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The World Commission on Dams
5th floor, Hycastle House
58 Loop Street
PO Box 16002
Vlaeberg
Cape Town
SOUTH AFRICA

Telephone: +27 21 426 4000
Fax: +27 21 426 0036

Website: <http://www.dams.org>

Email: info@dams.org

Chainarong Sretthachau, Kittima Nungern & Anna Olsson

Southeast Asia Rivers Network (SEARIN), Thailand

Social Impacts of the Rasi Salai Dam, Thailand: Loss of Livelihood Security and Social Conflict

1. Introduction

The Rasi Salai dam is, along with the Pak Mun dam, perhaps one of the most controversial dam projects currently debated in Thailand. Located on the Mun River, Northeastern Thailand, the Rasi Salai dam was officially opened in 1994, its reservoir flooding an area of approximately 80 sq. km. Besides hosting one of the last remaining wetland forests of its kind in Thailand, the particular ecological conditions in the dam affected area has sustained the lives of thousands of people for generations. The inundated area provided rich soils for rice cultivation for an estimated 3,000 families, while the wetland forest served people with a wide range of natural resources for their subsistence, a great part of which today is no longer accessible to them. Although the dam was completed six years ago, project affected people are still making demands for fair compensation for their livelihood losses, while conflicts between villagers and authorities are escalating.

The social losses that have been incurred by the Rasi Salai dam have never been officially assessed or acknowledged, making an estimation of the true costs and benefits of the project nearly impossible, while also complicating villagers' demands to just compensation. There is a lack of both baseline data and current research on the ecology and livelihoods of people in the dam affected area. No proper environmental impact assessment was conducted for the project, and the feasibility studies that were carried out largely ignored any analysis of potential social impacts of the dam. A post-environmental impact study of the dam area has recently been carried out but it similarly lacks in social impact analysis.

This report provides an initial account of the social impacts experienced by a sample of the Rasi Salai dam affected people. It is based on qualitative interviews with affected villages, representing seven villages in total, and with village and NGO leaders from the project area (conducted in December 1999 and January 2000); observations during field work in the dam area over the past four months; government documents; and a review of secondary sources. The findings are not conclusive or representative for all the affected villages. The purpose here is to present the *themes* of social impacts that arose in the interviews, and to provide an analysis of how these impacts taken together result in diminished livelihood security for the dam affected people. First, a brief background to the Rasi Salai dam project and the project area is given. In the next section, the social losses resulting directly from ecological impacts of the dam project is discussed. The last part gives an account of how impacts related to the project implementation process have arisen in the form of conflict and social factions.

2. Background

2.1 *Rasi Salai dam project history and purpose*

The Rasi Salai dam project was planned as part of the large-scale Khong-Chi-Mun water diversion project proposed by the DEDP in 1987 for the purpose of solving water shortages in 14 provinces in Northeastern Thailand (4.98 million rai of land).¹ In order to divert water from the Mekong, the Chi and the Mun rivers, this TBH 228,000 million scheme

¹ DEDP 1994, pp. 1-3, 1-4, 1-5

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proposed the construction of 22 dams, all of which are to be implemented over a time period of 42 years. In 1989, the Thai Cabinet approved the project, at the same time that they approved the Pak Mun dam. As with most dams in Northeast Thailand, the Rasi Salai dam project was planned and supported by so-called developed nations, and passed through the Mekong Secretariat. The secretariat strongly supported the dam projects to develop the Mekong River.

The first feasibility study for the Rasi Salai dam project was conducted in 1982 by the Department of Energy Development and Promotion (DEDP), as part of the Development for the Lower Mun Basin Feasibility Study², with assistance from Nedeco, a Dutch consultant company. The Netherlands government originally assisted in the project by sending Nedeco to the Mekong Secretariat, who in turn sent Nedeco to the DEDP. The purpose of the project was to promote the use of electric pumps for farmland irrigation³.

Construction of the Rasi Salai dam began in late 1992 by DEDP, under the Ministry of Environment, Technology and Science (MOSTE). Prior to its construction, no information about the dam design or its potential impacts was released to the public. It was stated that a 4.5 m high rubber weir was to be constructed, which would contain water at a level no higher than the river bank. In reality, the Rasi Salai dam is a 9 m high concrete dam with seven radial gates, a 45.8 km long dike proposed to decrease the reservoir area, and an irrigation system proposed to supply an area of 55,072 sq. km with water for cultivation in the dry season. When the gates are closed, the dam reservoir floods an area of approximately 80 sq. km, which is comprised of farmland and wetland forest⁴. Prior to its construction, the project was never subject to an environmental impact assessment (EIA) study, although its reservoir clearly exceeds the area of 15 sq. km that defines it as a large-scale dam and thus legally requires an EIA⁵.

The proposed benefits of the Rasi Salai dam have yet to accrue. As of today, no operational irrigation system has been implemented⁶. The dike has also been quite ineffectual in preventing flooding further inland. It fails in allowing water to flow to the reservoir in the rainy season, and instead floods a large area of farmland. Along the riverbanks, water levels have been reduced by a mere 0.12 m, and it appears that the damming has made the river flood longer than in the past, and further exceeding normal water levels by 1.52 m⁷. Meanwhile, the economic costs of the dam project have been greater than predicted. Originally proposed at a construction cost of THB 140.97 million, the budget for the Rasi Salai dam has been overrun by more than six times, estimated to a total of THB 871.9 million⁸.

2.3 *Ecological features of the Rasi Salai dam project area*

² This Feasibility Study proposed the construction of three dams on the lower Mun River Basin, of which Rasi Salai was the first to be built.

³ DEDP 1994, Feasibility Study for Project Planning and Detailed Design for Irrigation System of Rasi Salai Project, Sri Sa Ket Province, submitted by Resources Engineering Consultants Co. Ltd. P. 1-2

⁴ SEARIN et als. "Affected Villagers Occupied the Rasi Salai Dam". April 1999.

⁵ The requirements for Environmental Impact Assessment in Thailand are stated in the National Environmental Quality Act (NEQA) 1992, section 46-47. The legislation's List of Projects or Activities that Need to Prepare EIA Report include dams or reservoirs "with storage volume of 100,000,000 cubic meters, or storage area of 15 square kilometers or more". Ministry of Science, Technology, and Environment. Office of Environmental Policy and Planning. Environmental Impact Assessment in Thailand. January, 1998.

⁶ SEARIN et als further suggest that, taking into account the fact that modern irrigation systems in Northeastern Thailand have demonstrated only 37% efficiency, the area *potentially* served with irrigation would only be 20.37 sq.km.

⁷ Mahidol University. Draft Final Report of the Environmental Impact Study and Plan for Solving the Problems in the Area Affected by the Rasi Salai Dam. Department of Energy Development and Promotion: Bangkok. September 1999.

⁸ SEARIN et als, 1999.

The Mun River, upon which the Rasi Salai dam is built, is the largest tributary of the Mekong River. It flows across the Southern part of the country's Northeastern region, draining a watershed basin area of 69,700 sq. km. The dam is located in the middle part of the river, approximately 200 km upstream from its confluence with the Mekong river⁹. For generations, the Mun River has been the life blood for thousands of people in the region, fertilizing the riverbanks, providing fishing rich in abundance and variety, and sustaining great ecological diversity in the region.

In particular, the middle part of the Mun River comprises one of Thailand's most ecologically bio-diverse areas. It is characterized by a vast floodplain area, in which an abundance of water bodies in various forms, such as swamps and ox-bow lakes, have been created by the river's fluvial movements. The upper part of the flood plain is known as *taam* while the lower areas, the various water formations, are known as *bung*. Each year, the *bung* is flooded for 2-3 months and the sedimentation brought by the flooding gives the area its particular features¹⁰.

In general, vegetation at the floodplain consists of shrubs alternated with trees. Three kinds of forest are found in the area: in the mountains, in the highlands, and in the wetlands, where the forest is known as *Paa Bung Paa Taam*. Because of the geographical features shaped by the river, the *Paa Bung Paa Taam* has the highest diversity of vegetation in the Mun River. It is suitable for vegetation which grows in stagnant water, including various species of perennial trees and ground trees. One study identified more than 100 species of vegetation characteristic of the *Paa Bung Paa Taam*¹¹. The area also provides habitat for a wide array of terrestrial and aquatic animals, amphibians and birds. The vegetation in the wetland is also important in that it serves to prevent sudden flooding of the inlands, while protecting against erosion by slowing down the river current. The *Paa Bung Paa Taam* further absorbs organic deposit that nourishes the land, and filters out pollutants remaining in the river¹². Another particular geological feature of the area, is that it is situated on a large salt dome.

While the ecosystem of the *Paa Bung Paa Taam* clearly is unique, few studies have documented its significance to the region all the while it is disappearing at an alarming rate. It has been suggested that *Paa Bung Paa Taam* wetland ecosystems used to exist along all of the rivers of the Northeastern region, comprising more than 4 million rai. These areas have continually been destroyed, however, as a result of a combination of increased lowland cultivation and destructive government development projects in the entire river basin¹³. The *Paa Bung Paa Taam* affected by the Rasi Salai dam, was one of the last remaining parts of this valuable ecosystem¹⁴.

The livelihoods of the people in NE Thailand can be divided by the two different geographic areas that people live in. First, the people who settle in the highland areas, and second, those who live in the lowlands. The people of the highlands depend more on the forest

⁹Prasit Khunurat. The Study of Environment and Utilization of Flood Plain Vegetation in the Middle of the Mun River. Khon Kaen University: Khon Kaen. 1990.

¹⁰The Mun River Wetland Recovery Project. Ways to Save Paa Bung Paa Taam. 1999.

¹¹Prasit, 1990.

¹²The Mun River Wetland Recovery Project, 1999.

¹³Please note that Thailand's Cabinet adopted the Ramsar Convention on wetland protection in 1997, yet very few initiatives have so far been taken to thoroughly implement the policy. For more information on the Thai government's activities in this regard, please see www.ramsar.org/cop7_nr_thailand.

¹⁴The Mun River Wetland Recovery Project, 1999.

to provide them with necessities, whereas the people of the lowlands find their resources in and around the river. According to a Khon Kaen University study of 1997, more than 25,000 households in 126 villages in the middle area of the Mun river have lived and depended on the floodplain ecology for generations¹⁵. As is described further below, rotational cultivation of the wetland area was practiced, requiring no chemical fertilizers or additional irrigation. Natural products were gathered predominantly for household consumption. Various ways to commonly manage their resources sustainably have also been developed by the villagers in the area, such as the initiation of community forestry projects, water resource management projects, and the establishment of a village network for the protection of the Mun River¹⁶. With the construction of the Rasi Salai dam, however, possibilities to practice sustainable cultivation have been eroded. Villagers (and forestry academics) also suggest that the dam projects that have been constructed at the head water of the river slow the natural annual flooding that sustains the wetland's capacity to regenerate¹⁷.

3. Impacts on Livelihood Security of the Rasi Salai Dam Project

It has been estimated that some 3,000 families have lost their farmland to the Rasi Salai dam reservoir. These make up some 8,200 affected villagers coming from 69 villages, from ten different districts in the three provinces of Si Sa Ket, Surin, and Roi Et. In addition to the villagers affected by the reservoir area, farmers lost land due to the flooding of the dykes that DEPD constructed around the reservoir area. While DEDP built the dykes to decrease the area of the reservoir, these have since created additional problems. Each dyke contained a flood gate, which were poorly built and poorly maintained. These flood gates allowed water to run through into rice fields during the rainy season, preventing farmers from cultivating rice because the water was too deep. Thus, considering the areas flooded by the dykes, the area affected by the dam is much larger than 80 km sq. The farmers whose lands were flooded by the dykes were not counted as 'affected people' by DEDP. In a 1990 survey of villages in the affected area, it was shown that almost all of the villages who had settled around the river basin area had come there for the secure livelihoods that the ecological conditions of the floodplain could offer. The most important benefits of this area were the access to more fertile land than in other areas, and the year-round access to food that the *Paa Bung Paa Taam* and the river could provide¹⁸.

Drawing both on the interviews conducted for this report and on other studies, this section outlines ways that villagers in the Rasi Salai dam affected area have lost possibilities to continue depending on the floodplain ecology for their subsistence, and how this loss has resulted in an overall decrease in livelihood security¹⁹.

3.1 Traditional subsistence practices

The main occupation of the Rasi Salai dam affected villagers, was rice farming, which was done both in the wetland and in the highlands. By average, farmers kept 8-10 rai of farmland in the highlands, and 10-30 rai for wetland farming, although some villagers kept

¹⁵Prasit Khunurat et al. Methods for Planning Wetland Management for areas in urgent need of restoration. Case study of Paa Taam, Rasi Salai. Office of Environmental Policy and Planning: Bangkok. 1997.

¹⁶The Mun River Wetland Recovery Project, 1999.

¹⁷The Mun River Wetland Recovery Project, 1999.

¹⁸Prasit, 1990.

¹⁹Interviewees represent the villages of Ban Jan (Tab Yai district; 300 households), Ban Dan (Dan district; 1000 households), Ban Lao Done (Nong Khae district, 87 households), Ban Non Sang (Dan district; 72 households), Ban Jan Tuey (Ta Haad Yao district, 400 households), Ban Nong Haew (Dan district; 18 households)

plots in only one of the areas. Rice was produced predominantly for household consumption, and surplus produce was sold only on occasion²⁰. Thirteen kinds of local indigenous sticky rice species were grown in the wetland. These kinds of rice were preferred for family consumption throughout the year²¹. Because of the rich nutrient level of the wetland soils, cultivation on only small plots of wetland could yield substantial production. In the Khon Kaen University study of 1997, it was found that 88.6% of the 126 households surveyed in the affected area held plots for wetland farming of an average size of 11 rai. However, half of these only used parts of their plots for cultivation at a time. It was reported that the maximum yield of rice products from the wetland each year was 684.6 kg/rai, which may be compared to an average of 3-400 kg/rai in the Northeastern region of Thailand²².

Villagers described that, in the past, there were two alternatives for wetland cultivation; first, by disseminating rice seeds directly into the rice field, which did not require any preparation of the soil; and second, by transplanting the seedlings after the seeds had grown for some time, for which some preparation of the soil was needed. Wetland cultivation was prioritized by the villagers, and cultivation in the highlands was their alternative. Typically, the villagers would begin growing rice in the wetlands in the dry season. For those that chose to transplant seedlings, however, soil for transplantation had to be prepared after sowing the seeds at the same time as preparing for cultivation in the highlands took place. Transplantation would then first be done in the wetland and then in the highlands. Usually, highlands transplantation would be finished in September, by when it would be time to harvest in the wetland as the rainy season began. Two months in the rainy season would be spent harvesting the wetland products, before harvesting in the highlands could begin. After the harvesting season, three months of rest would follow. All villagers would leave the wetland to naturally recover before cultivating on the plots again²³.

Besides rice cultivation, some other crops were grown by the villagers, primarily in the highlands, such as corn, hemp, and some vegetables. After harvesting the products, villagers would leave the land to recover for 2-3 years before using it again²⁴. Prasit (1990) found that the land chosen for crop cultivation was the land which was not suitable for rice cultivation. Vegetables were only grown in small quantities, as the *Paa Bung Paa Taam* provided a natural source of a range of vegetables for household consumption²⁵.

The *Paa Bung Paa Taam* provided villagers in the area with a range of products upon which they based their livelihoods, such as vegetables, herbs, salt, and fuelwood. According to the 1990 study, almost all of the surveyed villages in the area were shown to use the *Paa Bung Paa Taam* daily for gathering natural products²⁶. In the past, between June and November, women would gather more than 25 kinds of mushrooms and a kind of bamboo that would be pickled and used for consumption or exchange for other products throughout year. Villagers told that they could find more than 43 kinds of vegetables and more than 90 kinds of herbs, some of which were used for medicinal purposes: "In the past, even if there was a medicine man in the village, everybody knew how to use herbs for curing basic [ailments], and no one

²⁰Prajit Silalak. Village leader, Mae Mun Man Yuen #2, Interview, Dec 25-27, 1999.

²¹Villagers, Ban Jan village. Interview, Dec. 25, 1999.

²²Prasit, 1997; The Mun River Wetland Recovery Project, 1999.

²³Interviews with various villagers.

²⁴The Mun River Wetland Recovery Project, 1999.

²⁵Prasit, 1990.

²⁶Prasit, 1990.

would sell or buy medicines”²⁷. Other products included a particular kind of grass used for weaving mats and making roofs. Some of these products were sold at the market or exchanged for other products, but most of them were collected for household consumption. Sale or exchange mostly took place informally within the villages. Villagers would also catch fish and water animals, such as frogs, in the river for consumption and sale.

A significant source of income to the villagers in the area, was the collection and sale of salt from the naturally occurring salt sources provided by the underlying salt dome in the area. Villagers from Ban Jan describe that

“There were three salt places at Ban Jan where we collected and boiled salt...More than 200 villagers, particularly women, would scrape off the salt and dissolve it in a small pond, where it was filtered before flowing into another pond. Then, we would draw salted water for boiling, until it would be dried salt...The salt was kept in a container called *kahtoh*...Each *kahtoh* contained 12 kg of salt, at the price of 15 baht. Each year, we could collect more than 300 kg of salt, or 25 *kahtoh*. All surplus salt would be sold and exchanged to villages far away from the salt places. More than 20 villages joined a caravan of ox-carts to sell salt for 2-3 weeks. Every year, we traveled to Srikhoraphum district to exchange salt for black lump sugar. The sugar was kept in a container called *soab* and contained 20 pieces of sugar lumps. Each *soab* of sugar cost 5 baht. One *kahtoh* could be exchanged for three *soab*. But, this was not fixed. Salt could be exchanged for rice and money also”²⁸.

A particularly important use of the *Paa Bung Paa Taam* to the villagers, is that it constituted a source of fuelwood, which was used primarily for boiling salt and cooking and, to a lesser extent, for burning charcoal for sale. Villagers explained that “large fuel wood was used for boiling salt, and small ones were used for cooking”²⁹. Prasit et als (1997) found that, of the villagers surveyed in the affected area, 66% collected fuelwood for household use.

Lastly, the wetland area provided another very important function to the villagers, as a place for keeping cattle and buffaloes. Keeping cattle appears to constitute a crucial source of income and livelihood security to the villagers, and is listed in the Prasit survey (1990) as the most important role of the *Paa Bung Paa Taam* to the villagers, along with providing fuelwood. As described by one interviewee:

“In the past, each family had 5-10 buffaloes and 10-60 cattle; buffaloes for rice farming, and cattle for selling. Whenever we have a money problem, we sell cattle to get money, including for our children to study. In the past, one cattle would sell for 4-5000 baht”³⁰.

Another villager said that

“our major income came from selling animals, such as cattle, ducks and chicken...we got 7-8000 baht for one cattle of buffalo. We also gathered manure to fertilize our farms every year”³¹.

3.2 Impacts on Livelihood Security by the Rasi Salai dam

²⁷Villager, Ban Jan. Interview, Dec. 25, 1999.

²⁸Villager, Ban Jan. Interview, Dec 25, 1999.

¹⁰¹²⁹Villager, Ban Jan. Interview, Dec 25, 1999.

³⁰Villager, Ban Jan. Interview, Dec 25, 1999.

³¹Villager, Ban Dan. Interview, Dec 27, 1999.

Flooding of the wetland area and the *Paa Bung Paa Taam* by the Rasi Salai dam has caused villagers in the area immediate and substantial losses of their main sources of livelihood subsistence. They have been put in a situation of needing to find ways to cope with the changing living conditions, but the choices for compensating for the losses are often limited and unsustainable in the long run. Taken together, the various impacts on the ecological conditions upon which villagers based their living, have decreased villagers' livelihood security and quality of life.

The most immediate loss to the dam affected villagers, has been the loss of cultivation land in the reservoir area. Those affected the greatest are villagers who only cultivated in the wetland:

“Most of the villagers who only had wetland farms and were affected by the dam flooding have few ways out. Most of them prefer to stay in the village still, and make a living by catching fish and other wetland food products, even if there is only a little of these left”³².

The proportion of villagers in this situation seems to vary between villages. In Ban Jan village, for example, one of three practiced only wetland cultivation, while in Ban Dan, only 20 of some 1,000 households were in a similar situation. In contrast, villagers of Ban Nong Sang claim most of them held mainly wetland cultivation plots.

At current, those villagers with highland cultivation plots must rely on these for rice production, at lower productivity and with the complete loss of cultivation of indigenous rice species. While highland cultivation is already substantially less productive than wetland cultivation, it is currently made increasingly difficult to sustain due to problems of soil salinity related to the reservoir storage. As villagers are unable to cultivate rice sufficient for their subsistence, they become increasingly reliant on buying rice with cash:

“The big problem for us right now is that salt is starting to come up to the highland rice fields. We can see the muddy salt dust on the ground. In dry years, our rice seedlings died completely. We have rapidly become poor during these years since the dam construction, and have to buy rice to eat every year. We are no longer real farmers”³³.

Other villagers expressed similar experiences: “Some years, we produced no rice for eating and we had to take a loan for buying rice for eating during the whole year”³⁴. More money is also needs to be spent on purchasing manure to fertilize the poor soils of the highlands.

With the flooding of the wetland area, villagers have also substantially lost access to vegetables and herbs, although some are still able to collect products when the dam reservoir is drained. Again, the loss of these natural products for everyday subsistence has resulted in the increased reliance on the purchase of products from elsewhere:

“After the wetland was flooded we have not only lost herbal plants, which makes villagers rely on hospitals and on taking modern medicines, but we have also lost mushrooms and bamboo for food. That means we have to spend much more money on living”³⁵.

³²Villager, Ban Dan. Interview, Dec 27, 1999.

³³Villager, Ban Jan. Interview, Dec. 25, 1999.

³⁴Villager, Ban Nong Sang. Interview, Dec. 29, 1999.

³⁵Villager, Ban Jan. Interview, Dec. 25, 1999.

Villagers have also noticed a decline in fish in the river since the construction of the Rasi Salai dam, bringing yet another loss to their livelihood subsistence.

While there is increasing pressure on villagers to sustain their livelihoods through the purchase of food and consumption goods, previous sources of income have been severely reduced with the construction of the dam. The reservoir has drowned the naturally occurring salt collection places, forcing villagers to buy salt from elsewhere, while losing the income that salt collection previously provided. Villagers from Ban Jan told that:

“After losing the salt places in the reservoir, we must buy salt from salt cars. They have just come, two or three years ago. Every day, two to three cars come into the village, selling both sea salt and rock salt at the same price of 80 baht per tin [or 150 baht/ 50 kg, according to another villager]. Whoever has no money exchanges rice for salt. But most villagers sell rice to gain money and buy salt”³⁶.

One villager from Ban Jan Tuey similarly expressed that:

“There used to be many places to collect salt around Ban Jan Tuey. But now we have to drive by tractor for 30 km, in order to buy salt from another village. In the past, the price [of salt] was 15-20 baht for 12 kg, but now it is 100 baht [for 12 kg].

With the flooding of *Paa Bung Paa Taam*, the opportunity for villagers to collect fuelwood has also been drastically reduced. Some claimed that many villagers now have replaced the use of fuelwood for cooking with gas, while those who still use fuelwood need to either collect it in the highlands, or purchase it from others. Again, the lack of cash for subsistence is problematic. Referring to villagers of Ban Phue, who earlier lost their wetland farms to the Huay Kaew weir and subsequently made a living of selling fuelwood to others, one villager remarks:

“In the past, we had no need to buy fuelwood or charcoal from them, but we did because we felt sympathy for them...some of us always exchanged rice and salt for their fuelwood because of pity, and it cost 2-3 baht for a small bunch. But, at present, we have to buy so much fuelwood and charcoal from them, and we don't have enough rice or salt to exchange anymore. Some villagers go to buy fuelwood in the surrounding villages, at the price of 200 baht per truck each year”³⁷.

As suggested above, keeping cattle serves as an income and livelihood buffer to villagers in the area. With the dam, however, places for keeping animals have been flooded, with the result that many villagers have sold off the majority of their animals. “As the flooding began”, one villager from Ban Lao Done said, “some people soon had to sell off their cattle very cheaply, as the animals quickly became undernourished”³⁸. The Prasit et al study of 1997, found that 31.6% of the villagers surveyed still kept animals in the wetland area at the time, while 22.8% kept the animals around their house. Villagers from Ban Dan explained, however, that it is generally those with no farm land left who still maintain cattle pens. Also, the number of animals that are kept has decreased, to between 6-10 cattle and 4-5 buffaloes per family in some villages.

The growing need for cash for subsistence, and the decreased opportunities to survive

³⁶Villager, Ban Dan. Interview, Dec 27, 1999.

³⁷Villager, Ban Jan. Interview, Dec 25, 1999.

³⁸Villager, Ban Lao Done. Interview, Dec 25, 1999.

on farming, have forced villagers in the dam affected area to seek alternative ways to sustain their lives. To cut spending cash, in any way possible, appears the most immediate - although limited - option. Selling off cattle is another option for quickly gaining cash, although it is obviously not viable as a long term solution. Another possibility is to seek wage labour outside of the villages. The Mahidol University study of 1999 found that almost 40% of the villagers in the dam affected area either do, or are planning to migrate temporarily in search of work³⁹. Typically, work is found in Bangkok, in textile factories, as taxi drivers, in construction work, or in other provinces, for example working in sugar cane cutting factories. Many of the villagers who seek wage labour work only part of the year, so as to return to their villages in time for the highland harvesting. Another short-term coping option is for villagers to take loans, either from banks or from their wage labour employers, to whom they may pay back in the form of work.

Each of these options, however, have further consequences to villagers' livelihoods. On the one hand, they typically provide only temporary solutions to the need for income and, on the other hand, they may be connected to additional uncertainties and hardship. Even though there is less and less land to keep their cattle on, some villagers still want to try keeping their cattle for as long as possible, reasoning that it is a risk worth taking when considering other options: As one villager expressed:

“I think having cattle is better than working in Bangkok, which is insecure life, because we have to bow down to the Bangkok people. We are looked to be a lower class of people there. We would be out of money all the time. It is troublesome life. Living here, whether rich or poor, we can give relief to each other”⁴⁰.

Migration for work elsewhere certainly also affects family structures and quality of life for the villages as a whole. Now, villagers told, many of the elders depend on their children for sending money gained from labour work back to the family. Meanwhile, younger children are separated from their parents, while looked after by their grandparents. In addition, many children are denied the opportunity to study, as cash previously used for school fees must be spent on immediate subsistence needs. This, in turn, has already shown to affect the lives of the younger villagers, and will surely have future ramifications to their opportunities in life. As one villager described:

“In the past, I looked after buffaloes for paddy farming and cattle for sale...After my children came back from school, some fed [the cattle] and some caught fish, and I went home to cook. Now, many students have no money to go to school after grade 9. Nowadays, there are 5 students, of a total of 57 families, that continue to study to grade 12. In the past, we sold cattle for sending our children to school, but now we are unable to do so”⁴¹.

Lastly, the dam affected villagers' growing lack of livelihood security is perpetuated by them needing to take bank loans to pay for their subsistence needs. This, in turn, creates a cycle of perpetual debt as cultivation productivity is generally insufficient for both providing for household consumption and surplus for sale. In the Prasit et al's study of 1997, it was found that households in the surveyed area, at the time, had an annual average income of THB 36,607. Meanwhile, average yearly expenses were found to be THB 45,924. Of these expenses, 40% were spent on everyday consumption, 32% were used for investments, and 17.2% were spent on paying off debts. It was also found that 74.6% of those surveyed were

³⁹Mahidol University, 1999.

⁴⁰Villager, Ban Dan. Interview, Dec 27, 1999.

⁴¹Villager, Ban Lao Done. Interview, Dec 25, 1999.

indebted by an average of THB 14,435 per year⁴². In the interviews, villagers also confirmed that they now borrow more money from the Agricultural Bank than they ever have. In the past, one villager told, they could grow rice and sell it so that they could pay government taxes, but today they are unable to do so⁴³.

3.3 Concerns about salinization

As mentioned above, farmers are currently experiencing an abundance of salt in their fields. As this is a problem expected to worsen over time, it is briefly elaborated on here. The Rasi Salai dam and its reservoir, along with the irrigation area, are all located directly on top of a large salt dome, and the problem of salinization is directly related to the construction of the project. Concerning salinization, the feasibility studies undertaken concerned only the irrigation area. Although future implications were recognized, support for the project was given.⁴⁴ After construction of the dam was complete, the Mahidol University study of 1999 found that 50% of a sampling area of 509,800 rai in the region have been covered by salt sheets, and conclude that the problem has been caused and spread by storing water in the dam reservoir. A survey in the same study showed that 17.5% of the villagers in the affected area experienced problems of salinization prior to the dam construction, compared to a current estimate of 58.75%⁴⁵.

Problems of salinization appear in three different areas. The first is the reservoir area, where the dam is trapping the salt, preventing it from being naturally dispersed by the Mun River and its tributaries. At this time, the villagers cannot use the water in the reservoir for irrigation because the salt content is too high.⁴⁶

The second area is the farmland downstream of the dam, and the areas surrounding the reservoir. In these areas, large amounts of salt are surfacing on the ground for the first time, and ruining some good cultivation land. Here, the water table is rising as a result of storing water in the reservoir, bringing salt from underground with it. Downstream of the dam, the villagers can no longer grow vegetables because of the salinization.⁴⁷ For the areas around the reservoir, the farmers are beginning to find salt deposits in their rice fields.

Lastly, it is to be expected that salinization will occur in the irrigation areas. First, when the irrigation canals were built, the natural waterways were blocked so that, in the rainy season, it is likely that salt will be flushed out in the same way that is already happening in the reservoir. Secondly, the salinization problems will be spread by 'capillary force'⁴⁸, which means that if water is pumped into a plot of land that has a high salt content, the salt will be spread to the surrounding land. Furthermore, when saline irrigation water is collected in contained areas, known as water logging, the salt content accumulates over time and increases the degree of salinization. While this project may eventually solve water shortages in Northeastern Thailand, it has already introduced the problem of salinization in the once fertile lands. In the future, this may prove to be the most threatening environmental issue in the Northeast and Mekong Region.

⁴²Prasit et als, 1997.

⁴³These findings contradict the optimistic predictions of economic benefits for farmers in the region, as given in the Rasi Salai dam feasibility studies of 1992 and 1994. Based on the expected increased crop cultivation in the new irrigation area, and taking into account only highland activities, however, these studies neglect a recognition of the economic system already in place among the farmers practicing wetland cultivation. No estimation of the economic (or social) benefits of the production, consumption, exchange, or sale of the floodplain or *Paa Bung Paa Taam* products is provided in these documents.

⁴⁴DEDP 1994, pp 2-32 -2-40,

⁴⁵Mahidol University, 1999.

⁴⁶Pajit Silalak, village leader Mae Mun Man Yuen #2, *Interview, Jan 30, 2000*.

⁴⁷Sanan Chusakul, Director of Save the Tam Mun Project, *Interview, Jan 30, 2000*.

⁴⁸This has not occurred yet, but we feel that all the evidence collected so far points in this direction.

4. Social conflict as impacts of the Rasi Salai Dam Project

While dam affected villagers have had to cope with the impacts of the dam upon their subsistence opportunities, they have also had to engage in a struggle for attempting to gain fair compensation for their losses. This struggle has been made particularly difficult to the villagers because of the inadequate policies and implementation processes of the dam project and even more so, because of political power plays that have weakened villagers' capacity to make their demands heard. After six years of struggle for their rights to livelihood by the Rasi Salai dam affected people, the persistent abuse of political power displayed by authorities appears not to have diminished. As a result, the situation has escalated into divisions among communities and within villages, as well as severely deepened factions and mistrust between villagers and government authorities.

4.1 Policy context and implementation process

First, as pointed out above, the Rasi Salai dam was planned and constructed without any form of prior public consultation or information about the intent and design of the project. By claiming that the project would be a small rubber weir, the DEDP avoided the legal requirement to carry out an EIA and no attempt to proper enforcement of this law was ever attempted. Feasibility studies were also not made available to the public, and one of these were in fact not produced until after the opening of the dam. The lack of baseline data and adequate information about the magnitude and significance of ecological and social impacts of the dam, has been an important factor in the delayed and complicated process of compensating the affected villagers. As is discussed below, it has also made the compensation process much more vulnerable to political manipulation.

Secondly, a majority of villagers in the affected area do not hold formal land titles to the land they have lost. This has proven a convenient argument for authorities in denying villagers due compensation. Thai government only recognizes private property and state property, but the villagers at Rasi Salai had neither of these. In Prasit's survey (1990) of the area, more than 75% of the villagers claimed to have inherited their land from previous generations, demonstrating the fact that the land has been customarily owned and used for a long time. Although only a few villagers hold land titles, land was being bought and sold among villages⁴⁹, and the ownership of cultivation plots in the wetland is clearly defined by the villagers. Authorities, however, have claimed the land area as publicly owned and thus not eligible for land loss compensation.

4.2 Social Conflicts and factions

As early as 1993, groups concerned with the potential impacts of the Rasi Salai dam upon the ecology of the region and on people's livelihoods, began to form. They demanded that the reservoir should not be filled higher than the river bank, as DEDP had informed them. In the year that the dam was completed, people affected by the inundation of farmland began to state their demands to the government for compensation for the land they had lost to the reservoir. The protesting villagers called themselves "Tam Forest Conservation Group". Together with some local non-governmental organizations, they held several demonstrations in Si Sa Ket province during 1994 and 1995. In failing to make their demands heard, the villagers joined the Assembly of the Poor in 1996 to push for compensation. They were confronted,

⁴⁹ In Ban Jan, for example, only 33 villagers of a total of 348 households have land titles. Villager, Ban Jan. Interview, Dec 25, 1999.

however, by another group, primarily comprised of chiefs of the sub-district (or kamnan) and village headmen apparently backed by state officials and politicians, who asserted that the protesting villagers made false claims as all the affected areas were public lands. In 1997, the “Tam Forest Conservation Group” again joined the Assembly of the Poor to make demands for compensation for lost farmland, opportunity lost to use the *Paa Bung Paa Taam*, and for the water level of the reservoir to be decreased. As a result, the Cabinet, under the Chavalit government, agreed to pay compensation to the affected people, and to set up a government committee, chaired by Mr Adisorn, to investigate the matter.

In July 1997, after persistent demonstrations for the government to abide by its promises, the Cabinet approved a budget of 368 million baht to be paid to the 1,154 affected villagers who had protested with the Assembly of the Poor. Upon payment of the compensation, however, the opposing kamnan and headmen group protested for the suspension of the payment. A second attempt to pay the compensation was made a few days later, but was again blocked by the opposing group, resulting in violent clashes between the groups. Not until a month later, payment to the 1,154 villagers could be arranged in Bangkok. Meanwhile, the opposing group submitted a list of 6,000 names of villagers who they demanded were equally eligible for compensation. These villagers were later divided into smaller groups, and began to submit independent claims via village headmen or provincial governors.

In the process of making demands for compensation, villagers - on both sides - became subject to a political battle between the Chavalit Yongchaiyud administration (New Aspiration Party) and the Chuan Leekpai government (Democratic Party) who took office at the end of 1997. In 1998, a Democrat MP (the secretary to science deputy Minister Pornthep Techapaibul) and a kamnan filed a complaint to the police, accusing five leaders of the Assembly of the Poor and Mr Adisorn, former head of the compensation committee and an MP of the New Aspiration party, of fraud. Arrest warrants were subsequently issued for the Assembly members, while members of the Chavalit party issued counter-claims against the democrats. Academics and NGOs demanded an investigation of the political role of the Police General who had issued the warrants, General Seri Temeeyawes. In response, the General not only brought allegations to court that the claimants aimed to ruin his career, but also sent troops of policemen to occupy the affected village near Rasi Salai dam for nearly two months. During this time, and until 1999, deputy science Minister Pornthep engaged in a public campaign to discredit the members of the Assembly of the Poor. Press releases were periodically issued which suggested that up to 17,391 villagers had demanded compensation for overlapping areas of land. Names for petitions had in fact been collected on several occasions, and among villagers from areas outside of the affected area, although no formal investigation into how these numbers were arrived at has been conducted.

Meanwhile, villagers who had not yet received compensation because they had originally allied with the kamnan and headmen group, were repeatedly subject to misleading information with regards to receiving their due compensation, whereby factions began to form in the opposing group. Among these villagers, one group who had indeed lost farmland but not originally joined with the Assembly of the Poor, formed the Assembly of the Mun Basin. Cooperation between this group and the Assembly of the Poor was initiated at the beginning of 1999, and in April of the same year, the two groups joined at the dam site in a protest village, Mae Mun Man Khong. The Assembly of the Poor group eventually decided to form a second protest village in the reservoir area, Mae Mun Man Yuen #2. At the beginning of 2000, the protest site in the reservoir was expanded to include Mae Mun Man Yuen #3, now representing some 1,200 villagers⁵⁰. The villagers who established the protest villages, see no other options

⁵⁰“Rasi Salai Dam: Villagers become tool of rival parties. Conflict turns to political game”, Bangkok Post, Nov 30, 1998; This paper was prepared as a submission to the Fourth Regional Consultation of the World Commission on Dams in Hanoi. The views, conclusions and recommendations are those of the writer and are not intended to represent the views of the Commission or the Government of Vietnam.

to attain their rights than to continue their protests. Even though they run the risk of drowning, they refuse to leave their villages. The demands that the affected villagers now make are first, that their names be cleared of the accusations that they are not eligible for the compensation they have received. They also demand that a land survey is done to properly establish who is eligible for land loss compensation. The group that has not yet received compensation also demands an investigation of eligibility and that they are also fully compensated for their losses. If the government fails to pay compensation and clear the villagers' names, they further demand that the dam be removed.

Over time, the political battles and actions of deceit have increasingly strained relations among villagers as well as between villagers and authorities. The factions that have been created have been deliberately reinforced by the government through a variety of means. As discussed above, these methods include bribing, vote buying, persuasion and intimidation. In addition, vigorous public relations campaigns have cast the Rasi Salai villagers in a negative light, making it increasingly difficult for them to make their demands. In 1999, the DEDP employed an advertising company at the staggering cost of THB 4.8 million, while engaging government supportive academics in radio and TV shows who accused Rasi Salai villagers of embezzling money from the state⁵¹.

6. Conclusion

A number of ecological impacts have resulted of the Rasi Salai dam, including the destruction of a unique wetland eco-system, and severe salinization both within and beyond the dam reservoir area. Villagers at Rasi Salai dam have, primarily through the flooding of their wetland cultivation plots and the *Paa Bung Paa Taam*, lost vital sources of their subsistence. As they are no longer able to sustain their livelihoods on only rice cultivation in the highlands and the limited access to natural products, they are forced into a situation of greater reliance on cash for their subsistence. None of the options available to them – in the form of reduced spending, selling cattle, earning labour wages, or taking bank loans – are sustainable in the long run, but rather, perpetuate a situation of decreasing livelihood security. Furthermore, these options appear associated with additional social costs, both in the short and long terms. None of these social impacts experienced by the villagers at Rasi Salai dam have either been acknowledged or accounted for in the implementing government agency's actions related to the dam.

In addition to the losses induced by the construction of the dam and the filling of its reservoir, villagers at Rasi Salai have had to engage in intimidating and conflictual negotiations with the government in demanding compensation for their losses. The lack of transparency and political accountability, throughout the project implementation process and during the compensation negotiations, has both imposed conflicts within and between villagers and entrenched mistrust between villagers and government authorities.

“Government bows to Forum pressure”, *Bangkok Post*. Nov 5, 1996; “Farmers threaten to hunger strike over dam projects”, *Bangkok Post*. June 2, 1999; “Scapegoats of Development: The People of Rasi Salai”, *Bangkok Post*, Jan 11, 2000; Sanan Chosakul, “Conflict Issues at Rasi Salai Dam”, 1999.

⁵¹Sanan, 1999.

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