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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 9 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to pollcymakers.

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Tackling Industrial Pollution In Thailand – Can A Voluntary Approach Work?

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Thailand, like many developing nations, is facing a wide range of environmental challenges, many of which are caused by industrial pollution. The country has found that traditional command and control legislation is not effectively tackling this problem. It is therefore promoting various voluntary environmental programmes as a way for businesses to improve their environmental performance. To provide more →

A summary of EEPSEA Research Report No. 2010-RR1: 'Voluntary Environmental Programs in Developing Countries: An Examination of the ISO 14001 Environmental Management System Certification in Thailand' by Kanittha Tambunlertchai, from the Department of Land Economy, University of Cambridge.
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"ISO 14001 can help improve ....

Number of Manufacturing Enterprises by Factory Size, 2009

	Small	Medium	Large	Total
Number of Factories	132,794	10,335	3,623	146,752
Percentage	90.5	7.0	2.5	100.0

Source: Author's calculations using data from DIW webpage (www.diw.go.th)

→ information on the effectiveness of this approach, and to see how to maximise its impact, a new EEPSEA study – has assessed the implementation of one of the most popular voluntary environmental schemes, ISO 14001.

The study is the work of Kanittha Tambunlertchai from the Department of Land Economy, at the University of Cambridge. It finds that firms sign up to ISO 14001 for a number of reasons, the most important being the impetus provided by their management policies, the need to boost corporate image and the desire to be socially responsible. Having ISO 14001 in place can help companies improve their environmental performance. In some circumstances, it may also bring firms cost savings. In light of these findings and the positive light they shine on ISO 14001, the study proposes a number of policies to help firms to adopt the voluntary scheme. These include providing financial incentives and helping firms with training and provision of information and technical advice.

The environmental challenge in Thailand

Industrial activities in Thailand are concentrated in a few regions. These areas are Bangkok and its six surrounding provinces (the Bangkok Metropolitan Region – BMR), other provinces in the Central region, and the Eastern region of the country. Rapid industrialisation in these locations has resulted in the degradation of rivers and coastlines, and persistent industrial pollution problems. It has also been the root cause of many industrial accidents and illnesses, and has led to increasingly serious conflicts over natural resources taking place between industry and other users of the country's environment.

To combat this array of environmental problems, the government has adopted several tools. The most important of these has been the traditional command-and-control approach, in which legislation has been used to try and make industry clean up its activities. However, despite stringent regulations, monitoring and enforcement have been weak and key industrial problems such as pollution have not been properly addressed.

Due to the poor performance of existing environmental policy instruments, Voluntary Environmental Programs (VEPs) have emerged as a potential new approach; one that can supplement current regulations. VEPs are broadly defined as non-mandatory commitments that firms make to improve their environmental performance. One of the most widely adopted programs is the ISO 14001 environmental management system certification scheme. The Thai government has already attempted to promote the widespread adoption of ISO 14001 by both industrial and non-industrial organizations. Programs to promote the adoption of this certification scheme include the Department of Industrial Work's 'EMS for SMEs' program, which helps participating small- and medium-sized enterprises set up high-quality environmental management systems.

Do VEPs work?

Because they are relatively new, VEPs are not as well understood as other policy instruments in Thailand. It is therefore important to get a better understanding of their potential as an environmental management tool in the country. To contribute to this knowledge, Tambunlertchai's study assesses ISO 14001 in Thailand's manufacturing sector. The study focuses on three sectors in particular – food and beverages, textiles and clothing, and electronic and electrical appliances. These industries represent the three main types

companies' environmental performance."

of industrial activity found in the country. The main environmental impacts from these sectors are wastewater, smell, solid non-hazardous waste and toxic waste.

Primary and secondary data is used in the study. One key set of information came from the Office of Industrial Economics (OIE)'s Annual Industrial Survey. This survey has been on going since 2001 and includes data on approximately 4,000 manufacturing firms annually. A primary questionnaire was also used to get information directly. This survey was mailed out to approximately 4,400 firms. These included all firms listed as having ISO 14001 in the Thailand Industrial Standards Institute (TISI) database and about 4,000 non-ISO 14001 firms.

The survey yielded 495 complete responses – a response rate of 11.46%. Of these responses, 160 were from the food and beverage sector, 139 from the textiles and clothing sector, and 196 from the electronics and electrical appliances sector. Those firms that responded were of a wide range of sizes, from a wide range of locations and produced a wide variety of products.

Why do firms sign up to ISO 14001?

Out of the firms that responded to the survey, 187 firms (or 37.8%) had ISO 14001 certification. The most important factor that motivated a firm to take part in the ISO 14001 certification programme was management policy. For firms with foreign investment, the advice of their parent companies was also an important factor that led to the decision to adopt ISO 14001. Other motivating factors included the demands and requirements of importing markets, and the desire to gain a better corporate image. Government support, on the other hand, seemed to be a less important reason for adopting ISO 14001 certification across all three industrial sectors. It is interesting to note that consumer preferences were also of relatively little importance as a motivating factor. Thus, if ISO 14001 is to be successfully adopted, it is clear that a firm's management must first be convinced of its benefits, as the drive for adoption will not necessarily come from outside a company.

Various environmental benefits of ISO 14001 certification were outlined by the firms in the survey. For firms in the food and beverage industry, having ISO 14001 has helped them to comply with existing wastewater treatment laws. ISO 14001 has also helped firms to reduce water, soil and air pollution. The majority of firms with ISO 14001 reported that the system had helped them to improve various other aspects of their environmental performance, including reducing the amount of electricity, fuel, water and other resources they use. Having ISO 14001 certification has also allowed firms to comply with other environmental laws. In addition, it has helped firms to pay more attention to separating and recycling the waste from their production processes. Moreover, the adoption of ISO 14001 has been found to improve the image of a firm.

These findings indicate that having ISO 14001 in place are associated with better environmental performance. However, the study emphasises that this result does not offer 100% proof of a direct causal link between ISO 14001 adoption and environmental performance.

How to get companies to sign up to ISO 14001

When the cost implications of ISO 14001 were considered, it was found that ISO 14001

Responses to Primary Survey Questionnaire

	Responses	ISO 14001
Food and Beverages	160	47
Textiles and Clothing	139	23
Electronics and Electrical Appliances	196	117
Total	**495**	**187**

certification did not bring significant cost reductions. Overall the results in this area were somewhat inconclusive: some firms reported that they had been able to cut electricity, energy, water, and waste treatment costs. However, there were also firms for which ISO 14001 certification had, in fact, increased production costs.

To see what factors would encourage firms to sign up to ISO 14001, relevant companies were asked if they would apply for certification if incentives or financial measures were in place. Most firms without ISO 14001 replied that they would like to be provided with some form of financial support, such as tax reductions or low-interest loans. Other measures firms would like to see included the provision of information and advice and help to train personnel. Consultation from government and non-government agencies was also seen as a helpful way of encouraging ISO 14001 certification. However, such measures were not judged to be as important as the provision of financial incentives. It is clear that small- and medium-sized enterprises should be a particular focus for any such work because they need particular help to establish an ISO 14001 environmental management system.

Can the Government help?

Firms without ISO 14001 were asked why they did not sign up to the standard. Of the firms that replied, 69 said that they believed their production processes only have a minimal effect on the environment, 64 firms said that the certification costs are too high, and 56 firms said that they already had environmental management systems in place that were comparable to ISO 14001.

Firms in the survey found that the Thai government's approach to promoting ISO 14001 certification was largely unsatisfactory. However, some government agencies were thought of as helpful by a few of the firms. These agencies included the Department of Industrial Works (DIW) and the Thailand Industrial Standards Institute, both agencies within the Ministry of Industry. State universities were also seen as helpful by many firms.

Firms with ISO 14001 also benefited from the involvement of non-government organizations such as the Thailand Environment Institute (TEI), the Management System Certification Institute (MASCI), and industry-specific institutes. Thus, the cooperation of government and non-government sectors will be important if ISO 14001 is to be effectively promoted in Thailand.

Promoting ISO 14001

In conclusion, given the limited resources and tools for environmental management in Thailand, voluntary environmental programs such as ISO 14001 can potentially be useful, especially when the weak enforcement of existing regulations and the current lack of political will to enact and enforce more stringent environmental regulations are taken into account.

However, while the positive link between an improvement in environmental performance and ISO 14001 indicates the scheme's potential as an effective tool for environmental management, the study recommends that further studies need to be conducted in order to fully understand the link between ISO 14001 adoption and industrial environmental performance. The study concludes that, given the limited understanding of the environmental effectiveness of ISO 14001 certification and the lack of reliable environmental performance data in Thailand, ISO 14001 should be supported, but employed cautiously.

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