

LOCAL PARTICIPATION AND THE KAENG SUA TEN DAM CONTROVERSY

For more than ten years the proposed Kaeng Sua Ten dam in north Thailand has sparked controversy and mass demonstrations. Proponents, including the Royal Irrigation Department and the present Minister for Science and Environment, have used television commercials, staged rallies, and distorted environmental studies to get the dam built.

Meanwhile, local communities in the area have demanded access to reliable information, effective participation in decision-making about their lives and lands, and recognition of their efforts to conserve and protect the teak forests of the Mae Yom River Valley. Noel Rajesh explores the politics of local people's participation in river basin development in the context of the proposed Kaeng Sua Ten dam, and the alternatives proposed by villagers in the Yom River basin for water storage and flood management.

Over the last several weeks, representatives of more than 2,700 families, part of an encampment of about 20,000 village people, have been protesting in front of Government House in Bangkok to demand the cancellation of any further consideration of the proposed Kaeng Sua Ten dam proposed for the Yom River in north Thailand.

The village protests - the third in Bangkok in the last few years - by the representatives of the communities of Song district of Phrae province and Chiang Muan district of Phayao province in the Yom River Basin, are prompted by village people's concerns about the flooding of their homes and farmlands by the proposed Kaeng Sua Ten dam. [See Box: The Kaeng Sua Ten Dam: Fact and Fiction.]

Protests by village communities have already forced the shelving of the dam twice - in 1981, when the project was first proposed for electricity generation by the Electricity Generating Authority of Thailand (EGAT); again in 1989, after the government had switched the project to the Royal Irrigation Department (RID) as an irrigation project.

Instead of the 4.8 billion baht (US\$ 192 million) dam for the Yom River - one of the four major tributaries of the Chao Phraya River - the villagers are proposing an alternative water management systems: a series of weirs in the Yom River's tributaries that are controlled by the local communities in the river basin.

A debate that won't go away

The debate over the dam has surfaced regularly over the past 10 years, with each dry season and every rainy season an occasion for Thai politicians to claim that the Kaeng Sua Ten dam will "solve drought" or "reduce floods."

Predictably, the Kaeng Sua Ten debate resurfaced in late-1995 after unusually heavy rains and floods inundated towns in the central region's floodplains. The government renewed its push for the dam, citing the project's flood control benefits for the lower north and central regions in order to woo the support of people affected by the floods.

In late-1996, with environmental impact assessment (FIA) studies incomplete, the outgoing government of Banharn Silpaarcha rammed approval for the dam through Cabinet in its last few days in office.

The stakes over the Kaeng Sua Ten dam are high. For politicians and dam proponents, the Kaeng Sua Ten dam would provide a fresh boost of life to the government dam-building programme, stalled for nearly a decade by village protests, bungled resettlement efforts, compensation demands, and bureaucratic corruption.

Numerous highly lucrative engineering and consulting contracts are up for grabs. Logging companies are eyeing the 35 square kilometres (lan) of golden teak worth an estimated 1,691 million baht (US\$67 million) within the dam reservoir area. A Planned industrial estate in Phrea, about 20 kilometres (km) from the reservoir, as well as dozens of tourist resorts, hotels and golf courses, want access to cheap water from the Kaeng Sua Ten reservoir.

The Banharn government's approval came as the latest in a long history of political manipulation aimed at getting the dam built, and preventing local people in the Yom River basin from participating in decision-making on a project that threatens to destroy their communities, forests and way of life. Presently, after more than ten years and over 30 million baht (US\$1.2 million) worth of studies, the dam controversy remains far from being resolved. At present, three EIA studies on geology, ecology and resettlement of villagers are waiting to be completed during 1997 by RID for approval by the National Environment Board (NEB).

State Power Games

Successive governments have wagered their political fortunes on building the dam through a variety of means: preventing villagers from voicing their concerns about the project; falsifying scientific data to exaggerate the dam's irrigation and flood control benefits while understating its impacts; circumventing legal processes for assessing the dam's impacts; staging "public hearings" by recruiting villagers from other provinces to "support" the dam; and threatening and coercing villagers to move from the area including buying of village lands.

Commenting on the long-drawn out debate and protests at Kaeng Sua Ten, Prof. Prakob Mirojanagud of Khon Kaen University, a leading hydrology expert in Thailand, warned "In terms of water management, to build or not to build dams will be argued without end until the public is empowered to decide on an issue greatly affecting their lives."

Public empowerment in decision-making is blocked in the Kaeng Sua Ten dam project by official reluctance to divulge information on the dam's impacts. Saeng Kwanyuen from Don Chai village in Sa-iab sub-district of Phrae province told *Watershed* that from the beginning officials have never given villagers clear information about the project: "We first knew that the Cabinet was reconsidering the dam project only from student groups who visited the area and news reports in 1989."

"Since then, they [state officials] have not given clear information about the number of people to be resettled or whose homes would be flooded. Villagers are told there will be benefits, but it is not clear for whom," he said. As the initial proponent of the dam, in 1981 the Electricity Generating Authority of Thailand (EGAT) consistently refused to release information about the dam's impacts on the Yom River basin. After the proposal for the dam was revived by the Chatichai Choochavant government in 1989, the RID was equally unwilling to confirm details about the dam reservoir and resettlement of villagers.

In the absence of precise ground surveys, initial figures on the number of people to be resettled have been inevitably false. The official information that reached the rural communities in 1989 suggested that only three villages would be inundated by the reservoir. Closer examination revealed, however, that the brightly-coloured map presented by the RID officials at a 'mobile cabinet meeting' in north Thailand was a complete forgery, the real number of village settlements inside the flood zone area being 14, not three.

A villager from Chiang Muan district estimated that 5,000 people in four villages in Sa-iab sub-district of Song district, the whole of Chiang Muan district, and at least five villages in Pong district will be inundated by the dam.

A 1983 feasibility study completed by Acres International and Howard Humphreys and Partners stated that the 92 metre dam would have a normal high water level of 280 metres above sea-level requiring the removal of 5,000 families from the area. In April 1989, then-Deputy Agriculture Minister Udorn Tantisunthorn told journalists that the number would be 4,000 families. Following massive protests by villagers, irrigation officials rapidly downscaled the figure to 1,250 families the following month. Soon afterwards, then-RID Director General Chari Tulayanand said that 900 families in Phrae's Song district would be moved. Finally, official RID documents released in 1989 revealed that the number of families moved would be 484. By early-1997, the RID claimed that 620 households mainly in Song district in Phrae face relocation.

For the Kaeng Sua Ten dam, three major environmental assessment studies were completed. The first was published in 1982 by TEAM Consultants Co. Ltd., a company that has a history of producing EIAs that do not study the most serious potential environmental impacts of large-scale infrastructure projects.

Phrae Province The World Bank, initially considering funding the dam, sponsored the second study completed in August 1989: "A Preliminary Assessment of the Possible Impacts of the Proposed Kaeng Sua Ten Dam Upon the Conservation Values of the Mae Yom National Park." A third study, completed in March 1991 by Chiang Mai University's Faculty of Engineering, based most of its information on the 1980 TEAM study.

Royal Irrigation Department (RID) officials have not released the EIA information to the communities in the Yom river basin in spite of repeated village requests and protests since 1989.

In response to villagers' complaints that they were not notified about the project, then Deputy Director General of RID, Roongrueng Chulajart, said that they were not officially informed to avoid "unnecessary panic." "We did not want them to get all excited before we knew whether or not the project would be approved by the Cabinet," he said.

EIAs have not allowed for the participation of local communities in assessing the project impacts. In a majority of cases, EIAs are requested by the government and consultants after the conclusion of the engineering studies, and thus frequently are reduced to comply with the rules and regulations of environmental agencies and legislation. Therefore, EIAs work opposite to the way they should: they encounter a government development project, adapt to this situation, and then legitimise what was done.

In Thailand, no large infrastructure project has ever been cancelled on the grounds of inadequate environmental impact assessments.

Since the 1985 Environmental Act made EIAs a legal requirement for Cabinet approval of large-scale projects, Thailand's environmental agencies have approved nearly 4,000 project EIAs. However, public protests over the potential environmental impacts forced the shelving of a number of these projects such as the Nam Choan dam.

As Prof. Prakok comments: "We have the National Environmental Board (NEB) under the Ministry of Science and Technology to inspect EIA. But if it's Minister Mr. Yingphan Manasikarn say that the EIA will have to come out to justify building the dam, it will come out that way, because the Thai system is like that."

The Office of Environmental Policy and Planning (OEPP), the government environmental agency, rejected an ETA by the irrigation department in August 1994 on the grounds that it was: "out of date and confusing, contained insufficient statistics especially on ecological impacts." The OEPP outlined 36 issues in the ETA that required further clarification including geological impacts, hydrology, and ecological impacts on the teak forest.

The Kaeng Sua Ten Dam: Fact and fiction

As proposed by the RID:

- Cost: US\$ 187,320,000;
- Water storage capacity: 1, 175 million m³;
- Electricity generation capacity: 49 MW;
- Irrigation and water supply: 60,000 hectares of farmland in Phrae, Phichit, Phitsanulok and Sukhothai provinces for 675,000 farmers during the dry season; water supply for industrial use particularly the planned Phrae Industrial Estate, tourist resorts, and golf courses, as well as households in Phrae province;
- Resettlement: 620 households or more;
- Flood control for lower northern provinces.

Cracks in the ground

The Kaeng Sua Ten dam straddles the Mae Yom or Sa-iab seismic fault line, which is a branch of the Phrae fault zone, although it is not clear how long it has been since the Mae Yom fault last produced an earthquake. In November 1996, the Geology Department released results of seismic studies, which revealed an active fault line 31 km from the dam site.

The Phrae fault zone, located less than 50 km from the dam site is active and has produced 20 earthquakes over the last 15 years. On 9 December 1995, an earthquake measuring 5.1 on the Richter scale rattled Phrae province, cracking buildings and toppling & pagoda.

The building of large reservoir's can cause earthquakes by putting huge amounts of pressure on underlying seismic faults, known as reservoir-induced seismicity. Research in Thailand by the Electricity Generating Authority of Thailand (EGAT) shows that the construction of the Khao Laem and Sdnakhadn dams in Kanchanaburi province led to thousands of small earthquakes, and dozens of larger ones, in the Three Pagodas Fault Zone.

Dr. Pdnya Nutalai, a geologist at the Asian Institute of Technology, and a member of the subcommittee studying the proposed dam, said that the inactive Mae Yom fault may be reactivated by the pressure of the large amount of water to be stored in the Kaeng Sua Ten reservoir.

An expert with the Department of Mineral Resources said a full and proper investigation of issues concerning the risks of reservoir-induced seismicity would take about a year to complete and involve foreign specialists since no Thai geologist has ever done intricate seismic study. Project proponents say that technology is available to make it safe, although incorporating the technology will increase costs by more than 30 per cent.

Forest ecosystem

The 65 km² reservoir area will inundate more than 6,400 ha of forest including 1,600 ha of golden teak forest area in the Mae Yom National Park, the last naturally-occurring golden teak forest in Thailand. The logging of the forest located within the proposed reservoirs golden teak area is viewed as a benefit of the dam by the RID and dam proponents in the government. The dam will flood the Mae Yom forest, one of the last remaining lowland forest ecosystems in Thailand, and is home to several rare and endangered species such as the Green Peafowl, the Malayan Night Heron, the White-rumped Falcon and the Green Imperial Pigeon. The dam will destroy the habitat of 135 bird species, the habitat of 37 mammal species, 42 amphibian and reptile species, and 68 fish species, as well as 430 plant species; about 165 of these are on the international protected species list.

After they learnt about Cabinet consideration of the dam project in 1989, villagers in Sa-iab sub-district in Phrae began logging of the forest area in the proposed reservoir area, and then illegal logging quickly became their main source of income. Villagers justified the logging on the basis that the forest would be destroyed anyway if the dam is built. In June 1991, Sa-iab villagers declared they would stop logging, and handed over their logging equipment to government authorities. Villagers said that they wanted to stop logging and conserve their forest as the protection of the forest was one of their main reasons for opposing the Kaeng Sua Ten dam.

Floods, floodplains and wetlands

According to the RID, the dam would reduce floods in the lower northern region by storing the using flood waters in the Mae Yom River. The 735 km long Yom River, passing through Phayao, Phrae, Sukhothai, Phitsanulok, and Phichit provinces, is the smallest tributary of the Chao Phraya. The Yom watershed is 23,616 km². It contributes about eight per cent of the average volume of 1,800 million ml per year of the Chao Phraya's flow at Nakhon Sawan. The majority water volume of the Chao Phraya River comes from the Ping, Wang and Nan Rivers which make up 45, 35, and 15 per cent of water respectively in the Chao Phraya basin, so the Kaeng Sua Ten dam will have little effect on preventing floods in Bangkok and the lower north and central region.

Prof. Prakob Wi rojanagud of the Institute of Water Resources and Environment, Khon Kaen University's Engineering Faculty, stated that the dam will not prevent floods for two reasons: "First, the proposed dam site is too far upstream in the Yom River Basin. Second, the Yom is not the only river, which flows through the flood-prone area." Prof. Prakob explained that the dam would not prevent the severity of floods but merely postpone it. Even if such intense rains as in 1995 and 1996 were to occur more frequently in future, the dam could store the rising waters only for one to three days. Subsequently, dam gates and spillways have to be opened when the reservoir nears its maximum capacity to avoid the collapse of the dam wall, possibly resulting in more extensive and severe flooding downstream compared to if the dam was not built.

Few official studies in Thailand exist of the importance of wetlands for flood control and drainage in flood plain ecosystems. The Yom River's floodplain, where the Nan and Yom rivers meet, covers 500 km² and extends from Sukhothai to Phitsanulok provinces, and is one of the biggest wetlands in Thailand. It is classified under the Ramsar Convention as a wetlands of international importance.

Most of the wetlands areas are becoming steadily degraded through encroachment by roads, resorts and changing cropping patterns. The wetlands' drainage patterns are being altered, affecting their ability to act as a naturally occurring drainage for excess rainwaters.

A 'revised' report submitted by the RID in May 1995 was again dismissed by OEPP officials as being too confusing and put together from several studies by various agencies such as ECAT and the forestry

department.

The Science Minister Yingphan reacted by gagging the OEPP secretary-general Sunthad Somehevita and other experts from talking to journalists. Yingphan asked OEPP staff to give him the necessary information and he would disseminate it, so that all information would then have the same "direction."

Frustrated by the legal stand-off, the Banham government set up a special committee in September 1995 chaired by Yingphan to investigate the impact of the dam and give the final result whether the project was sound within 90 days. Environmental groups slammed the government move as a 'mid-air hijacking of the original experts panel's authority in seeing through the process of screening the EIA' and questioned the neutrality of a panel whose chair- person - Science Minister Yingphan - publicly supports the dam.

Enter the World Bank

The World Bank initially considered funding the Kaeng Sua Ten dam but withdrew its backing in December 1994 stating there were "too many problems concerning environment and resettlement." Peter Stephens, the Bank's senior official in charge of East Asia and Pacific, said the decision was made after the Bank's consultants were attacked by protesting villagers in June.

Recounting the incident to *Watershed*, Saeng Kwanyuen said the entry of the World Bank consultants doing field surveys to gather more information on the social impacts of the project provoked the resentment of about 5000 villagers in an already tense situation.

According to Saeng, the villagers told the World Bank consultants that they needed answers from the government about the project particularly concerning the livelihoods of villagers after the flooding of their homes and farmlands. The villagers told the consultants that no studies would be allowed unless the government provides information about the project.

The consultants promised not to enter the village, but were found sneaking around one of the villages asking for information a few days later. Villagers then forced the study team to stop at Don Chai village in Phrae's Song district and their vehicle was damaged by villagers.

Typically oblivious to the history of local sentiment about the dam project, the Bank consultants reacted by sending a letter offering "an opportunity for the villagers to enter into a dialogue and to participate in decisions concerning the project."

The villagers ignored the suggestion, displaying a political awareness conspicuously absent in the highly paid Bank consultants. After years of requesting for participation, the Song villagers are more than aware that once a government decision is made that a dam is to be built, then there is little possibility at the local level to discuss and decide on any other type of water management in its place.

Village people have consistently proposed alternatives, most recently a sophisticated system of small-scale weirs, small ponds and recovery of the river basin's wetlands for flood control and irrigation. [See Box: Community-based river basin management.] State officials such as the RID's project planning division have dismissed without consideration village suggestions as "not feasible" and "expensive."

Dismissing villagers' efforts is characteristic of officials and consultants for whom the village homes, temples, gardens, schools, livestock, rice fields, and ancestral cemeteries are merely the "project area," and villagers are objects or "evacuees" to be surveyed and written about, guided, compensated, and finally removed.

The 1991 EIA for the Kaeng Sua Tendam for instance, states: "The impoundment of the Kaeng Sua Ten will necessitate the resettlement of evacuees from those existing villages in the proposed reservoir area. Resettlement programmes with some necessary infrastructure and public supporting facilities will need to be established to assist those evacuees in addition to the compensation for their affected properties.

Not surprisingly, the still incomplete as study teams continue to be denied access to much of the area by local villagers particularly in Sa-iab sub-district in Phrae province.

Villagers have asserted that they do not trust the study teams because the members were appointed by the government with no local participation.

"Public hearings"

Politicians have staged "public hearings" to drum support from village communities. However, villagers in Phrae have steered clear of these efforts claiming that it would not be carried out fairly. Invariably, they have been proved correct as the public hearings have only inflamed existing tensions among rural communities.

A government-organized public hearing in Phrae in July 1994 was boycotted by villagers to be affected by the project who feared that their attendance would be misconstrued as acceptance.

More than 40,000 people from eight northern provinces, as well as ten Ministers and several senior government officials attended but there was no room in the schedule for representatives of villagers who would be affected by the dam.

Sa-iab sub district villagers were not invited. One villager from Sa-iab complained to reporters that: "We were never informed by any government official about the hearing, and were never invited. We are now pressured by officials who support the dam."

Soom Saiankong, chief of the Sa-iab subdistrict in which three villages would be affected by the dam, stated that district chiefs had recruited people from other villages in Phrae as well as many lower northern provinces to voice support for the dam, and that most of them were provided with free transport to and from the festive gathering, although the government denied this.

The villagers at the hearing filled out a prepared questionnaire giving their consent to the project, although most of them were totally unaware of the full and long-term implication of a dam on the environment and its supposed benefits. When questioned by reporters, many of them did not even know where the dam would be located if built.

Saeng from Song district states that the supporters for the dam came from the whole of Song district. "I had a brief opportunity to talk with some of the villagers present at the hearing," he said. "Their village lay outside the proposed irrigation area of the dam and thus would not receive any benefits, but the officials did not tell them that. The villagers told me that they do not know anything about the dam nor about its benefits."

Environmental groups dubbed the public hearing a "government soap-opera." The Seub Nakhasathien Foundation, a Bangkok-based environment group, said that the RID is "using the event to gain credibility, seeking the views of the public by distributing 30,000 questionnaires to local people from eight provinces. However, the information released to the public is insufficient. All research should be concluded before a public hearing is held" the group added.

Prof. Suraphol Sudara, a respected academic from Chulalongkorn University, criticised the government attempt as contradicting the basic principles of a public hearing which was to solve conflicts between the state and public. The hearing "did not stick to true principles and created conditions for more serious confrontation," he said.

Sa-iab villagers boycotted the event. "We used to believe that frank negotiations would end the problem. We've tried to discuss [the situation] with all relevant authorities, locally and nationally, under seven governments over the past seven years. The more we have tried, the more we have learned that we cannot trust them," said Saeng Khwanyuen.

Behind the facade of "public hearings" and "referendums," officials and local influential people employ threats and coercion aimed at stifling village resistance.

Over the last several years in Sa-iab sub district, state officials have ceased carrying out village development projects, funding for schools has been slashed, plans to build a health centre have been suspended and officials have told villagers that the centre will be relocated. Schoolchildren in Sa-iab are victimized by their teachers and referred to as "barbarians" for opposing the dam.

Villagers state that politicians' relatives and friends have flocked to Song district to buy land in anticipation of the dam. Saeng stated that the outsiders who bought the lands, plant a few tamarind saplings to demonstrate ownership and demand compensation. "They plant saplings in long rows. Sometimes they even plant saplings still inside the plastic wrapping".

Speculators have already bought up more than 320 hectares of farmland in Phrae at prices ranging from

US\$250 to US\$2500 per hectare since 1992. Villagers mostly sold their lands because officials told them that if they did not have land certificates they were ineligible for compensation.

While the government puts off a final decision on the dam, the villagers live in increasing uncertainty about their lives and lands. "We know about the fate of communities who lost their lands to the Bhuniiphol, Sirindhorn and Pak Mun dams," asserts SaengKwanyuen.

"All the villages [currently ordaining ceremony in protesting] are united in refusing any compensation money. We want to keep our lands to make a livelihood. Even if we took the compensation money, there is nowhere to buy good land as it is all already occupied. And once we are moved by the dam, the money will run out," he added.

As a well-known Thai social critic wrote recently in the English-language Bangkok daily, The Nation: "Kaeng Sua Ten is not such a big dam. But it is a very big issue. The proposed dam is located near a geological fault line. It also lies right across three major fault-lines in society, politics, and economy - locality against city, cost-benefit against sustainable development, and top-down authoritarianism against participation "

Community-based river basin management

Prof. Prakob Wirojanagud from the Institute of Water Resources and Environment, Faculty of Engineering, Khon Kaen University, is critical of the state's centralised water management symbolised by large-scale hydro projects like the Kaeng Sua Ten dam, which he argues, will always pose conflicts because they are inherently non-participatory watershed talked to him about the Kaeng Sua Ten controversy, his experience with community-based river basin development, and the alternatives for large dams through small-scale and participatory water management projects.

The Kaeng SuaTen conflict is very simple. We have I to ask why the government wants to build the Kaeng Sua Ten dam. The truth is that one, a huge amount of money is to be made by logging the teak forest. Two, there are many local businessmen as well as politicians who have invested in the nearby area through land speculation, resorts, and the construction business.

The business people have their representatives in the government who then have to come up with a good public reason to build the dam. So, at first they talk of electricity, but the amount of water is not much and electricity benefits are only 3-4 per cent, so they switch to irrigation benefits for the farmers in the Yom basin. They're talking about 1000 million m³ per year storage, of which the Yom basin people need 900 million m³, already. So if they want water for upper Chao Phraya, is there any good reason to justify building the Kaeng Sua Ten dam?

Then after the floods, they talked of flood-control. For flood control, they must keep a large volume of the reservoir empty to store floodwaters. But that is not possible, because of the "dead storage" [water that must remain in the dam]. The Yom watershed is about 24,000 km². At the proposed dam site, the size of watershed upstream is 3,000 km². So how much rain- fall can the dam store at this site? And how about the rainfall in the larger area of the watershed? All the government reasons to justify building the dam are self-contradictory.

Moreover, once the dam is approved, the rate of deforestation will accelerate by 200 to 300 per cent more than the illegal logging activities in the past. Illegal logging is a lot more inefficient since loggers have to sneak in and out to take the felled trees. But in a big reservoir with access to roads and other infrastructure, logging is much faster. There will be rapid deforestation of forest areas around the reservoir, an increase in sedimentation loads and more severe flooding in the future.

We need to assess the needs of people in the specific river basins in terms of their water requirements, the amount of supplementary irrigation water in dry season, the area planted and so on.

Villagers' proposed alternative to the Kaeng Sua Ten dam is a series of small-scale weirs, ponds and irrigation system, based on our small-scale watershed management master plan, mainly for Phrae and Sukhothai provinces in the Yom River basin. The average water flow in one year from the Yom River into the Nan and Chao Phraya Rivers in Nakon Sawan is about 1,800 million m². The main area of the watershed is mostly in Phrae and Sukhothai, with a smaller area of upper watershed in Phayao and Nan provinces and the downstream area, which leads to the Chao Phraya basin in Phitsanulok and Phichit provinces.

The watershed management plan has three main features: 1. plans for different kinds of small-scale water sources for irrigation such as ponds, as well as dredging of the river basin tributaries; 2. improve water-use and markets for agriculture products in order to obtain the maximum use of existing water sources, and; 3. to conserve and recover the natural ecosystem of the river basin. Our plan consists of building 5,000 weirs in the Yom tributaries at a cost of 100 million baht [US\$4 million]. 75,000 families will benefit from the expansion of watershed and freshwater fishery areas. The plan will help conserve watersheds and recover forest areas. The small weirs and reservoirs do not impact on people and the natural environment.

For centuries, rice-growing lowland villages in northern Thailand have depended on a type of locally controlled water management adapted to a landscape dominated by forested highlands and swiftly flowing streams. The forests ensure regular seasonal rainfall for the whole area and at the same time moderate runoff, so that there is water through- out the year.

Villagers build a traditional wooden water-barrier to hold backwater in a *muang faai* reservoir. *Muang faai* water-management systems enable villagers to divert, store and divide shift streams so that they can be used in wet-rice agriculture. These systems illustrate a complex interrelationship between communities, technology, production and natural resources.

Traditional methods are superior, first because the weirs just divert the water using the natural flow of water. Second, its much cheaper, and the technology used can be repaired by the community. But when the government department builds all these weirs in rural areas, the farmers view them as belonging to the government.

When the government enters the village, they build concrete weirs which are not in line with local standards but the standards of the irrigation department. Moreover, the state engineer has no idea how farmers store and manage water by adjusting their weir's. Since there are four or five weirs that divert water in or out of the farmland, the height of the weir must be adjusted.

But the government engineer thinks he is clever, and designs a fixed height, and makes it strong. But actually it's more stupid. In many areas, the nearby paddy lands are flooded since the weir wall is too high. Then they lower the height, and make it completely useless since the weir is underwater most of the time.

Since bamboo forests are disappearing, it is increasingly difficult for farmers to build wooden weirs. We first study the water management system of the farmer, and then help design technology such as a concrete weir with a "stop-lock" [a device on top to raise and lower the weir] and the farmers can adjust the weir crest height by themselves. From our experience, village workers know more than the city engineers. Ten people can build their own weir much better, than a building contractor. Also, the contractor has to hire people who work for an income. But the village worker does it for his family. So the quality of work is much better than the government. They have the expertise within the village.

We promote weirs and small irrigation systems for farmers. In the north, the *muang faai* concept has been around for 300-400 years and villagers in the north know very well how to manage their water using bamboo weirs to divert water into their paddy lands and small reservoirs. The water is stored in the waterways and streams, and in natural ponds which are used in the dry season.

However, the *muang faai* system has weakened over the last 20 years due to increased logging as well as the intervention of the Royal Irrigation Department (RID) with large irrigation projects that has destroyed the culture of community water management. In the north-east, similar small-scale weirs and irrigation systems exist, although a larger percentage of watersheds are degraded than in the north due to deforestation and increased siltation

The concept of small-scale river basin development lies in our belief that the best way to develop village infrastructure like water supplies, housing and other facilities is to help the villagers to do it themselves. Therefore, small-scale is better rather than large-scale, expensive technologies like dams, big reservoirs and extensive irrigation schemes, which are difficult for communities to utilise and maintain. Especially since these large irrigation systems come under centralised control of the state.

Once villagers participate in the whole process of construction, they will undertake their own management and care of these facilities. Our small-scale activities range from programs for drinking water, household water use, irrigation system for agriculture. Our small-scale projects do not pose conflicts with RID and other government officials. In Thai society, academics are fortunate enough to be quite independent from the big bosses in government or politicians. Many of my friends in the RID like the river basin development

idea, but they don't have any bargaining power because they're directly under politicians.

They [RID officials] criticise it because it contradicts what they are doing. The RID has done many small-scale projects, but this does not satisfy the politicians who have to keep their position. They criticise our proposal as not storing sufficient water. But if farmers say it is quite enough, then who are RID people, why do they have the right to say it is not enough?

Now we have groups of people in the Chao Phraya basin who want more water. So the government plans to transfer water from the Yom basin to the Chao Phraya basin, by building dams and water tunnels, and flooding people in the Yom basin. Do you have the right to do that? The people in the Yom basin will have to fight for their rights. The government does not have the right to do that unless they negotiate and give compensation. However, the Thai government can do so because water resources belong to the state and not to the people.

One cannot really anticipate the long-term significance of the Kaeng Sua Ten debate. We need the government to think more because it's a conflict between many groups of people. We would like them to just delay the decision until the new constitution is drafted which can take up issues related to natural resources and local management. Since the government knows little about water management in various parts of the country, they will need to come up with some watershed committee. This watershed committee can represent local people in each specific watershed.