



# Survey of EMA-SEA Dissemination Activities 2006-2007

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## Results and Analysis

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EMA-SEA program – Environmental Management Accounting for small and medium-sized enterprises in South-East Asia

Program website: [www.gc21.inwent.org/EMAportal](http://www.gc21.inwent.org/EMAportal)

Main program partners:

InWEnt - Capacity Building International, Bonn, Germany ([www.inwent.org](http://www.inwent.org))

ASEP - Asian Society for Environmental Protection, Bangkok, Thailand ([www.asepinfo.org](http://www.asepinfo.org))

CSM - Centre for Sustainability Management at the Leuphana University of Lüneburg, Germany ([www.leuphana.de/csm](http://www.leuphana.de/csm))

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## 1 Introduction

The Environmental Management Accounting for small and medium-sized enterprises in South-East Asia (EMA-SEA) program fostered the implementation and dissemination of EMA in South-East Asian companies to promote sustainable business.

In terms of content, the program focused on the creation and continuous application of suitable EMA training materials and on the transfer of know-how and skills in the field of EMA through EMA training sessions and company projects. To support this, trainings of resource persons, who multiply the learning process and the implementation and application of easy-to-handle EMA methods in different enterprises were conducted in 2006. These seminars were called Training of Trainers (TOT).

The program funding ran from November 2003 to March 2008 and was provided and managed by InWent (Capacity Building International, Bonn, Germany) on behalf of the German Ministry for Economic Cooperation and Development (BMZ). The Centre for Sustainability Management (CSM) at the Leuphana University of Lüneburg, Germany, developed and conducted seminars and further program activities as international partner. The program's geographical target area is the ASEAN region, particularly Indonesia, the Philippines, Thailand and Vietnam. The main regional partner of the program was the Asian Society for Environmental Protection (ASEP) from Bangkok, Thailand. Several local partner organisations supported the project implementation in the four target countries.

In all four countries, the trained resource persons have continued the dissemination of EMA after finishing their TOT seminars. They conducted about 30 EMA seminars funded by InWent. CSM coached these trainings and several non-funded implementation projects in companies.

Furthermore, the resource persons have started their own EMA seminars and implementation projects without further funding from InWent. To evaluate the outcome of the first two years of the EMA dissemination process (2006 and 2007), InWent commissioned a survey of the resource persons' EMA dissemination activities.

## 2 Methodology

In December 2007, following consultation with InWEnt, the CSM team compiled a written survey to review the EMA-SEA project. Following a revision and pilot process questionnaires were sent out by email. Two surveys were conducted, one for those participants who attended one of the Training of Trainer seminars and one for the Asian Partner institutions. The trainer's survey consisted of 6 sections. Part A asked general questions relating to the industry the respondents work in and their current job. Part B asked for specific details relating to the use of EMA in the respondent's work. The subsequent four sections asked specific questions relating to the respondent's work with EMA; part C1 related to consulting activities, C2 improvements in business using EMA, C3 EMA training activities and C4 academic and research work with EMA.

The partner's survey was much shorter and consisted of general questions relating to the partner's use of EMA and their impressions of the EMA-SEA project.

The reliability of the data might be limited by the fact that some of the respondents may have overexaggerated the financial savings they have created. On the other side some trainers who give many lectures or presentations may have forgotten some additional activities they have conducted.

We can not extrapolate the data of the financial savings of the consulting activities to apply to those who did not respond or provide quantitative data. It is likely that those people who did not provide precise financial details had insignificant or unquantifiable savings and thus averaging the data for the whole group would probably skew the results.

### 3 Respondents

The trainer survey was sent to 72 participants of the TOT seminars in 2006. Two out of these 72 EMA resource persons were not reachable, neither by email nor by phone. Thus the basic population consists of 70 addressees. The partner survey was sent to 8 partner institutions in South-East Asia.

#### 3.1 Trainers

For the trainers' survey a response rate of 61% (i.e. 43 out of 70) was achieved. For the trainers the response rate from each country was similar (Fig 1).

Country	Respondents	Recipients	Return Rate
Indonesia	9	19	47%
Philippines	12	16	75%
Thailand	12	18	66%
Vietnam	10	17	59%
<b>Total</b>	<b>43</b>	<b>70</b>	<b>61%</b>

Figure 1: Number of Trainer respondents per country

Similarly the distribution of respondents across the three training courses was roughly the same (Fig 2).

Training Course	Number
January 06	16
May 06	13
September 06	14
<b>Total</b>	<b>43</b>

Figure 2: Number of respondents per training program

The trainers were also asked to provide details about the industries where they work with EMA. They could select more than one industry and the details are provided below (Figure 3).

Industry	Number	%
Consultancy	23	53
Working in companies	15	35
Academic	23	53
NGO	14	33
Government	16	37

Figure 3: Areas respondents work in with EMA

### 3.2 Partner institutions

The response rate for the partner institutions was lower with a response rate of 50%; 4 of 8 surveys were returned. However, each of the major partner institutions in each country that had participated in the project from the beginning returned a completed questionnaire.

## 4 Direct Impact: Business Implementation

This section specifies how EMA has been implemented into business. The respondents provided details of the consulting activities in 44 companies. A distinction is made between internal implementation and external implementation. 7 of 44 cases were internal implementations, i.e. the EMA expert was an employee of the respective company at the time of implementation. 37 of 44 cases were external implementations, i.e. the expert had been hired as consultant.

Details of financial savings were provided by about 50% of the respondents (21 cases). Figure 4 provides details of savings in each country per year. All figures are presented in US\$.

Country	Number of cases	Total annual savings (\$)	Average (\$)
Indonesia	2	59,460	29,730
Philippines	13	347,974	26,767
Thailand	3	292,000	97,333
Vietnam	3	21,500	7,167
Total	21	720,934	34,330

Figure 4: Consulting Activities and financial savings per country

Figure 5 provides a break down of the financial savings in the different sized companies.

Size	Number of cases	Total annual savings (\$)	Average (\$)
Large	5	276,739	55,348
Medium	12	411,005	34,250
Small	4	33,190	8,298
Total:	21	720,934	34,330

Figure 5: Consulting Activities and financial savings per company size

Figure 6 illustrates the quantifiable savings for each case.

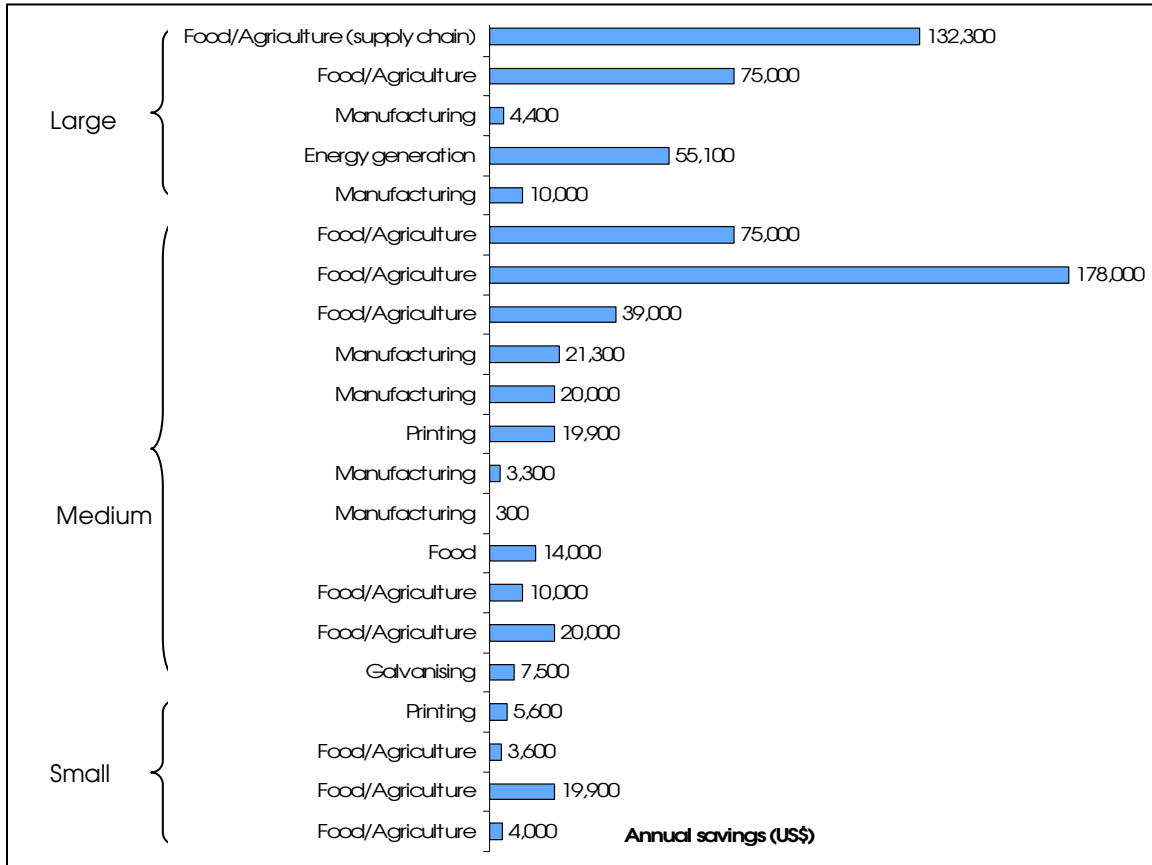


Figure 6: Quantifiable annual savings per case

Almost all respondents reported environmental improvements due to the EMA implementation. However, only very few of these provided quantified results, most answers are qualitative. In five of the 44 cases, CO<sub>2</sub>-savings were stated (Figure 7).

Quant. CO <sub>2</sub> savings	Total annual savings	Average annual savings per case per year
5 cases	8432.36 tonnes	1686.47 tonnes

Figure 7: Quantified CO<sub>2</sub> savings

For comparison: The average CO<sub>2</sub> emissions per capita were 1.65 tonnes in the four target countries in 2002<sup>1</sup>. Thus the average annual savings per company case equal the annual emissions of about 1000 citizens in the target region.

Half of the respondents provided further qualitative details on the environmental improvements of implementing EMA. These can be summarised in three main categories: material efficiency, energy efficiency, and water use efficiency (Figure 8).

<sup>1</sup> Source: World Resources Institute – EarthTrends – The Environmental Information Portal; <http://earthtrends.wri.org> (access date: February 1st, 2008).

Environmental improvements	Number
Improved material efficiency (solid waste reduction, reduced use of raw materials, etc.)	12
Improved energy efficiency (reduced CO <sub>2</sub> , fuel reduction, electricity savings, etc.)	15
Improved water efficiency (reduced water consumption and water pollution, etc.)	6
others	4
No details	22

Figure 8: Environmental improvements resulting from consulting activities

Besides the quantifiable financial benefits given above, several respondents stated that further environmental and financial improvements have been realised which are difficult to measure, e.g. image and reputation increase, greater environmental awareness of staff, organisational improvements or higher working morale.

## 5 Further dissemination by trainers and partners

Both, EMA-SEA partner institutions and EMA-SEA resource persons trained at TOT seminars are promoting and distributing the EMA concept, eco-efficiency, and sustainable development in their own countries.

### 5.1 Training seminars

The EMA-SEA program funded 30 EMA dissemination seminars in the four target countries in 2006 and 2007. These seminars were conducted by the trained EMA resource persons and supported by local partner institutions and ASEP. Besides these funded activities, trainers conducted further training seminars following the EMA-SEA approach, gave lectures and presentations and used EMA in their academic work. Figures 9 to 13 provide a country-wise breakdown of these activities.

## Indonesia

Type of dissemination activity	Number of activities	Thereof EMA-SEA funded	Average <sup>2</sup> number of participants	Type of participants
Training seminars following EMA-SEA approach	8	8	29	companies, academic, NGOs and government
Lecture/ presentations	2	-	n.a.	students, public and companies
Academic research & teaching	2	-	n.a.	students
<b>Total:</b>	<b>12</b>	<b>8</b>		

Figure 9: Overview of dissemination activities in Indonesia

## Philippines

Type of dissemination activity	Number of activities	Thereof EMA-SEA funded	Average <sup>2</sup> number of participants	Type of participants
Training seminars following EMA-SEA approach	23	8	24	NGOs, companies, government, academic, agricultural engineers and pollution control officers
Lecture/ presentations	24	-	72	companies, academics, pollution control officers, environmental managers.
Academic research & teaching	3	-	n.a.	students
<b>Total:</b>	<b>50</b>	<b>8</b>		

Figure 10: Overview of dissemination activities in the Philippines

<sup>2</sup> The average number of participants per activity is based on the responses which include quantitative data only. If quantitative data was not provided, the activity was not considered in the computation of the average or is marked n.a. (not available).

## Thailand

Type of dissemination activity	Number of activities	Thereof EMA-SEA funded	Average <sup>2</sup> number of participants	Type of participants
Training seminars following EMA-SEA approach	14	8	33	companies, government and public
Lecture/ presentations	4	-	29	
Academic research & teaching	3	-	n.a.	students
Total:	21	8		

Figure 11: Overview of dissemination activities in Thailand

## Vietnam

Type of dissemination activity	Number of activities	Thereof EMA-SEA funded	Average <sup>2</sup> number of participants	Type of participants
Training seminars following EMA-SEA approach	11	6	94	government, academic and companies
Lecture/ presentations		-	n.a.	
Academic research & teaching	2	-	n.a.	students
Total:	13	6		

Figure 12: Overview of dissemination activities in Vietnam

## Total

Type of dissemination activity	Number of activities	Thereof EMA-SEA funded
Training seminars following EMA-SEA approach	56	30
Lecture/ presentations	30	-
Academic research & teaching	10	-
Total:	96	30

Figure 13: Overview of dissemination activities (total)

## 5.2 Partner institutions

Four partner institutions responded to this survey: The Indonesian Society of Environmental Professionals (ISEP/IPHLI), Neuronmech (Philippines), ASEP (Thailand) and the Vietnamese Centre for Cleaner Production (VNCPC). All of these partner institutions are still actively promoting EMA and offering EMA as part of their services. Some partners organised and co-financed further training seminars not funded by the EMA-SEA project or founded

country specific EMA networks. All partners mentioned that they are willing to facilitate further EMA seminars in the future. This, however, requires additional funding, because participants fees are not considered to be sufficient to cover all expenses.

## **6 Analysis of results and conclusions**

The survey of EMA-SEA dissemination activities in 2006 and 2007 proves that more than half of the participants of the EMA-SEA Training of Trainer seminars have become active EMA resource persons in Indonesia, the Philippines, Thailand and Vietnam.

The EMA resource persons who returned the questionnaire described 44 cases of EMA implementation in companies of all sizes and various industries with medium sized companies from the agriculture and food sector as the most often reported cases. Those cases where business improvements have been quantified, show average annual savings of 34,000 US\$ and an average reduction of 1,700 tonnes of CO<sub>2</sub> per case. The respondents also mention various either not measured or non-quantifiable benefits, e.g. increases in material and energy efficiency, better reputation, or greater environmental awareness of employees. Besides implementing EMA in companies, EMA resource persons and partner institutions conducted EMA seminars, lectures, presentations, research and teaching. In total, the respondents reported 96 activities of which less than one third received funding by the EMA-SEA program.

The respondents' answers emphasize the strengths of the EMA concept as an integrative approach (identification and analysis of links between environmental and financial performance), and its adaptability to well-established concepts such as environmental management systems (e.g. ISO 14001) or cleaner production.

The survey also highlights demand for further capacity development. Conspicuously, all of the EMA implementation cases and the vast majority of further dissemination activities not funded by the EMA-SEA program have been facilitated by individual EMA resource persons rather than by EMA (partner) institutions. The partners' survey substantiates this finding. Most of the partner institutions rely on additional funding to promote and disseminate EMA further.

Overall it can be concluded that the EMA-SEA program has been and will be contributing to a sustainable business development in the South-East Asian region. In each of the target countries, local resource persons are continuing the dissemination of EMA that has been initialised by the EMA-SEA program.