Industrial pollution and social movements in Thailand

Book section

pp. 422-438 in Peet, R. and Watts, M. (eds) (2004) *Liberation Ecologies: environment, development and social movements* (Second Edition), London and New York: Routledge.

Industrial Pollution and social movements in Thailand

Tim Forsyth

This Chapter extends the discussion of Liberation Ecologies to Thailand's urban and industrial social movements – yet it also contains some words of caution. While acknowledging the crucial role played by social movements in livelihood struggles, the Chapter argues that Liberation Ecologies may be too optimistic in assuming that social movements may successfully revise environmental discourses in favor of marginalized people. Instead of focusing only on the political agency of social movements, political ecologists must also assess how movements interact with, and even may become exclusive discursive structures. Movements may not be very "liberatory" if – rather than helping poor people – they replicate or impose new hegemonic discourses.

The Chapter considers these arguments in relation to social movements concerning suspected lead and lignite poisoning in Thailand. By so doing, this Chapter provides valuable attention to the "brown" environmental agenda of cities and factories versus the predominantly "green" agenda of forests and agriculture considered by other Chapters in this volume. Yet, in addition, the Chapter explores important epistemological challenges for Liberation Ecologies that may be more prevalent in the "brown" agenda than in

"green" environmental topics. Many industrial and urban environmental risks are new to localities in developing countries, and consequently local experience and scientific certainty about their causes are low. Under such circumstances, local social movements may easily be dominated by outside expertise, or framed in ways that do not reflect local experience of risks.

The point of this Chapter is not to dismiss Liberation Ecologies or the importance of brown environmental social movements. Instead, the aim is to understand each better. Much political ecology to date has focused, classically, on the marginalizing impacts of capitalist development, and on the struggles of poor people against alliances of industry and state. The case studies in this Chapter certainly provide more evidence for this approach. But the case studies also show that such activism is linked to the production of discourses that do not always help the most vulnerable people. A science–policy approach – of understanding the coproduction of environmental activism and discourses – therefore needs to be integrated with the political economy approach of understanding social marginalization under rapid industrialization.

Environmental discourses and the "brown" agenda in Thailand

"Brown" environmental problems occupy an uncertain place in Thai environmental politics. While environmental risks associated with urbanization and industrialization are undoubtedly growing in Thailand, some environmental activists and politicians still put

more attention on the "green" agenda, and sometimes see environmental problems as essentially rural. "I come from a rural area," Thailand's prime minister, Thaksin Shinawatra, once said, "So it is only natural that one of my concerns has always been environmental issues."[i]

Such statements, of course, are not surprising. Thaksin is, after all, a factory owner and property developer, and may resist discussing topics that might attract environmental regulation. (As the billionaire founder of the Shinawatra Telecommunications group, he is the most dazzling representative of Thailand's new industrial elite). Yet, Thaksin is also a politician and needs to win support from voters who share such views. Indeed, Thaksin's own constituents in the northern city of Chiang Mai once accused his wife of flouting planning regulations near a national park.

Clearly, Thailand has experienced immense – and at times devastating – environmental changes because of industrialization and rapid economic growth. But environmental*ism* in Thailand has also been shaped by social concerns at perceived corruption and state failures than by the nature of environmental hazards themselves. Indeed, environmentalism in Thailand has been closely linked to democratization, and the resentments against the state and new industrial elite, particularly under oppressive military regimes.

Hence, during the 1960s, early environmental groups – such as the Society for the Conservation of National Treasures and Environment – restricted their activities to

fighting for the conservation of sites of architectural heritage or outstanding natural beauty. Increasingly, however, environmentalists began to oppose both state and industry. In the late 1960s and early 1970s activists help shelve plans to build a cable car to the Buddhist shrine at Doi Suthep in Chiang Mai. In the 1980s, an alliance of diverse social groups achieved environmentalism's greatest victories when the government cancelled a proposed dam in the western rainforests of Nam Choan (1988) and then passed a national logging ban (1989). (These decisions coincided with Thailand's first formally democratically elected government in 1988). In 1997, the relationship between environmentalism and democratization was further entrenched by the new Constitution, which affirmed the right of citizens to participate in decisions affecting natural resources and infrastructure development. Some specific environmental campaigns have also highlighted the impacts of development projects on marginalized poor – such as the construction of the Pak Mul dam in eastern Thailand, or the enforced resettlement of villages from reforested land in the northeast (see Hirsch, 1997).

Yet, despite these strong links of environmentalism with democracy and social welfare, environmentalism has not always been as socially inclusive as these other events suggest (Forsyth, 2001). Some environmental campaigns have reflected divisions of ethnicity, social class, or the different perspectives of urban and rural people. For example, one NGO in northern Thailand has been called "racist" because it blames watershed degradation on mountain minorities alone, and seeks to exclude them from forest areas (Lohmann, 1999).[ii] Other NGOs adopt somewhat romanticized visions of nature. One other NGO director told the author in 1999 – with no sense of irony – that Thailand used

to have 100 percent forest cover during the 19th century, and that she saw her job as the replacement of these trees. This statement stands starkly against evidence that Thailand never had this amount of forest, or that agriculture and human settlement may also have claims on land.[iii]

Again, perhaps such trends are also not surprising. Social theorists such as Nash (1973) and Giddens (1994) have argued that the construction of wilderness as beautiful and threatened may emerge from a romanticized sense of lost heritage resulting from urbanization and modernization, and the rise of a middle class. But the underlying epistemology of such class-based environmentalism may be more fundamental than city-dwellers simply valuing wilderness more than rural-dwellers. Much environmentalism as a *new* social movement – following Marcuse and Habermas – has closely associated the destruction of environment with the simultaneous suppression of human nature under modernization. For example, Rosemary Ruether (1972:18) (in a book entitled, *Liberation Theology*) wrote: "Oppression of persons and oppression of environments go together as parts of the same mentality." Or, more recently, the German green activist, Wiesenthal (1993:56) commented: "The nub of the political objectives pursued in green politics… can be summarized in two postulates: preservation and emancipation."

Such statements can have significant tensions when applied to rapidly industrializing societies. Clearly, many environmentalists in Thailand have assumed that people and environment have been oppressed by unfair development. But the words, "preservation" and "emancipation" – if applied as solutions – may have controversial implications. If

preservation implies keeping landscapes stable, then this may imply restricting the actions of many small farmers (such as shifting cultivators) who regularly disrupt landscapes. (Indeed, this approach to "preservation" may also fall foul of new, non-equilibrium approaches to ecology that stress the role of disturbance and highlight how social norms have dictated what is seen to be "normal" landscape – see Zimmerer, this volume). And if emancipation is meant to imply the escape from the pressures of instrumental rationality under modernity (as discussed by critical theorists such as Marcuse and Habermas), then how far does this denote anti-developmentalism, or the rejection of industrial growth, which then may also restrict development opportunities for the poor? Such concerns led Enzensberger (1974: 10), in his classic critique of political ecology to warn: "in so far as it can be considered a source of ideology, ecology is a matter that concerns the middle class." Instead, critics have suggested that there should be a more inclusive, social-development orientation to environmentalism that may allow poor and marginalized people to participate in economic growth.

The Liberation Ecology approach has acknowledged these concerns. Peet and Watts (1996: 268, 263) wrote, "it is almost delightfully naïve to assume that the content of … green movements is necessarily progressive," and that, "critical social movements have at their core environmental imaginaries at odds with hegemonic conceptions." But in placing faith with social movements, the approach may overlook how less powerful voices may be swept up into emerging hegemonic conceptions associated with middle-class environmentalism. The statements of Peet and Watts seem to imply that social movements make it possible for disaffected groups to communicate critical thoughts

against powerful discourses. Yet, evidence suggests that social movements often do not exist independently of each other, but connect into overarching discourses, or that more powerful actors in alliances eclipse less powerful voices. For example, in the Philippines, Covey (1995) found that alliances between national environmental NGOs and grassroots organizations invariably became dominated by NGOs.

In response to these dilemmas, some critics have proposed that the focus of many political ecologists on the resistance of marginalized people to oppressive forces of development needs to be augmented with a more critical awareness of the discourses this approach evokes (e.g. Forsyth, 2003). Instead of assuming that counter oppositions of society versus state and economy are necessarily progressive for social groups, there is a need to see how such activism may replicate existing environmental discourses, or replace one form of hegemonic discourse with another. For example, Hajer's (1995) discussion of "storylines" demonstrates how environmental discourses have emerged over time because of historic incidences of activism, and the framings associated with each. Frequently, storylines emerge because of "discourse coalitions" between different political actors, who have (often tacitly) agreed on a definition of risk because it allows each party to pursue other political objectives. A continual repetition of these definitions may therefore become a "songline of risk" (Jasanoff, 1999), or a socially accepted construction of biophysical reality, even if there are uncertainties about this definition. In certain respects, these approaches to the historic coproduction of environmental activism and discourses reflect insights from Actor Network Theory, or the social influence on how reality is constructed.

Such social influences on the interpretation of risk may be particularly relevant to "brown" environmental conflicts in developing countries where material risks may have no appreciable history among affected populations, and where scientific uncertainty may be high. Under these circumstances, activists may seek to impose pre-existing forms of meaning onto environmental risks. In Thailand, for example, the first overtly industrial environmental dispute, concerning a proposed tantalum processing plant in the southern resort of Phuket in 1986, was framed in terms of impacts on tourism and livelihoods rather than health risks of pollution. Similarly, some of the earliest newspaper reporting of "brown" issues now seems quite naïve and sensationalist. One 1970 headline in *The Bangkok Post* announced: "*Pollution may lead to famine*,"[iv] citing "serious vibration" as a national problem. A 1971 article about pollution was simply entitled "*Ughhhhhhh!!!*"[v] In 1970, Mrs. Eunice Martin, an American living in Bangkok, also suggested that citizens would have to wear anti-pollution masks by 1985. She added, helpfully: "perhaps in the future we can have red masks for firemen, white for doctors, masks with fringes for go-go girls and blue for workers."[vi] (*The Bangkok Post* is Thailand's leading English-language daily, but is generally read and written by Thais).

Mrs. Martin's prediction almost came true: by the 1980s, facemasks were regular sights on Bangkok traffic police and factory workers. But have the understandings of these risks advanced beyond sensationalism? The point of this question is not to diminish the material and sometimes-deadly nature of "brown" agenda risks, but to indicate how social perceptions and activism have shaped policy responses to them. Social movements

have been crucial to the identification of, and response to risks. But the influence of social movements on the epistemology of risks needs to be considered more critically in order to see how far common perceptions are biophysically accurate, and relevant to people affected. The following discussions now apply such consideration to the cases of lead and lignite poisoning in Thailand.

The case of lead

Lead poisoning next to lead mines has had a long history in Thailand. Industrialization and urbanization has increased these risks, with an increase in demand for lead, leaded gasoline, and factories (especially electronics) using lead for soldering. In 1989, ponds and streams in western Thailand were found to have up to 10,000 times the World Health Organization's suggested healthy limit of 10-15 micrograms per deciliter (mg dl^{-1}) of blood[vii]. Too much lead in blood may lead to inhibited development in children, plus a range of chronic illnesses. Acute levels of lead may lead to death (Suwanna and Chaipan, 1994).

Partly in recognition of these trends, the Thai government established a new agency to deal specifically with the problems of industrial poisoning in 1990, the National Institute for Occupational and Environmental Medicine (NIOEM). A 36-year-old, US-trained female doctor, Dr. Orapan Methadilokul, headed the agency. The agency was the first step in the establishment of a national network of such occupational health offices.

Yet, this institute immediately fell into problems in 1991 when it investigated the unexplained deaths of four workers at a factory of Thailand's (then) largest overseas employer, Seagate, the American manufacturer of hard-disc drives in Samut Prakarn, an industrial province south of Bangkok. According to Dr. Orapan, she was suddenly called to the telephone while at the factory and was told: "What you are doing is hurting Thailand! How dare you investigate Seagate? I can have you fired!" Orapan alleged the caller was Staporn Kavitanon, the secretary to (then) Prime Minister Anand Panyarachun, and the director general of the Thai Board of Investment. When questioned, Staporn denied making the call. But Orapan later realized that her Institute had funding withdrawn, and a planned extension of the institute to regional offices cancelled (see Forsyth, 1994).

The cause of deaths in the factory was never fully explained at the Seagate factory. On one hand, Orapan found that 36 percent of 1,175 workers tested at the plant to have blood-lead levels higher than 20 mg dl^{-1}. This compared with similar studies at the same time showing just 8 percent of Bangkok traffic police at or above this level, and just 2 percent for an average of all Bangkok residents. But on the other hand, such levels may be sufficient only to cause chronic health problems rather than sudden death (indeed, Seagate claimed that levels of 70–100 mg dl^{-1} would cause death). When the government replaced Orapan from the investigation, they sent in researchers from a separate agency under the Ministry of Industry,[viii] which measured workplace environments – such as air and worktop levels – and found no evidence of unhealthy working conditions.[ix] After the

event, Orapan admitted that the initial findings of high blood-lead levels may have taken attention away from the potential impacts of solvents, or cleaning agents, used in the factory which can cause breathing difficulties and sudden death.

There were also more overtly political factors underlying the dispute about industrial poisoning. Orapan's inquiry came at a time when workers at the factory were striking for higher wages, and when Seagate – a company who had come to Southeast Asia to cut labor costs – was under increasing competition in the marketplace. Rumors that lead poisoning was also affecting workers inflamed the strike, and a number of other trades unions threatened sympathy action. Overnight, the Seagate strike became Thailand's most serious industrial dispute, with workers marching on parliament, and even petitioning President Bush (senior) to intervene on their behalf. Such factors may have encouraged the Thai government to cut NIOEM's funding when there was still uncertainty about alleged poisoning.

Two years later, however, this decision brought implications for a further case of suspected industrial poisoning. Between March 1993 and September 1994, an estimated 11 to 23 people working at the Northern Region Industrial Estate in Lamphun died from unexplained causes, but usually with symptoms of headaches, and sometimes inflamed stomachs.[x] Yet, following the closure of NIOEM, there was no agency to investigate these deaths.

Lamphun is a predominantly agricultural town, just 20 miles from Chiang Mai. The industrial estate was founded in 1985, and attracted many Japanese electronics companies. At the time of the deaths, local opinion was divided to their cause. Factory workers generally suspected that lead or solvent poisoning caused the deaths. At least eight deaths involved workers in factories making circuitry, electro-ceramic circuit boards, or lenses using soldering or solvents, and at least one worker also burnt chemical waste in the factory grounds. Two well-known companies where there have been fatalities are Hoya Optical Co., and Murata Co., the facsimile machine manufacturer (although all companies deny any dangerous work practices). The fatalities, however, also included two children, who may have had lead poisoning passed onto them via breast-feeding, or physical contact with people covered with dust. The government, nonetheless, denied these suggestions, and instead stated that the most likely explanation was AIDS. While AIDS is still worryingly prevalent in some parts of northern Thailand, the symptoms of the affected workers were not typical of the chronic disabilities associated with AIDS, and the statement itself proved a strange admission from a government that a few years earlier had also downplayed the existence of AIDS.

Again, it proved very difficult to explain the exact causes of the deaths. One local hospital diagnosed one woman as suffering from aluminum poisoning, but then withdrew its diagnosis. Another hospital claimed it could not perform adequate tests. A further problem was that many of the workers who died chose to work overtime to win financial bonuses, and therefore expose themselves more to fumes. Local inhabitants formed The Lamphun Action Group, and demonstrated outside the governor’s office in 1993. Other

groups also became interested, although with a variety of objectives. National newspapers campaigned to get Dr. Orapan re-instated as an investigator. Academics called upon the government to reconsider its industrialization policies. Greenpeace expressed concern about toxic waste through its locally sponsored Toxic Watch Network. Finally, Ed Carabou, the founder of the rock band, Carabou (sometimes called "Thailand's U2") recorded a song, "Lamphun" which questioned the logic of a life spent in factories. (The irony of Thailand's leading purveyor of heavy-metal music to teenagers now expressing concern about other heavy-metal pollution was not lost on some people). On a personal note, the author himself – who was then a journalist for a Hong-Kong based magazine – was also asked by his editors to retrieve one of the workers' bodies to Hong Kong so that the magazine could conduct its own post-mortem and hence prove the cause of death. This proposal (even tactfully put) was greeted with incredulity by grieving families, and was designed mainly to boost the image of the magazine.

Yet, despite these diverse efforts on behalf of the people of Lamphun, the overriding focus of debate tended more and more to be of lead poisoning, even though solvent poisoning may have been more compatible with the symptoms observed. NGOs tended to discuss lead poisoning because it was well established as a problem, and it symbolized uncaring industrialization. In one written exchange with the author in 1994, the head of the Industrial Estate Authority of Thailand would only discuss lead poisoning – possibly because it was easier to disprove as the cause of death. Meanwhile, solvent poisoning was never proven because solvents have the tendency to dissipate quickly after inhalation, and local custom dictated that bodies be cremated quickly after death. The magazine's

attempted post-mortem would therefore have been unlikely to succeed. Finally, Dr. Orapan was eventually reinstalled in the inquiry, in response to public demands. But the attempts at a final public hearing on the causes of death were undermined, as she later revealed, because she had been threatened with losing her job if she spoke out against investors.

To date, there have been no further major health scandals at Lamphun. But national attention was once again directed to lead poisoning in 1999 when cases of water-borne lead pollution were found in the forest district of Klity in the Thung Yai Naresuan wildlife sanctuary in the western province of Kanjanaburi. The Public Health Ministry revealed that blood tests of members of the Karen minority living in the region showed high proportions to have blood-lead levels between 24 and 28 mg dl^{-1}.[xi] Villagers had been exposed to water contaminated by local lead mines, including one owned by a Member of Parliament.

Predictably, the findings caused much concern among the media and healthworkers about the impacts of lead mining on minorities. Yet, the case also coincided with national debate about the proposed Community Forestry Bill, which was a long-proposed amendment of the 1989 logging ban to allow greater access to forests for local citizens. Knowing that some business interests had proposed that "community forestry" should also mean limited logging and mining concessions, Thailand's World Heritage Committee used the Klity dispute to urge the ending of all mining concessions in the Thung Yai wildlife sanctuary. Other NGOs used the incident to illustrate how the Karen

group – in comparison to some common perceptions – actually use forests in sustainable ways, and hence legitimize the proposed Bill. The Klity scandal therefore provided common means for different NGOs to oppose mining development, and consequently reinforce the image of lead as a pernicious threat of capitalism, and the Karen as forest-friendly settlers (indeed some anthropologists have claimed the Karen are increasingly commodified this way, see Walker, 1999).

The case of lignite

Lignite is a brown-colored, sulfurous form of coal, and occurs in deposits in northern Thailand. In 1958 a power plant using lignite was built at Mae Moh in Lampang province, to the south of Chiang Mai. Like the industrial estate in nearby Lamphun, the plant symbolized rapid industrial change, with red and white smokestacks standing high above surrounding rice fields and forested hills.

One morning in October 1992, a small group of villages surrounding the power plant awoke to see that houses and fields were covered with yellow dust. Villagers were coughing; plants and livestock were dying. The leakage had occurred because sulfur filters at the power plant had failed, leading to the emission of sulfurous dust. Concern about lignite as a source of industrial pollution had started in Thailand.

The chief problem caused by lignite was excessive concentrations of sulfur dioxide produced during burning or mining, and the resulting condition of pneumoconiosis, a disease of the lungs caused by breathing in dust. The immediate impacts of the 1992 release were poorly recorded. But in following years, further incidents of toxic emissions were recorded, especially in 1997 when new filtering devices failed. Between 1996 and 2001, newspapers claimed that 48 people near Mae Moh had been killed because of lignite-related respiratory problems.[xii] At times, concentrations of sulfur dioxide were measured at nearly 2,300 micrograms per cubic meter of air, compared with the government standard of 1,300 micrograms.[xiii] Villagers have been warned not to drink rainwater.

The impact of these problems was to create local campaigns for compensation and resettlement, and to inflame national consciousness of the ethics of industrialization. Families affected by the pollution filed a lawsuit seeking 3 million baht ($120,000 in 1996) in compensation from the government. Villagers also complained to the World Bank, as a main creditor of Thailand. Eventually, some 500 households were resettled in new villages away from the power plant. New flue-gas desulphurization units were installed (despite failing in 1997). The government also provided welfare support to sick villagers from an ongoing fund of 30 million baht-a-year ($750,000 in 2003).
Dr. Orapan was also appointed as an investigator of the causes of death. Some villagers still felt under-compensated, and still demanded resettlement.

Yet, many other themes underlay these immediate topics of protest. The main target of criticism was the Electricity Generating Board of Thailand (Egat), the state-owned enterprise responsible for electricity supply, which also has a long history of proposing environmentally damaging infrastructure projects such as the aforementioned Nam Choan and Pak Mul dams, plus later projects such as gas pipelines from Myanmar and Malaysia. Activists and journalists therefore represented the Mae Moh dispute in terms of unaccountable and destructive development by this arm of the state. Some newspapers headlines read, "*Egat's broken promises*"[xiv] and "*People's patience running out.*"[xv] Yet, politicians too found this a convenient way to win support and perhaps avoid direct responsibility, by publicly distancing themselves from the actions of Egat. For its part, Egat also sued an Italian engineering company that had failed to deliver desulphurization equipment quickly enough.

There was also a sense that the dispute also represented the desire for some local people to participate in Thailand's sudden growth and wealth. One doctor working in the Mae Moh area later described how many claims for compensation were unrelated to the plant's pollution. He reported: "one old man came to see me in 1995 with a stomach illness but he asked me to diagnose a respiratory problem in order to gain compensation. When I refused, he angrily pointed out that he had already hired a truck to bring him to me!" (Prasert, 1999).

The dispute also tended to focus on lignite *per se* as the source of problems, rather than the sulfurous content, or the application of this fuel within specific contexts or

technologies. Some scientists suggested that the unusual location of Mae Moh in the end of a valley sometimes ensured the occasional enclosed atmospheric conditions that resulted in emissions hanging above fields and villages. There was also confusion whether the most pollution was caused by the lignite mine or power plant. Similarly, some activists saw the introduction of flue-gas desulphurization as a climbdown from attempts to close the power plant or resettle the villages. Villagers said they did not want to "hold their breath" since no one can guarantee if technology will be effective all the time. Yet, Egat also implied that the villagers should not hold their breath waiting for the requested compensation. Rather than pay more compensation, the government has instead reduced chances of further catastrophic leakages, established a new emission level of 780 mg of sulfur dioxide per hour in 2000, and lowered the expected generating capacity of the plant. These emission levels are much lower than previous totals; yet still amount to some 11 tons of dust per hour.[xvi]

Similar to lead, therefore, the image of lignite in Thailand has evolved to symbolize dirty development and the failure of the state to listen to citizens' fears. This emotive heritage was to reemerge in a later dispute in the southern peninsular of Thailand in the coastal province of Prachuab Khiri Khan, where it was announced in 1997 that a consortium of foreign companies planned to build three new power plants, using coal imported from Australia. Immediately, local people feared that the plants would use lignite, and that the power stations would pollute fishing areas and tourist sites. One of the financial backers of the companies was also the ex-prime minister, Anand Panyarachun.

Legally, the proposed project was in a gray zone. The 1997 Constitution made it compulsory for local citizens to participate in such infrastructure projects; yet, the contracts with the companies had been signed before the Constitution was passed. Moreover, in keeping with many infrastructure projects in Thailand, the companies had secretly bought land in the selected areas before the project was announced as a way to get the land cheaply. The government used these arguments to justify persisting with the project and seeking to achieve public approval.

Such approval, however, was not forthcoming. In July 1997, villagers blocked main roads and marched on city hall. In December 1998, more than 60 people were injured as a further roadblock led to clashes between police and protestors. Some 5,000 people attended the rally, which also burnt effigies of the new prime minister. Meetings were called with journalists and academics, and protestors described the potential damage that the power stations might cause. At this time, it was not clear whether the power plants would use lignite or another form of coal. Critics suggested that the protestors were simply harnessing fears about lignite to strengthen their cause. For their part, the protesters said they could never rule out the possibility of lignite being used in the future. Eventually, the Australian Ambassador intervened to clarify that the fuel would not be lignite but bituminous black coal, which he claimed was “one of the most efficient, economical and environmentally friendly fuels for power generation,” containing a sulfur content of 0.3–0.7 percent compared with the average 3 percent of Mae Moh’s lignite. He added, “What worries me about the Prachuab Khiri Khan demonstration is that people

were demonstrating about a thing which did not exist [i.e. lignite]: this is not a problem."[xvii]

Yet, the protests at Prachuab Khiri Khan suddenly became much greater when it was revealed in 1999 that the official Environmental Impact Assessment (EIA) – which had previously approved the power plants – had overlooked the existence of a coral reef in the sea near the proposed construction site. New activists, with broader objectives, joined the dispute. Greenpeace highlighted the importance of marine biodiversity. Newspapers portrayed the shortcomings of the EIA as another example of state failure, or even corruption by the people undertaking the report (which they denied). Nonetheless, the government's Office of Environmental Policy and Planning officially apologized for the assessment and ordered further investigations. As with the Klity dispute concerning lead poisoning (and arguably the opposition to the Phuket tantalum plant in 1986), the dispute at Prachuab Khiri Khan was given extra impetus by involving an initially "brown" environmental concern of pollution with a topic of "green" concern, and with promoting the image of an incompetent and uncaring state.

After these events, the political actors involved in the dispute responded in different ways. The consortium of companies established its own public relations campaign by hiring some 200 local villagers at 6000 baht per month ($150 in 1999) to disseminate information about bituminous coal and the plants. The government proposed a public hearing on the question of the proposed power plants. The opponents of the plant responded in various ways. They refused to participate in the public hearing, stating that

this forum would give legitimacy to a foregone conclusion. Unnamed people disrupted the companies' information center by spreading sharpened nails on the incoming roads and parking lots. Most violently, in 2001 demonstrators assaulted environmental researchers while conducting tests on the reef in the belief they had been paid by the companies to destroy the reef and therefore reduce its significance. One researcher commented, "the villagers are prejudiced against academics as they are upset by those involved in the EIA study. They think all academics are bad."[xviii] At the time of writing, there is still no effective solution to the Prachuab Khiri Khan dispute, but the protestors hope that continued resistance, and constant rethinking about Thailand's electricity supply policies, may mean an eventual canceling of the project.

Discussion: exploring the tensions between social movements and livelihood struggles

Clearly, the cases of lead and lignite poisoning in Thailand reveal shocking and abusive examples of the marginalization of workers by apparent alliances of state and industry. The closure of NIOEM left Thailand without adequate expertise in factory poisoning, and was inspired – apparently – by the desire to quell an industrial dispute and dissatisfaction of a US investor. The government support for the power plants in Prachuab Khiri Khan has also shown a desire to proceed with development despite the Constitutional requirements to allow sufficient local participation in infrastructure and natural resources projects.

Yet, in science–policy terms, the two cases also reveal the dangers of relying on social movements to provide accurate guides to the underlying material risks experienced by vulnerable people. For example, it seems more likely that solvents rather than lead caused the deaths of workers in factors, and the opposition to lignite at times failed to acknowledge the underlying cause of problems in sulfur dioxide, or the difference between lignite and bituminous coal. If the social movements were designed to stop the risks that caused workers' deaths, then the cases of activism concerning lead and lignite in Thailand suggest that these ambitions failed.

The discourses of lead and lignite in Thailand have increasingly become discursive structures into which all new activism is shaped. Sociologists of scientific knowledge would call these structures discourse coalitions or anchoring devices because they have become topics of unified debate upon which both state and activists can agree, while still adopting more familiar positions of disagreement (see Hajer, 1995; van der Sluijs, 1998). Similarly, the stories of each case of activism also contain certain narrative structures: the uncaring state; disadvantaged workers abused by the foreign investors; the beneficial intervention of Dr. Orapan as reformer. These properties make the cases easier to read as news stories, and help fuel popular protest. Yet, because of these accumulated meanings, the storylines of lead and lignite become hegemonic environmental imaginaries in their own right, or "songlines" of risk – presumed biophysical realities – sung into existence by each new episode of activism (Jasanoff, 1999).

An important question, therefore, is who does the singing. (Or, who gets to control the construction and communication of environmental imaginaries). The answer partly depends on who does the listening. In the case of Lamphun, genuine uncertainty about the cause of deaths encouraged the adoption of lead poisoning by NGOs, and this was all too happily debated by the state because it was easy to deny. Later, different parts of the green lobby also adopted the lead discourse regarding forests (and by so doing also portrayed the Karen being both as victims and as careful forest managers). In the case of Prachuab Khiri Khan, locals adopted the discourse of lignite – even though evidence suggested that no lignite would be used – and then highlighted the case of the coral reef when that also emerged as an opportunity. (It is interesting to note that the reef and EIA created a greater response from the government, NGOs, and press than the issue of coal). And in both Mae Moh and Prachuab Khiri Khan, the focus on "lignite" as the main risk, rather than sulfur dioxide, plus the reluctance to discuss technological or management approaches, suggest that campaigners were opposed to industrialization in general, rather than seeking a more sensitive inclusion of workers within industrialization.

Describing Liberation Ecologies in 1996, Peet and Watts (1996:37, 34) wrote that: "as well as being practical struggles over livelihood and survival, [movements] contest the 'truths,' imaginations, and discourses through which people think, speak about, and experience systems of livelihood… Rather than 'speaking for' subaltern peoples, the idea is… to allow discourses to speak for themselves." Yet, the cases presented in this Chapter suggest that there is no necessary and progressive link of supposedly "local" knowledge to policy processes via social movements. Instead, constructions of risk emerge

pragmatically and haphazardly according to which tactics seem to advance local causes most rapidly, and their interaction with the agendas of more powerful actors in the middle classes or at the national level. It is important to note that this does not imply the hazards associated with lead and lignite are insignificant (they remain serious risks), but that the ways they are seen and invoked by citizens do not necessarily indicate the ways in which they actually cause illness. Moreover, these discourses may also imply a lack of attention to other, potentially more serious threats, such as solvents (Forsyth, 1999).

So, how can we overcome these problems within Liberation Ecologies of seeking a more successful determination of environmental discourse by marginalized people? Perhaps this is something more challenging to the brown environmental agenda, as risks are often new and uncertain, and expertise is often poorly established or mistrusted. It is interesting to note that the activists at Prachuab Khiri Khan used the rejection of expertise as part of their campaigning tactics: first by refusing a public hearing, and then by attacking academics conducting tests on the reef. Furthermore, the existence of health problems does not always indicate a clear cause from industrial sources. Stark headlines such as "*Nosebleeds don't lie,*"[xix] in relation to Mae Moh, may show the existence of health problems, but do not prove what causes nosebleeds, and it is all too easy to use such evidence to support populist environmentalism.

State capacity for examining material causes of industrial risks is clearly poor in Thailand. The Thai government closed down NIOEM, and is only belatedly recreating its expertise in this area. Yet, there are also questions about how to address industrial risks.

Measurements of simple biophysical properties in air and water – such as those conducted at Seagate after the removal of Orapan – are insufficient to indicate the vulnerability of different people, or the workplace practices that put people at risk. Similarly, Mae Moh power station has a notice proudly displaying its ISO14001 compatibility. The government was also happy to accept the initial EIA conducted at Prachuab Khiri Khan that overlooked the coral reef. Such certifications of environmental quality only scratch the surface of local environmental concerns, and indicate the need for more in-depth, trusted forms of environmental expertise that make people feel listened to.

The Thai government has put great emphasis on public hearings as the means to address such environmental conflicts as Prachuab Khiri Khan or Lamphun. Yet public hearings to date have been considered formal and intimidating affairs, and with the suspicion that they are designed to legitimize foregone conclusions, rather than shape new decisions.[xx] There is a need for a better form of public hearing, which seek to filter the information of every stakeholder, and not fall victim to hegemonic discourses that each stakeholder may wish to repeat. Perhaps the theoretical model could be Latour's (1993:142) "parliament of things," where the importance of trust is recognized, and where risk is seen as diverse and institutional. Risks can be institutional in the sense of the circumstances of its creation – for example, lignite need not always be poisonous if adequate dispersion and filtering technology exist – and by focusing on who is at risk and how, rather than relying only on simple biophysical tests of air and water. Yet, risk can also be addressed by building a process of addressing grievances in an accessible and transparent way, rather than by the decisions of distant bureaucracies (see Irwin, 1995; Wynne, 1996). Social

movements may be a crucial means to bring topics of concern to public attention. But a more involved process of governance is needed if controversies are to address the causes of risk to the most poor and vulnerable.

Conclusion

Despite the need to increase local determination and participation in environmental policy, nothing is as easy as it seems. The Liberation Ecologies approach – if adopted in simple terms – may repeat this error. While Escobar is right to say, "We need new narratives of life and culture. These narratives will likely be hybrids of sorts; they will arise from the mediations that local cultures are able to effect on the discourse and practices of nature, capital, and modernity" (see Escobar 1996:65), this Chapter suggests he is optimistic to conclude, "this is a collective task that perhaps only social movements are in a position to advance."

One important lesson from this Chapter is to assess the tensions between social movement theory and the search for greater representation of local livelihoods. Liberation Ecologies has focused on social movements, and political ecologists in general have examined the resistance of social groups against exploitative development. Yet, there seems to be an inadequate explanation of how far social movement theory – based so much upon environmentalism as a *new* social movement – may be able to combine positively with local livelihood struggles, where the material and class conflicts are much

more consistent with *old* social movements. As Offe (1985:833) famously wrote, new social movements are "typically a politics *of* a class but not *on behalf of* a class" (emphasis in original), and hence seek to assist society in general. Yet, in seeking to assist livelihood struggles against oppressive states and industry, middle-class activists may lose sight of the material risks faced by the poor. In Thailand, the discourses of lead and lignite pollution are indeed "critical" in seeking to criticize the state. But they have ended up becoming hegemonic constructions of reality that may not help those most vulnerable to industrialization.

Consequently, there is a continual need to reassess how far environmental activism based on social movements may implicitly adopt stereotypically middle-class approaches to nature – i.e. concerns about industrial society and lost wilderness in general – rather than an approach to nature that acknowledges social diversity, and seeks a more inclusive access to development by people who are currently excluded. Indeed, Enriqué Leff has already made this point:

> There is a need to establish a concept of nature that is appropriate for the building of socialism based on the social use and democratic and participatory management of the environment viewed as a resource base, means of production, and condition of existence, which in turn determines different production life-style patterns (Leff, 1995:143).

Yet, this new sense of nature can only be achieved by acknowledging the science–policy dimensions of political ecology, and the ways political activism, environmental

discourses, and constructions of reality are coproduced. This Chapter has shown how social movements have adopted or reshaped local experiences of risk in order to fit into pre-existing discourses of resistance to the state. Relying on social movements alone as a method of "liberation" may therefore overlook how diverse interests may eclipse and simplify local livelihood issues, or even place anti-developmentalism – in a general sense – before a greater sharing in development by the poor. Being aware of these tendencies; adopting even more critical stances to all environmental discourses; and seeking more inclusive and in-depth means of problem solution, may be the best ways to ensure social movements do assist livelihood struggles.

Acknowledgement

This research was funded by the Economic and Social Research Council of the UK, grant number R000 22 2245: "The local and the global environmental knowledge and social movements in Thailand."

References

Covey, J. (1995) "Accountability and effectiveness in NGO policy alliances," pp. 167-182 in Edwards, Michael and Hulme, David (eds) **Non-Governmental Organisations –Performace and Accountability: Beyond the Magic Bullet**, London: Earthscan.

Enzensberger, H. (1974) "A critique of political ecology," **New Left Review** 84: 3-31.

Escobar, A. (1996) "Constructing nature: elements for a poststructural political ecology," pp. 46-68 in Peet, R. and Watts, M. (eds) **Liberation Ecologies: Environment, Development, Social Movements**, London: Routledge.

Forsyth, T. (1994) "Shut up or shut down: How a Thai health agency was forced to close when it challenged a major foreign investor," **Asia, Inc**. 3:4, April 1994, pp. 30-37.

Forsyth, T. (1999) "Environmental activism and the construction of risk: Implications for NGO alliances," **Journal of International Development** 11:5 687-700.

Forsyth, T. (2001) "Environmental social movements in Thailand: How important is class?," **Asian Journal of Social Sciences** 29:1 35-51.

Forsyth, T. (2003) **Critical Political Ecology: The Politics of Environmental Science**, London and New York: Routledge.

Giddens, A. (1994) **Beyond Left and Right: The Future of Radical Politics**, Cambridge: Polity.

Hajer, M. (1995) **The politics of Environmental Discourse**, Oxford: Clarendon.

Hirsch, P. (1997) "The Politics of Environment: Opposition and Legitimacy," pp. 179-195 in Hewison,. K. (ed), Political Change in Thailand: Democracy and Participation, London: Routledge.

Irwin, A. (1995) **Citizen Science: A Study of People, Expertise, and Sustainable Development**, London: Routledge.

Jasanoff, S. (1999) "The songlines of risk," **Environmental Values** 8:2 135-152.

Latour, B. [1991] (1993) **We Have Never Been Modern**, Hemel Hempstead: Harvester Wheatsheaf.

Leff, E. (1995) **Green Production**, Thousand Oaks: Sage.

Lohmann, L. (1999) **Forest Cleansing: Racial Oppression in Scientific Nature Conservation**, The Corner House Briefing 13, The Corner House: Sturminster Newton, UK.

Nart Tuntawiroon (1982) "Environmental impact of industrialization in Thailand," **Contemporary Southeast Asia** 4:3 369-380.

Nash, R. (1973) **Wilderness and the American Mind**, New Haven: Yale University Press.

Offe, C. (1985) "New social movements: challenging the boundaries of institutional politics," **Social Research** 52:4 817-868.

Peet, R. and Watts, M. (eds) (1996) **Liberation Ecologies: Environment, Development, Social Movements**, London: Routledge.

Prasert Kitsuwannarut (1999) "Public participation in the Mae Moh dispute, Lampang," paper presented at the conference, **Public Participation in Energy Policy**, Sponsored by Chulalongkorn University and the Thai-Danish Sustainable Energy Program, Chulalongkorn University, Bangkok, May 1999.

Ruether, R. (1972) **Liberation Theology: Human Hope Confronts Christian History and American Power**, New York: Paulist Press.

Suwanna Ruangkanchanasetr and Chaiphan Santikarn (1994) "Lead poisoning – a severe threat to the nation's health," **TDRI Quarterly Review** 9:1 21-27.

van der Sluijs, J., van Eijndhoven, J., Shackley, S. and Wynne, B. (1998) "Anchoring devices for science in policy: the case of consensus around climate sensitivity," **Social Studies of Science** 28:2 291-323.

Walker, A. (2001) "The Karen Consensus: ethnic politics and resource-use legitimacy in northern Thailand," **Asian Ethnicity** 2:2 145-162.

Wiesenthal, H. (1993) **Realism in Green Politics: Social Movements and Ecological Reform in Germany**, (edited by J. Ferris), Manchester: Manchester University Press.

Wynne, B. (1996) "SSK's identity parade: Signing-up, off-and-on," **Social Studies of Science** 26:2 357-391.

---

[i] Reported in *Asia, Inc.* magazine, December 1995.
[ii] The Dhamanaat Foundation
[iii] The identity of the NGO and speaker are kept anonymous in order not to attribute too much importance to this rather ridiculous assertion.
[iv] Bangkok Post, Jan 22, 1970
[v] Bangkok Post, September 5, 1971
[vi] Bangkok Post, June 19, 1970
[vii] "Lead pollution: a long-neglected problem," Bangkok Post, August 22, 1989
[viii] National Institute for the Improvement of Working Conditions and Environment
[ix] The incident is in some respects similar to a reported event in 1973 when environmentalists accused the Japanese Asahi company of discharging mercury from its caustic soda plant in Thailand. The Ministry of Health measured a discharge of 2.718 ppm in surrounding water, whilst the Ministry of Industry measured just 0.003 ppm. It was later revealed that the Ministry of Health collected samples by boat at night without warning, but the Ministry of Industry announced its arrival well in advance and arrived punctually at the front gate of the factory (Nart, 1982:371).
[x] Bangkok Post, 27 May 1994
[xi] Bangkok Post, May 11, 1999. The tests showed that 119 of 150 sampled had readings above these levels.
[xii] Bangkok Post, Aug 13, 2001
[xiii] Bangkok Post, May 6, 1999
[xiv] Bangkok Post, Mar 20, 1994
[xv] Bangkok Post, Jul 24, 1998
[xvi] Bangkok Post, Dec 17, 2000
[xvii] "Black Coal is safe, says ambassador," Bangkok Post, Mar 8, 1999
[xviii] Bangkok Post, Sep 30, 2001
[xix] Bangkok Post, Dec 17, 2000
[xx] There is insufficient space to discuss Thailand's public hearings in full. One notable historic hearing concerned the protests of the Ban Krua Muslim settlement in Bangkok against the construction of an expressway, which involved success episodes of negotiation between different state agencies in the 1980s and 1990s.