



Environmental Compliance and Enforcement in Thailand:

Rapid Assessment

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**THAILAND COUNTRY ASSESSMENT:
ENFORCEMENT AND COMPLIANCE PROGRAM**

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1. ABBREVIATIONS AND ACRONYMS

BMA	Bangkok Metropolitan Administration
DEQP	Department of Environmental Quality Promotion
DIW	Department of Industrial Works
DMR	Department of Mineral Resources
DoF	Department of Fisheries
DoH	Department of Health
DOLA	Department of Local Administration
EF	Environmental Fund
EIA	Environmental Impact Assessment
FTI	Federation of Thai Industries
IEAT	Industrial Estate Authority of Thailand
LAO	Local Administrative Organization
LGA	Local Government Authority
MoAC	Ministry of Agriculture and Cooperatives
MoE	Ministry of Energy
MoF	Ministry of Finance
MoI	Ministry of Industry
MoInt	Ministry of Interior
MoPH	Ministry of Public Health
MoNRE	Ministry of Natural Resources and Environment
MoTC	Ministry of Transport and Communications
NEB	National Environment Board
NEQA	Enhancement and Conservation of National Environmental Quality Act
OAG	Office of the Attorney General
OECD	Organisation for Economic Co-operation and Development
ONEP	Office of Natural Resources and Environmental Policy and Planning
PCD	Pollution Control Department
RFD	Royal Forest Department
RTG	Royal Thai Government

A. BACKGROUND AND CONTEXT

1. Environmental Challenges

Rapid urbanization and industrial growth have had significant impacts on Thailand's natural environment. According to the State of the Environment for 2002 developed by the Royal Thai Government (RTG), degradation of the natural environment continues largely unabated due to "natural disasters, impacts from human activities, and inappropriate environmental management." The report specifically cites Bangkok's air quality as a pressing concern, and the worsening water quality of Thailand's rivers. Hazardous waste management remains an on-going challenge, since an estimated 70% of the hazardous waste goes untreated.

One major continuing environmental challenge facing Thailand is air quality in urban centers. While the phasing out of leaded gasoline has led to dramatic reductions in lead levels, particulate matter caused in large part by diesel-powered buses and trucks remains a significant health threat. According to the World Bank, the total cost of exposure to particulate matter in six Thai cities for excess deaths and bronchitis is approximately US\$644 million.

Worsening water quality also remains a significant challenge. Most industrial wastewater goes untreated, municipal wastewater treatment capacity is less than thirty percent of all households, and agricultural run-off continues to increase, resulting in serious degradation of all major waterways. Again, according to the World Bank, in 1999 health costs from diarrhea, dysentery and typhoid were estimated to cost US\$23 million.

Perhaps the most pressing challenge facing Thailand is the proper management and disposal of hazardous waste. Less than a quarter of hazardous waste produced in Bangkok is treated by licensed facilities, raising questions about the disposal of the remaining waste and the resulting environmental contamination of land and groundwater resources. On-going illegal dumping of industrial wastes and subsequent contamination in the province of Korat illustrates how slowly authorities have responded to these extensive environmental challenges. To further compound this issue, development of necessary waste treatment facilities is not planned for the near term, due in large part to difficulties in project siting. Strong and often violent community opposition to proposed projects has led to significant delays in infrastructure development.

2. National Policies

In response to environmental challenges over the last two decades, Thailand has developed increasingly progressive policy mandates that have aimed to strengthen legal frameworks, institutional arrangements and environmental management capabilities. Both the *Ninth National Economic and Social Development Plan* and the *National Policy and Prospective Plan for the Enhancement and Conservation of National Environmental Quality: 1997-2016* set forth specific policy areas, strategies and targets that mandate action by public agencies, local communities and citizens.

A major driver for improved policies and practices is the 1997 Constitution, which guarantees citizens a number of fundamental rights related to managing and conserving natural resources and the environment (Section 46), participating in environmental decision-making (Sections 56 and 79), and receiving information about projects and activities that may affect the environment (Section 59). Moreover, the Constitution provides that local government has the duty to promote and maintain the quality of the environment in their decision-making (Section 290).

The 1997 Constitution also establishes new institutions that have new authority to promote improved environmental management. On the legislative side, the first elected Senate in Thailand now investigates citizen environmental complaints and recommends action by the government. On the judicial side, the Administrative Court has handed down landmark environmental decisions, sending a strong signal to agency officials on the importance of transparency and accountability. The Supreme Court also recently established an environmental chamber to handle environmental cases, and is working to establish new court policies and practices for environmental cases, aiming toward the eventual creation of a specialized environmental court.

Most reforms, however, affect national and local administrative agencies. As part of the Public Sector Reform Program, the RTG established the Ministry of Natural Resources and Environment (MoNRE), which consolidates and rationalizes a wide range of environmental functions from across many ministries, and strengthens the role of regional offices to provide training and information to provincial and local governments. Local governments also have increased responsibility for managing their own environment, improving environmental infrastructure, and involving their citizens in environmental decision making.

3. Legal Framework and Institutions

Thailand has some 67 laws and regulations governing environmental and pollution control management and related issues on city planning, waste disposal, forest conservation, land allocation, groundwater usage, and irrigation (see Appendix A for major laws). Most of these laws were enacted or amended in 1992, a watershed year in Thailand that led to the Enhancement and Conservation of the National Environmental Quality Act (NEQA). This law set forth minimum pollution standards to harmonize the different standards implemented by government agencies, and filled the gap whenever agencies failed to prescribe standards for point source pollution control under other laws.

Other laws amended in 1992 include the Factory Act, Public Health Act, Hazardous Substances Act, and Public Cleansing Act, which delegated legal authority to several ministries, each with a different mandate. Six ministries share authority depending on jurisdiction: Ministry of Natural Resources and Environment, Ministry of Industry, Ministry of Interior, Ministry of Public Health, Ministry of Transportation, and Ministry of Agriculture and Cooperatives (see Appendix B). One result of this patchwork of laws is a somewhat fragmented environmental regulatory system with no single legal authority ultimately responsible for managing and protecting the environment.

Enhancement and Conservation of the National Environmental Quality Act of 1992 (NEQA)

NEQA established Thailand's three principal public sector agencies under the Ministry of Natural Resources and Environment (MoNRE) to develop and implement national environmental policies, plans and programs: (1) Pollution Control Department (PCD), responsible for developing standards, monitoring compliance and enforcement; (2) Office of Natural Resources and Environmental Policy and Planning (ONEP), responsible for setting national policies and administering environmental impact assessments; and (3) Department of Environmental Quality Promotion (DEQP), responsible for outreach and information dissemination.

NEQA also includes several progressive regulatory mechanisms, including stringent national environmental effluent and emission standards, establishment of the National Environment Board (NEB) as a Cabinet-level policy-making body, definition of pollution control sources and creation of Pollution Control Areas, the polluter-pays-principle, an environmental fund to assist polluters in controlling and eliminating their pollutants, and strict liability and penal provisions. In addition, NEQA created the Pollution Control Committee (PCC) chaired by the Permanent Secretary of MoNRE for the purpose of

formulating policies and plans, coordinating remediation of pollution problems, and prescribing possible pollution prevention measures.

The Factory Act of 1992

Originally enacted in 1969 but amended in 1992, the Factory Act regulates all matters related to the construction and operation of factories, including pollution control, and is administered by the Department of Industrial Works (DIW) of the Ministry of Industry (MOI). Specifically, under the Factory Act, DIW is required to establish, monitor, and enforce national environmental effluent and emissions standards that are incorporated into factory operating permits. The Act does not apply to all factories; it only covers those that use “machinery equivalent to five horsepower or more, or that employ[] seven or more workers for manufacturing, producing, assembling, packing, repairing, maintaining, testing, improving, processing, conveying, storing or destroying anything included in the classes or types of factories listed in the Ministerial Regulations.”

While NEQA includes “factory” in the definition of “point source,” NEQA recognized that primary oversight and enforcement authority of factories remains with DIW. Accordingly, DIW is responsible for monitoring and enforcing industrial factory pollution violations in Thailand.

The Public Health Act of 1992

According to the Public Health Act, two sectors are responsible for nuisance monitoring and control: local governments and the Department of Health. The role of local governments is to prevent and eliminate sources of nuisance and to set up regulations and conditions to be applied within their jurisdictions. Health officers operating under the Act are empowered to advise local governments in setting regulations and to conduct inspections of premises for nuisance. They are also required to conduct training programs for both local government and business proprietors in environmental management.

Pollution Control Department (PCD)

Under NEQA, PCD has the authority to set the criteria, methods and conditions for pollution management of solid waste, hazardous substances, water quality, air quality, noise and vibration levels; to assign Pollution Control Officers (PCOs) to investigate public complaints about pollution; and to establish fees, fines, and civil and criminal liability for violations of the law.

Notably missing from this authority is a mandate for PCD to enforce against polluters outside its jurisdiction, including most factories and industrial facilities. This responsibility rests with the Department of Industrial Works (DIW) and to a lesser extent the Industrial Estate Authority of Thailand (IEAT), which has primary jurisdiction over permitting, construction, operations, and enforcement of industrial estates.

For wastewater, PCD’s authority is limited to: (1) buildings (condominiums, hotels, hospitals, malls, office buildings, schools, fresh markets, and restaurants), (2) factories and industrial estates/parks, (3) land estates/housing estates, (4) pig farms, and (5) gas stations. For air emissions, PCD has limited jurisdiction over: (1) new power plants, (2) old power plants, (3) the Mae Moh power plant (4) stone crushing plants/mills, (5) municipal waste incinerators, (6) steel mills/plants, (7) infectious waste incinerators, (8) crematoriums, and (9) cement plants. As a result of this limited authority, some of the most polluting sources in Thailand are not regulated by PCD, but rather by DIW.

PCD’s organizational structure consists of nine offices and divisions, including the Office of the Secretary, Legal Division, Planning Analysis and Evaluation Division, Inspection and Enforcement

Division, Environmental Quality and Laboratory Division, Waste and Hazardous Substance Management Bureau, Water Quality Management Bureau, Air Quality and Noise Management Bureau and Management System Development Group.

PCD's compliance and enforcement efforts are largely centralized in the main Bangkok office. PCD's central office has approximately 300 staff, most of whom have technical backgrounds; 10 are lawyers in the Legal Division and 40 inspectors are in the Inspection and Enforcement Division. There are another 100 inspectors in MoNRE regional and provincial offices; however, most of them are untrained. The Minister of MoNRE recently appointed regional and provincial officers of MoNRE to become PCOs under NEQA. In evaluating the agency's overall capacity needs, PCD identifies its top two priorities as (1) increasing the number of staff at the national, regional, provincial, and local levels to check compliance and conduct inspections, and (2) providing legal training on laws and regulations.

PCD's entire budget for 2003 represented only 0.04% of the total government budget. Only about 18% of PCD's annual agency budget is allocated to the Inspection and Enforcement Division. In addition, because funds are fixed on an annual basis, the agencies cannot seek additional amounts in advance to conduct cost-intensive investigations or initiatives.

Department of Industrial Works (DIW)

As noted above, the amended Factory Act of 1992 delegates authority to MOI to regulate, oversee, promote, and support industrial operations in Thailand. As the implementing agency, DIW has the dual mandate of promoting and regulating industrial operations "to be in compliance with the integral industrial rules and laws for conservation of environment and safety."

DIW has primary jurisdiction over all 100,000 or so industrial operations not located within industrial estates. DIW has authority to adopt regulations governing the location, operation and production, protection of workers, and disposal of industrial wastes for factories. In addition, DIW has direct authority to issue construction and operating permits for certain qualifying factories, impose effluent and emission standards as part of some operating permits, impose self-monitoring reporting requirements, conduct inspections and to take samples, issue administrative orders, shut down operations, and file civil and criminal suits.

Organizationally, DIW has four bureaus located in Bangkok and offices in all 75 provinces. DIW supports these industrial provincial offices on environmental and safety issues. DIW is also responsible for supervising and regulating factories located in Bangkok.

DIW has 800 employees, 600 of whom are inspectors with technical training located in the central and provincial offices. Lawyers make up 4% of DIW's staff. DIW offers staff training courses approximately 2 to 3 weeks per year. According to DIW, its top two capacity needs are (1) more inspection equipment for safety, documentation, sampling and analysis, and (2) providing training on and quality assurance of sampling techniques.

B. SURVEY RESULTS

1. Legal Enforcement Authority and Institutional Arrangements

NEQA grants PCD monitoring and enforcement authority to inspect and issue administrative and civil actions against regulated point sources within its jurisdiction. In the end though, NEQA does not go far enough in terms of granting enforcement powers to MoNRE and its environmental and natural resources agencies, like PCD, over industrial pollution sources.

Instead, the Factory Act grants DIW primary enforcement authority over most factories, including imposing effluent and emission standards as part of some operating permits, requiring self-monitoring reports from certain factories, conducting inspections, taking samples, shutting down factory operations, and issuing administrative, civil, and criminal actions or penalties.

The result is overlapping authority between DIW and PCD, since PCD retains legal authority to inspect factories and assess compliance with the national effluent and emission standards. PCD cannot, however, directly enforce against those factories, except in rare circumstances when DIW fails to act. As a result of this overlapping and fragmented legal authority, no single ministry is responsible for environmental compliance and enforcement of all pollution sources in Thailand.

Despite Thailand's legal enforcement limitations, progress has been made with recent public sector reform and decentralization efforts. In response to the 1997 financial crisis, the Thai government has reorganized ministries to promote stronger leadership and coordinate more effective policy design and implementation. Most notably, in 2002, MoNRE was established to house both environmental and natural resources management functions.

This new ministry now faces the challenge of creating a more unified approach to environmental management and protection. This year, as part of its effort to implement its decentralization policy, MoNRE appointed pollution control officers from the regional and provincial offices to carry out environmental inspection and enforcement functions. Local governments eventually will play an important role in environmental compliance monitoring and enforcement.

Challenges

- ***The agency responsible for developing national pollution control policies, formulating environmental quality, emission, and effluent standards lacks enforcement authority***

Fragmented authority weakens Thailand's ability to enforce environmental requirements effectively. While PCD is responsible for developing the national policy on pollution control and formulating environmental quality, emission, and effluent standards, it lacks enforcement authority over all pollution sources. Rather, DIW retains primary jurisdiction for regulating pollution emissions from factories, despite its conflicting mission of promoting industrial growth.

- ***Incomplete decentralization of enforcement authority to regional, provincial, and local levels***

Despite the enactment of the Decentralization Act of 1999, environmental enforcement authority remains centralized at the national level. As a result of inadequate decentralization and capability promotion at the local level, environmental decision-making often does not adequately address the local situations, problems, and needs. There has, however, been recent progress to decentralize environmental functions.

2. Compliance Monitoring: Permitting, Inspections, and Self-Monitoring Requirements

Thailand lacks a single, coherent command-and-control system to regulate pollution sources. Without an environmental discharge permitting system or other similar approach, PCD relies on three methods to monitor environmental compliance with the regulated community: (1) reported public complaints, (2) regular on-site inspection visits, and (3) environmental reports submitted by facilities to other governmental authorities.

PCD's principal compliance monitoring efforts center on conducting on-site inspections, which are primarily in response to public complaints (see Appendix C for agency response procedures). Of the roughly 700 inspections PCD conducted in 2003, 500 were unannounced, citizen-initiated inspections. The remaining approximately 200 inspections were routine area- and type-specific inspections that were announced through industry representatives, including trade organizations or the Federation of Thai Industries (FTI). Since the majority of PCD's information comes from citizen-driven inspections rather than from self-monitoring reports from industry, PCD is unable to strategically target enforcement of significant violators or industrial sectors.

While DIW also does not have an environmental discharge permitting program, under the Factory Act DIW has authority to require construction and operation permits with some environmental requirements for factories not located within industrial estates. Not all factories, however, are required to obtain an operating permit. In addition, only operating permits for certain large-scale (Type 3) factories include an express condition requiring compliance with certain multi-media effluent and emissions standards for air, water, waste, and/or land media. These standards are based on the national limits established by the NEB pursuant to NEQA.

DIW regulations, in turn, direct Type 3 factories, as well as some highly polluting small- and medium-sized factories (Type 1 and Type 2 factories), to submit self-monitoring reports on a quarterly basis to ensure that specified emission and effluent limits are not exceeded. DIW estimates that some 2,500 factories (Types 1, 2 and 3) are required to provide self-monitoring data the agency per year pursuant to the regulations.

Challenges

- ***Lack of pollution discharge permit, license, or other requirements to control polluting activities***

Environmental laws in Thailand do not provide an overarching regulatory framework to control pollution sources, such as a discharge permitting system, license, or other mechanism. Without a permitting system or similar regulatory compliance instruments, PCD's ability to regulate pollution in Thailand is handicapped; regulatory agencies like PCD have no legal basis to enforce against operators who fail to comply with the specified protective effluent and emission standards that typically would be contained within each permit.

The primary basis for PCD enforcement is violation of national effluent or emission standards set by the NEB. Since there are no self-monitoring reporting requirements in effect, the only way PCD can monitor and enforce compliance is by conducting its own independent inspections, which in practice amounts to inspection of only 700 facilities per year.

While DIW's operating permitting system provides greater authority to monitor effluent and emission discharges, DIW's overall ability to monitor compliance is compromised since not all regulated factories require operating permits with express discharge limits. In these cases, the only legal basis for monitoring highly polluting non-permitted factories is to examine their self-monitoring data, followed by an on-site inspection.

- ***Fragmented authority on monitoring and inspection of various point sources***

With multiple agencies applying different inspection and monitoring procedures and requirements, officials tend to reach inconsistent conclusions and exercise broad discretion. There is also a lack of collaboration among agencies when performing inspections.

Most notably, there is limited interagency cooperation between PCD and DIW concerning the validity of environmental inspection protocol. When PCD identifies a violation during a site inspection of a DIW regulated factory and requests DIW to take legal action, many of PCD's recommendations are not followed in part because DIW does not rely on PCD's inspection reports and analyses. Instead, DIW conducts independent inspections applying its own procedures, which in practice provide an opportunity for the violator to return to compliance.

- ***Lack of standardized procedures for monitoring and inspection within agencies***

Even within these regulatory agencies, there are no standardized procedures for conducting monitoring and inspections. Neither PCD nor DIW has written manuals or protocols for conducting inspections, leading to inconsistency across agency inspectors. Without uniform procedures, agencies are also less effective in analyzing and targeting potential violators and setting priorities for industrial sectors.

In practice, monitoring and inspection is driven primarily by citizen complaints. Each agency also employs its own separate compliance monitoring procedures. PCD's inspectors, for example, have 60 calendar days to complete the full investigation, and then PCD typically notifies the citizen who submitted the complaint within seven days of the case being resolved. DIW has instituted similar yet different inspection procedures, requiring its staff to respond to complaints within three working days. DIW then conducts inspections of meritorious complaints, followed by a letter ordering the factory to remedy the potential violation within a specified timeframe.

- ***Limited implementation of self-monitoring, self-recordkeeping, and self-reporting requirements***

Section 80 of NEQA grants PCD statutory authority to require self-monitoring reports from regulated facilities with wastewater and air emission equipment. PCD is just now in the process of drafting a self-monitoring, self-reporting, and record keeping decree that would require the owner or possessor of point sources of pollution to submit monthly or quarterly reports on emission and effluent discharges.

DIW, on the other hand, already has self-monitoring and self-reporting regulations that require specific report forms, sampling methods, sampling points, and monitoring frequencies. The challenge facing DIW is to establish an approach for sharing this information with other agencies and to strategically target enforcement. DIW uses the data in the quarterly self-monitoring reports to update its industrial activities inventory database. DIW does not regularly share this information with PCD to enable joint inspections and enforcement actions.

- ***Lack of capacity at regional, provincial, and local levels to conduct monitoring and inspection***

With only 40 inspectors located in Bangkok responsible for all of Thailand, PCD's inspection and monitoring capability remains overly centralized and with limited capacity at the regional, provincial, and local levels. PCD is working, however, to appoint more Pollution Control Officers at the provincial level. DIW has somewhat increased capacity with some 600 inspectors throughout the country

Both PCD and DIW, however, lack routine training programs for inspectors and have inadequate laboratory facilities to analyze inspection samples. The potential for unreliable sampling data is significant given these factors, and will continue to be questioned and challenged by the regulated

community. To further compound capacity issues, both agencies have inadequate information management systems.

PCD Procedures Addressing Citizen Complaints

To handle citizen complaints, PCD has developed certain enforcement procedures. Once PCD receives a citizen complaint about a facility under its jurisdiction, the agency has 15 calendar days to decide whether or not to proceed with enforcement. PCD's Division Director reviews all new reported cases and then either assigns the case to one of four geographic subdivisions based on the location of the factory, redirects the case to another department or agency, including a local authority, or dismisses the case as unmeritorious. The inspector assigned to the case then has 60 calendar days to complete the full investigation, which includes everything from conducting the inspection and writing the inspection report, to sending out an administrative order to bring the violator into compliance.

During the investigative and information gathering process, PCD inspectors must complete and file standardized inspection report forms to their section leaders. These reports require information on the background of the complaint, facts of the investigation itself, and finally recommendations for agency action. In the recommendation section, PCD inspectors must make technical evaluations of the sample analysis, as well as legal assessments as to whether the facility has breached the law. PCD, however, has no written protocol to conduct inspections. In addition, there are no formal guidelines to target the number of inspections or to prioritize facility inspections.

Where a complaint reports a potential violation from a factory under DIW's jurisdiction, PCD follows the same procedures described above, with the notable exception that PCD has no enforcement authority. PCD can conduct a site inspection, but it can only issue an administrative notice to DIW requesting the agency to take action against the potential violator. To determine the status of the case, PCD waits two months before sending a follow-up letter to DIW. Once the case has been resolved, PCD typically notifies the citizen who submitted the complaint within seven days.

3. Compliance Assistance and Data Management

Compliance assistance includes any program activities designed to encourage voluntary compliance and is an essential component to any effective enforcement program. Both PCD and DIW, however, offer limited and unsystematic educational and technical outreach programs to the regulated community, though PCD has designed several programs to build public awareness projects and community queries during inspections and subsequent satisfaction surveys. On occasion, PCD publicizes successful enforcement stories on its website. PCD also is developing a positive public disclosure project that rates and publicizes factory performance. DIW, on the other hand, does not offer basic services, such as advice hot lines or media announcements publicizing success stories of best practices. DIW does have an environmental audit program to improve environmental management systems in small- and medium-sized factories as part of the ISO 14001 program.

As for compliance information management, PCD possesses an electronic database system that includes only basic information on inspected facilities, such as name and address of the facilities, general violation history, and the name of the PCD inspector who handled the case. Critical information, such as inspection reports, is filed in paper archives. DIW's database system is more comprehensive in that it tracks specific information on wastewater, wastewater generation, air, and industrial waste. DIW inputs information from the quarterly self-monitoring reports, inspections, as well as bi-annual reports submitted by all factories. DIW's greatest data gap is air and industrial waste given the lack of affordable technology to take these types of samples.

Challenges

- *Limited and unsystematic educational and technical outreach programs for compliance assistance*

Both PCD and DIW lack a comprehensive program for reaching out to the regulated community to promote improved environmental management capabilities. The agencies rarely offer technical assistance, training and information to the regulated community. And what efforts are directed towards outreach do not appear to be strategically connected to larger agency compliance and enforcement operations.

- ***Lack of a comprehensive program to promote voluntary compliance and to recognize facilities that have achieved compliance***

Neither PCD nor DIW has a comprehensive program to promote voluntary compliance and to publicly recognize facilities that have achieved environmental compliance. Existing efforts to collaborate with trade or industry associations, universities and media are limited. PCD does, however, feature some success stories of best practices on its website and its annual state of the environment report, and is developing a positive public disclosure program.

- ***Lack of national policy and practices to collect, manage and share environmental compliance information***

Thailand does not have a national policy directive aimed at the collection, management, and sharing of environmental information. With fragmented enforcement authority and no unifying information policy or system, there is minimal coordination among agencies to share data. DIW relies on self-monitoring reports to understand its regulated community. And yet, DIW does not regularly share this information with PCD. Agencies also lack an effective computerized system and staffing resources to store, access, and analyze data on pollution discharges at the national, regional, provincial, and local levels.

4. Enforcement Response

Under Thai law, environmental agencies have the authority to invoke a wide spectrum of enforcement responses that range from issuing a notice of violation to filing criminal charges. PCD, for example, can conduct inspections of regulated point sources under its jurisdiction (e.g., buildings, hotels, markets, pig farms, etc.), issue administrative orders, impose penalties and collect fines. Failure to comply with PCD orders may result in fines or criminal jail terms. Under NEQA, the Prime Minister also has the authority to exercise emergency powers, such as order immediate closure of regulated point sources.

Likewise, the Factory Act grants DIW authority over factories to conduct inspections and collect analytical samples, issue administrative orders, impose and collect monetary fines, temporarily or permanently shut down factories, and file criminal actions. In addition, under NEQA, in cases when DIW fails to act in response to PCD's notification of a factory violation and recommendation to take action, PCD can take enforcement action. To date, PCD has not exercised this authority.

While these two agencies are equipped with similar enforcement authorities, the actual legal trigger for such authority is different. PCD enforces compliance with national effluent standards set by the NEB. For DIW, however, operating permits for large-scale or Type 3 factories provide the legal basis of enforcement, since these permits include specific effluent and emission limits. DIW's self-monitoring regulations also extend agency enforcement authority over other factories that exceed the national discharge emission standards.

As a direct result of rising numbers of public complaints, PCD and DIW have developed enforcement response protocols to respond to these public requests. A PCD inspector, for example, has 60 calendar

days to complete the full investigation, which includes everything from conducting the inspection and writing the inspection report, to sending out an administrative order to bring the violator into compliance. Then PCD typically notifies the citizen who submitted the complaint within seven days of case resolution. DIW has instituted similar inspection procedures, requiring its staff to respond to complaints within three working days. DIW then conducts inspections of meritorious complaints, followed by a letter ordering the factory to remedy the potential violation within a specified timeframe.

In addition, NEQA includes a potentially very powerful enforcement response tool in the form of strict liability. Under Section 96, NEQA imposes strict liability on owners or possessors of point sources “who cause death, bodily harm or health injury or property damage to any private person or the State regardless of whether such leakage or point source contamination is the result of a willful or negligent act.” This provision has never been successfully applied in the courts.

Challenges

- ***Ineffective use or selection of existing enforcement tools, including administrative, civil, and criminal actions***

Despite a broad array of enforcement tools, in practice, both PCD and DIW almost exclusively rely on conducting complaint-driven inspections and issuing administrative orders, rather than imposing monetary penalties, or applying civil and criminal sanctions. PCD has rarely imposed administrative penalties on non-complying point sources. In addition, PCD has never relied on Section 82 of NEQA, which allows the agency to take legal action when DIW as the primary agency fails to do so. PCD also has not applied NEQA’s strict liability provision. As to DIW, to date, the agency has not monitored or enforced permitted EIA requirements, which are express requirements of factory operating permits.

- ***Over-centralization of enforcement and compliance functions reduces enforcement response capability***

Over-centralization of enforcement authority also has weakened the agencies’ overall enforcement response capabilities. From the central office in Bangkok, PCD’s 40 trained inspectors have responsibility for the entire country. Likewise, while DIW field offices retain compliance and enforcement functions, in practice this is a minor part of their overall duties.

- ***Inadequate response due to overlapping jurisdiction and lack of coordination between agencies***

Overlapping agency jurisdiction and limited cooperation between PCD and DIW contribute to inadequate enforcement responses. There are few formal mechanisms for cooperation between the agencies and their ministries. According to PCD, many of its enforcement recommendations to DIW are dismissed due to different enforcement priorities and a lack of interagency protocol to coordinate compliance and enforcement actions.

- ***Disproportionately weak sanctions to ensure compliance***

According to the survey, PCD and DIW officials observe that existing sanctions for civil administrative and judicial penalties are too weak to deter polluting conduct. Sections 90-92 of NEQA provide for minimal monetary sanctions amounting to only four times the daily costs of a facility’s operations. In addition, disobeying PCD’s order to install and operate wastewater treatment plants only results in punishment as stated in the criminal code law of a ten-day jail

term or 500 baht fine. With such minimal penalties for noncompliance, regulated facilities in Thailand have little incentive to comply with environmental laws.

A related problem is that some NEQA violations are not enforceable or punishable. For example, projects required to complete EIAs cannot be penalized if the owners refuse to do so because NEQA does not grant the authorizing agency, ONEP, actual enforcement authority.

- ***Lack of capacity and specialized knowledge among enforcement officials***

Both PCD and DIW identified a lack of knowledge of existing laws and regulations as an obstacle to effective enforcement. Similarly, other relevant officials, including police, prosecutors, inspectors, and judges also lack necessary knowledge, expertise, and experience on pollution examination and evaluation.

5. Public Participation in Environmental Compliance and Enforcement

The 1997 Thai Constitution guarantees public participation in environmental management through public involvement in environmental decision making, and community participation in natural resources management. Constitutional rights, however, can only be exercised through specific implementing laws or regulations. While some Thai laws and decrees strengthen public involvement in environmental decision making (e.g., Official Information Act, Administrative Procedure Act, Decentralization Act, and Public Consultation Regulations), Thai environmental laws and other requirements do not include specific provisions strengthening citizen involvement in environmental management, or more specifically enforcement. For example, although Thai environmental laws do not include a citizen-suit provision or a private cause of action for citizens to enforce the laws, citizens can file complaints with the agency or the Administrative Court.

Public complaints effectively dictate the inspection priorities of the agencies. In 2003, 500 of the 700 inspections PCD conducted were based on citizen complaints. According to the PCD, public complaints have steadily increased from 1998 to 2003. From 2002 to 2003 alone, the number of complaints rose 37%, in part due to additional channels to make complaints. Complaints were across a range of media, including air pollution (66%), water pollution (17%), noise pollution (10%), and waste and hazardous substance pollution (5%). Seventy percent of the complaints were for Bangkok, and 10% involved on-going unsolved pollution problems. Citizen complaints on environmental nuisance made to PCD and the Department of Health in the Ministry of Public Health have also risen.

Thai regulatory agencies recognize the benefits of strengthening citizen and community awareness in promoting compliance. PCD provides a hot line, a Web site and agency e-mail list, as well as publishes an annual state of the environment report, and publicizes success stories of enforcement actions.

Challenges

- ***Inadequate legal mechanisms to enable public participation in environmental management and pollution control***

Despite development of a range of policies and plans (Environmental Quality Management Plan, the Provincial Action Plan, the Action Plan for Reduction and Eradication of Pollution), there are limited tools and mechanisms for enabling meaningful public participation. While there are some legal avenues for citizens to file administrative complaints and sue agencies, important legal tools that enable the public to file “citizen suits” or public interest litigation against potential violators

remain unavailable. Similarly, existing legal authority offers limited tools to support and enable citizen monitoring of regulated facilities.

- ***Limited government outreach efforts to promote public involvement in compliance monitoring and enforcement***

Despite NEQA, which grants the public special rights in assisting the government in environmental protection, and the Environmental Quality Management Plan of 1999-2006, which identifies specific strategies for strengthening public awareness, Thai implementing agencies have not yet developed comprehensive programs for promoting public involvement in environmental management, including compliance monitoring and enforcement. There is, for example, no effective program for promoting citizen or community participation in monitoring industrial pollution or compliance with EIA requirements.

- ***Limited access to complete and accurate information from agencies, facilities, and project proponents***

Accurate and available information is critical for citizen involvement in compliance and enforcement. While DIW has some capability to require factories to monitor and report environmental compliance information, PCD has only recently begun to develop a regulation requiring regulated facilities to self-monitor and self-report performance. Gaining access to information via the Official Information Act is both untested, and impractical.

On the positive side, in cooperation with provincial and local authorities, PCD has been piloting a public disclosure program to rate factory environmental management performance in the Songkhla Lake Basin, which is considered one of the most important marine resources in Southern Thailand. DIW, in turn, has recently instituted enforcement activities under the Factory Act against those factories PCD found to be in violation of national wastewater discharge standards during their inspections.

- ***Inadequate agency capacity to respond to public complaints***

Thai agencies also lack adequate staff and technical resources to respond to citizen complaints, especially related to large pollution discharge events or projects that result in significant public complaint or opposition. In addition, agencies often do not possess accurate information to counter incomplete or incorrect claims in the media.

6. Indicators to Evaluate Program Success

Effective compliance and enforcement programs measure their success using performance indicators that measure outputs (e.g., number of inspections, enforcement actions, penalties collected, corrective actions), outcomes (e.g., number of facilities in compliance, companies seeking assistance), or impacts (environmental pollution reduction attributable to enforcement actions). The purpose of developing these various environmental compliance and enforcement indicators is to monitor agency operations, enhance their accountability, and assess their performance in protecting public health and the environment.

Enforcement agencies in Thailand focus primarily on output, rather than outcome or impact indicators. For example, PCD tracks the number of enforcement cases initiated by citizen complaints, and the number of inspections and follow-up investigations conducted per year. DIW evaluates its performance based on similar limiting factors as PCD, including the number of notices of violations and enforcement actions, as well as the number of enforcement cases initiated by citizen complaints per year.

Just last year, Thailand established Rules and Procedures for Good Public Administration, which mandates the government to promote transparency and accountability, develop result-based management, and engage in regular evaluation. This national requirement will support environmental agency-led efforts to evaluate their own performance.

Challenge

- ***No indicators to measure environmental outcomes or impacts as a result of agency compliance and enforcement programs***

By not tracking outcome or impact indicators, Thailand does not adequately assess the overall effectiveness of its programs, since there is no clear link between the number of inspections conducted and the level of compliance in the regulated community or the state of the environment. These indicators alone fail to reveal increased compliance levels achieved by agency programs, as well as improved environmental conditions.

C. CONCLUSIONS AND RECOMMENDATIONS

Based on the survey results, Thailand should consider implementing a range of short-term and long-term reform measures to strengthen environmental compliance and enforcement. Proposed short-term measures will enable the agencies to rely on existing legal authority to promote change while long-term measures will require major legal reform and restructuring to fundamentally transform existing authority, capability and capacity.

Short-Term Recommendations

1. ***Need to exercise existing compliance and enforcement authority to target significant noncompliance***

As a first measure, agencies could significantly improve their enforcement responses by strictly enforcing existing environmental laws and targeting egregious violators. Both PCD and DIW already have substantive enforcement powers; and yet, the agency culture tends to steer officials away from exercising such existing authority in part due to a lack of precedent.

In particular, both PCD and DIW should establish separate agency practices for filing administrative orders and civil and criminal suits against violators. DIW also should encourage its officials and provincial governors to revoke operating permits and either temporarily or permanently close down factories that are repeat offenders, or intentionally refuse to obey agency orders. PCD should exercise its explicit enforcement powers under Section 82 of NEQA in cases where DIW as the primary agency fails to enforce against factories that violate national water discharge effluent limits or national air emissions limits. To avoid potential disputes between the agencies as to when PCD can exercise enforcement authority, the Cabinet should define what constitutes “failure to act” under Section 82 by resolution or by guidelines. Finally, PCD should impose strict liability against owners of polluting sources under Section 96 of NEQA.

In addition, the agencies should promulgate implementing regulations and policies to strengthen their existing authority. Recent efforts include PCD’s draft proposed regulations requiring regular self-monitoring reports from all facility owners with wastewater treatment and air pollution equipment.

2. *Strengthen overall coordination and cooperation between government agencies to improve compliance and enforcement*

A prerequisite to improved enforcement is close coordination and cooperation between responsible governmental agencies. Drawing on its existing authority under Section 13(11) of NEQA, the NEB could specify measures to foster interagency cooperation and coordination between PCD and DIW. Once interagency cooperation is formally established, PCD and DIW should develop joint policies for compliance monitoring and enforcement procedures to maximize limited resources and target specific industrial sectors or significant noncomplying facilities. To this end, the agencies should exchange and share data and use this information to direct joint enforcement actions.

3. *Develop uniform compliance monitoring and enforcement procedures to promote decentralization and more consistent enforcement responses at all levels*

As Thailand works towards decentralizing environmental authority to the regional, provincial and local levels, PCD and DIW should establish uniform procedures and protocols to conduct inspections, evaluate scientific data, target potential violators or industrial sectors, issue construction and operating permits, and carry out all agency functions. By establishing uniform agency-to-agency inspection procedures, DIW, for example, could more readily accept the findings of PCD's inspection reports of potential violators under its primary jurisdiction. Such measures will help establish improved consistency and fairness in monitoring and enforcing environmental laws. At the local level, these officials should also strengthen their enforcement of existing land-use and zoning laws as they work with the central agencies to enforce national environmental laws.

4. *Improve compliance assistance by developing strategic outreach programs for the regulated community*

Given their limited financial and human resources, PCD and DIW should work together to strengthen activities to promote compliance by the regulated community, such as sharing best practices on chemical use and disposal, requiring self-monitoring and reporting, and improving permitting. Greater awareness and knowledge can contribute to improved management and production of regulated facilities and assist owners and operators to better address potential facility risks and emergencies. Moreover, promoting education and providing technical assistance are essential tools in laying the groundwork for voluntary compliance.

5. *Strengthen overall public participation by providing access to information and by publicizing positive developments on enforcement actions and facilities in compliance*

Thai regulatory agencies must comply with existing laws that provide the public access to information. Agencies also benefit from increased public participation, as the public assumes a greater stewardship role in monitoring and enforcing environmental laws.

To promote improved public perception of their efforts, the agencies should also improve their enforcement records and provide more frequent communications to the public about agency enforcement actions and policies as well as success stories. By publicizing strong enforcement actions, the agencies will help strengthen the environmental deterrent within the regulated community. In addition, the agencies should highlight win-win partnerships with regulated entities that voluntarily achieve compliance.

6. *Increase the environmental knowledge and expertise of agency officials, police, prosecutors, inspectors, investigators, and judges at the national, regional, provincial, and local levels*

Since effective environmental enforcement depends on knowledgeable and well-trained authorities, governmental agencies must provide on-going specialized training on environmental laws and regulations to agency officials, police, prosecutors, inspectors, investigators, and judges at all levels. Building institutional capacity and decentralizing compliance and enforcement functions will require commitment to train and empower local officials to control pollution.

7. *Develop outcome- and impact-related indicators to evaluate agency performance*

In addition to relying on existing output indicators, both agencies must identify outcome- and impact-related indicators to evaluate their overall performance and assist in setting program priorities. Ideally, both agencies could collectively agree upon the same set of factors as part of a larger coordinated approach to environmental enforcement.

Once these performance indicators are developed, PCD and DIW should regularly and systematically collect, update databases, and share relevant enforcement information with each other. Such coordination will be essential to improve coordination between different ministries. As decentralization efforts continue, PCD will also have to better coordinate with MoNRE's regional, provincial and local offices to collect compliance and enforcement information on a regular basis. DIW already is experiencing difficulty in collecting similar information from its 75 provincial offices. For example, unless it calls all 75 offices, DIW has no statistical information about the number of complaints it receives within a given year.

Long-Term Recommendations

1. *Need legal reform to establish a single ministry responsible for environmental compliance and enforcement*

To address Thailand's existing fragmented environmental authority, radical legal reform is ultimately needed to establish authority within a single ministry for environmental compliance and enforcement. By placing environmental jurisdiction and enforcement powers under one roof, Thailand could develop uniform national policies and procedures and more effectively regulate and enforce all pollution sources without conflicts of interest. Legal reform could also create a single coherent regulatory system that would promote pollution prevention, fair competition among industry, as well as public participation compliance and enforcement.

2. *Continue to promote decentralization and empower regional, provincial, and local officials with increased enforcement responsibilities and functions*

Strong and effective decentralization ultimately will require a long-term commitment of significant resources to hire more environmental officials and to properly educate and train staff about compliance and enforcement procedures.

3. *Develop creative financing arrangements and/or economic incentives to encourage environmental compliance*

At the same time agencies pursue increased enforcement, they must also develop creative financing arrangements and economic incentives to encourage compliance among the regulated community. Such economic incentives could include pollution charges, tax reductions for developing and marketing “green” products or rebates for installing cleaner production technology.

4. *Amend legislation and policies to promote public participation and to establish meaningful sanctions that deter potential violators*

To further enhance public participation, Thailand should strengthen legislation to provide either citizen suit provisions or public interest litigation. An effective citizen suit provision, for example, would have relaxed organizational standing requirements, shift the burden of proof to defendants, and provide for future damages and class action options.

To deter potential violators, Thailand should also consider passing an environmental criminal statute with meaningful sanctions that economically hurt facilities for intentionally violating the law. In addition, Section 96 of NEQA must be amended to (a) grant delegated agencies like PCD full legal authority against all violators so that it can invoke civil or criminal penalties, and (b) include foreseeable future damages in addition to damages directly caused by pollution exposure or contamination.

Appendix A: Primary Environmental Legislation and Responsible Ministries

Legislation	Regulated Activities	Resource	Regulatory Approaches	Responsible Agencies
Enhancement and Conservation of the National Environmental Quality Act (NEQA) of 1992	<p>Prescribes emission or effluent standards for the control of wastewater discharge, polluted air emissions, or discharge of other wastes or pollutants from point sources into the environment. (Section 55 & 56)</p> <p>Regulates specified point sources for discharges into the water or air based on effluent standards.</p> <p>Specifies the types of pollution point sources. (Section 68 & 69)</p> <p>Requires owners or possessors of point sources of pollution to submit data on the daily functioning of their operations. (Section 80)</p>	Air Water Solid & hazardous waste	<p>Command and control</p> <p>Voluntary Measures</p> <p>Pollution Prevention</p> <p>Strict Liability</p> <p>Natural Resources Damage</p> <p>Ambient standards</p> <p>Performance standards</p> <p>Product or use bans?</p>	<p>MoNRE</p> <p>PCD, ONEP, DEQP, DNP, DMR, DMCR, DWR, DGR</p>
The Factory Act of 1992	<p>Requires regulated factories to submit construction and operating permits.</p> <p>Requires multi-media self-monitoring reports on a quarterly basis.</p> <p>Limits level of effluent discharged and restrict concentration levels of chemical and/or metal pollutants</p> <p>Authorizes PCD to establish standards and criteria to control factory operations, specially the standards and methods to control the disposal of waste, pollution or any contaminants caused from factory operation that impact the environment.</p>	Air Water	<p>Command and control</p> <p>Voluntary measures</p> <p>Pollution Prevention</p> <p>Performance standards</p> <p>Reporting requirements</p>	<p>MOI</p> <p>DIW</p> <p>PCD</p>
Public Health Act of 1992	<p>Prescribes the collection, transportation, and disposal of solid waste to be administered by local administrations and local laws</p>	Solid waste	Command and Control	MoPH
Hazardous Substance Act of 1992	<p>Describes hazardous substance control criteria for import, production, transportation, consumption, disposal and export to minimize the influence and danger to humans, animals, plants, property, and/or the environment.</p> <p>Categorizes hazardous substances into 4 types, establishes the Hazardous Substances Information Center to coordinate with other government agencies on hazardous substances information and stipulation of the criteria and methods to register hazardous substances.</p>	Solid & hazardous waste	<p>Command and control</p> <p>Practice standards</p>	MOI
Energy Conservation Promotion Act of 1992	<p>Promotes efficient energy consumption.</p> <p>Authorizes DoE to regulate, monitor and inspect factories to ensure efficient energy utilization; advise and assist businesses to achieve energy conservation; and evaluate the performance of designated factories.</p>	Energy	<p>Command and control</p> <p>Performance standards</p> <p>Reporting requirements</p>	MoE

Legislation	Regulated Activities	Resource	Regulatory Approaches	Responsible Agencies
Building Control Act of 1979	Regulates the discharge of water pollution from buildings	Water	Command and control	MoInt Decentralized implementation to LGAs
Navigation in Thai Waterways Act (Vol 14) as amended in 1992	Prohibits dumping of any refuse, including oil and chemicals into rivers, canals, swamps, reservoirs, lakes, or waterways that may pollute the environment or disrupt navigation in Thai waterways	Water	Command and control	MoTC Successful cases against polluters frequently brought under this legislation.
Cleanliness and Tidiness of the Country Act of 1992	Prohibits dumping of refuse in waterways	Water	Command and control	LAOs Decentralized implementation to LGAs
City Planning Act of 1975	Designates zoning of land use, provides notice and comment to citizens prior to land designations	Land	Command and Control	MoInt, MoAC, MoI, MoTC, BMA
National Forest Reserve Act of 1964	Prohibits logging in national reserve forests, as well as the removal or destruction of any flora or fauna. Prescribes agencies forestry management practices.	Forest	Command and Control	MoNRE, RFD
Penal Code of 1956	Prohibits adding harmful substances in water resources reserved for consumption	Water	Command and control	OAG (Infrequently used)
Land Act of 1954	Allows the issuance of land titles	Land	Command and Control	MoInt

Appendix B

Organizational Chart listing powers and authorities

The National Environment Board (NEB) is the central environmental governing body in Thailand. Several other ministries also play key environmental roles.

The Ministry of Natural Resources and Environment (MoNRE) is responsible for environmental policy, planning and quality issues, and implements the NEB's environmental mandate. MoNRE's principle environmental agencies include the Office of Natural Resources and Environmental Policy and Planning (ONEP), the Pollution Control Department (PCD), and the Department of Environmental Quality Promotion (DEQP).

The Ministry of Industry (MOI) is responsible for promoting and regulating pollution control of individual industrial factories. The ministry is comprised of the Department of Industrial Works (DIW), Office of Industrial Environment Management, and Industrial Estate Authority of Thailand (IEAT).

The Ministry of Public Health (MoPH) is responsible for overseeing the promotion and delivery of health services throughout the country.

The Ministry of Interior (MoInt) is responsible for overseeing local governments including the Bangkok Metropolitan Administration (BMA), which is instrumental in the upkeep of the city's environment and provision of basic services. The Department of Local Administration (DOLA) and the Department of Public Works (DPW) are other important local governments that serve to channel investments for environmental infrastructure.

The Ministry of Transportation (MoTC) is responsible for national planning and implementation of transport and highway infrastructure in Thailand. The Land Transport Department, which is under the Ministry of Transport, is taking part in the Clean Air Initiative for Asian Cities program, which aims to reduce vehicular emissions in Asian cities.

The Ministry of Agriculture and Cooperatives (MoAC) is responsible for overall management of agriculture and other key natural resources and habitats through its agencies including the Royal Irrigation Department, Department of Fisheries, Department of Land Development and the Agricultural Land Reform Office.