr. Nuntarvarn - 10:30am – Walked around the village and booked appointments with various families for the upcoming days - 12:30pm – Arrived back at the flat - 1:00pm – 4:00pm – Worked on revisions - 5:30pm – Went to EggHouse for dinner - 7:00pm – Went to Huay King for Candle Lit Ceremony with Boy, Prao, Non, Tom, and Yim - 9:00pm – Went to dinner #2 with data collectors - 10:00pm – Arrived back at the flat	Feb. 9th - 7:30am - Left flat to go to the office using the gray bus - 8:00am – Worked on Intro and Methodology - 11:30am – Went to lunch - 12:15pm – Finished working on Introduction and began Results & Analysis revision - 4:00pm – Went back to flat - Called an early night	Feb. 10th - 8:00am – Leah worked on her section of the Lit Review - 9:00am – Heather worked on Methodology - 12:30am – Went to lunch at EggHouse - 1:30pm – Returned back to flat and continued work on Lit Review and Results and Analysis - 6:00pm – Left with Non to Mae Moh Internet Café to ATTEMPT research on Lit Review (bad connection, nothing accomplished) - 7:00pm – Went to dinner with Non in Huay King Beef House - 8:00pm – Returned to flat and worked on Lit Review, while Nadia called home (family problem) - 9:00pm – Spent the evening with the Prao, Boy, Non and other data collectors	Feb. 11th - 8:45am – Heather and Leah went to Lampang with Wan to observe school concert - 9:00am – Nadia and Brian worked on individual Lit Review sections - 11:30am – Nadia and Brian went to lunch at Egg House - 11:30am – Heather and Leah went to Internet Café in Lampang and did research for Lit Review - 3:30pm – Heather and Leah return to flat - 3:45pm – Brian and Nadia went to Huay King for family interview (house #78) with Prao, Boy, and Non - 4:00pm – Leah and Heather worked on Methodology - 5:15pm – Brian and Nadia return to flat - 5:30pm – Heather and Leah go to dinner while Nadia and Brian went to play Basketball with Prao, Non, and Boy - 8:30pm – Nadia and Brian venture out to Lampang with Non and Boy to use internet café to do research (bad connection—nothing accomplished) while Heather and Leah work on Lit Review - 10:30pm – Nadia and Brian return back to flat
	Presentation & Intro Revision Due			*R &A Revision Due*		

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Week #4

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Feb. 12ᵗʰ INTERVIEW OLYMPICS - 7:30am – Left flat to go to the office using the gray bus - 8:00am- worked on results and analysis and literature review. - 12:00pm- lunch at cantina - 1:00pm- continued working on literature review and results and analysis. - 2:00pm – Interview with Khon Buntien (EGAT Enviro. Monitoring) @ ISO Library - 3:00pm- continued working on results and analysis and the literature review. - 4:00pm – Left for the flat using the gray bus - 5:00pm – Brian and Nadia leave for Huay King – Family Interview - 6:30pm- Ate at egg house. - 7:30pm- transcribed field notes. *C & R Revision Due*	**Feb. 13ᵗʰ** INTERVIEW OLYMPICS - 7:30am - Left flat to go to the office using the gray bus - 8:00am- arrived at office and worked on methodology and results and analysis sections. - 12:00pm- lunch at cantina. - 1:30pm – Interview with Khon Thawon (EGAT Health / Safety Manager) @ his office - 2:30pm- continued working on methodology and results and analysis drafts. - 4:00pm - Left for the flat using the gray bus - 5:00pm – Brian and Nadia leave for Huay King—Family Interview - 6:30pm – Ate dinner at egg house. - 7:30pm- worked on transcribing field notes.	**Feb. 14ᵗʰ** INTERVIEW OLYMPICS - 7:30am - Left flat to go to the office using the gray bus - 8:30am- Met with Dr. Nuntavarn, and introduced to new translator Opal. Who spent the day reviewing tapes of past nterviews for triangulation - 10:00am- worked on methodology and results and analysis - 12:00- lunch at cantina - 1:00- continued work on writing revisions. - 3:00pm- Dumlong interview. - 4:00pm - Left for the flat using the gray bus. - 5:00pm – Brian, Nadia, Heather, and Leah leave for Huay King with Opal, Prao, Boy, and Khun Mou - 5:00pm –Family Interview by Heather & Leah - 5:00pm – Family Interview by Brian & Nadia - 6:00pm- Family Interview by Brian & Nadia - 6:00pm – Second Interview with Village Leader by Heather and Leah - 7:00pm – Returned to Flat and ate dinner at EggHouse. - Some took night off. Others worked on transcribing field notes. *Exec. Summary & Abstract Due*	**Feb. 15ᵗʰ** INTERVIEW OLYMPICS - 7:30am - Left flat to go to the office using the gray bus - 8:00an- worked on methodology and Results and Analysis. - 12:30pm- lunch at cantina. - 1:30pm- Heather and Leah interview Khun Chanin. Brian and Nadia work on outline of conclusions and recommendations. - 2:30pm Leah and Nadia work on Results and Analysis wile Brian and Heather continue to revise the methodology. - 4:00pm - Left for the flat using the gray bus - 5:00pm- ate at egg house. - 7:00pm- reviewed notes with Opal and transcribed field notes.	**Feb. 16ᵗʰ** INTERVIEW OLYMPICS - 7:30am - Left flat to go to the office using the gray bus - 11:00am – Interview with Khon Theerasa (EGAT Mine Operations) by Leah and Heather while Nadia and Brian continue transcribing notes - 1:00pm- Drove to flat, then to Lampang airport. - 3:25pm- Depart for Bangkok - 8:00pm- arrived back at Suksutnives dormitory.		