

**The Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS)**  
**[Annual Evaluation Report] (Overview)**

FY 2019 Supporting Program for Human Resources Development to Export Carbon Reduction Technology (Carbon Reduction Technology Promotion Program)

**[Chapter 1 Program Outline]** (Outline of the objectives and evaluation of the program)

Objectives	To train local human resources to save energy in manufacturing processes at the factories of local Japanese companies, etc. in order to promote the international deployment of the advanced low carbon technologies of Japanese companies (energy saving technologies) and contribute to reducing greenhouse gas.	
Target Countries/ Regions	Countries and regions in Asia and the Middle East	
Subject Industry	(i) Automobile, (ii) Industrial Machines, (iii) Electric Machines	
Viewpoint of Evaluating Programs	(1) Greenhouse gas reduction (energy saving, CO2 reduction) (2) Results of human resources development in training and technical guidance	
By Program Type	Training Program	(i) Technical Training: Engineers in developing countries, etc. are accepted by parent companies in Japan and provided with training. (ii) Management Training: Managers in developing countries, etc. are invited to Japan and provided with training. (iii) Overseas Training: Training is provided by instructors dispatched from Japan, etc. or instructors in the country where training is provided.
	Expert Dispatch Program	○ Technical guidance is provided for overseas local companies (companies receiving guidance) through financial contribution or by experts dispatched from Japanese companies (dispatching companies) in a business partner relationship.
Method of Program Evaluation	Prior Evaluation	○ Evaluation of adequacy of each case by the Screening Committee - Appropriateness of objectives and methods, etc. of human resources training - Appropriateness of proper and efficient provision of subsidy - Effect of low carbonization (Effect of CO2 reduction)
	Interim Evaluation/ Evaluation Immediately after Completion	○ Self-evaluation of goal achievement level by participants, dispatched experts, and using companies (Japanese and local companies)
	Aging Evaluation	○ Questionnaires for companies that used the system before and returnee participants ○ Overseas on-site survey

## **[Chapter 2 Prior Evaluation] (Outlines of Review Implementation and Cases)**

### **1. Outline of Review Implementation (FY2019)**

\*Screening Committee - Hold twice a month (a total of 22 reviews) (including document review)

\*Number of review approvals - Technical Training 107 companies 96 cases (414), Management Training 6 cases (123), Overseas Training 5 cases (65), Expert Dispatch 15 cases (193)  
( ): the number of participants

### **2. Outline of Cases in FY2019**

#### **(1) Training Program**

[1] Technical Training: number of accepting companies and participants in FY2019

\*107 accepting companies in FY2019, 414 participants (60 small and medium-sized companies, 222 participants)

Including (6 companies (10) that cancelled after the review approval)

[2] Management Training: number of courses and participants in FY2019

\*A total of 6 courses (123) were planned to be held, but only 4 courses were actually held since there was cancellation due to COVID-19 epidemic. (63 participants from Vietnam, Thailand, Taiwan, and other countries)

[3] Overseas Training (Outline of the course and the number of participants):

\*Invitation Type: A total of 5 times, conducted in Thailand, Philippines, and Vietnam. 65 participants

\*Planned-By-Association Type: Not conducted due to COVID-19 pandemic (Two courses planned to be held were canceled.)

#### **(2) Expert Dispatch Program**

[1] Number of companies using the expert dispatch system (number of dispatching companies), number of dispatched experts, and number of participants receiving guidance

\* Companies that used the system in FY2019: 15 companies, 16 cases, 19 dispatched experts, 193 participants receiving guidance (all small and medium-sized companies. Including 1 company that cancelled after approval of the review (25) and 5 participants covering multiple financial years)

\*The number of participants receiving guidance was submitted by the dispatching companies at the time of application, and the number in the plan of the human resource training goal approved by the Screening Committee was aggravated.

\*Dispatch by country: 4 in Vietnam, 3 each in Indonesia, China, and Thailand, 2 in Philippines, and 1 in India, a total of 16 cases

## **[Chapter 3 Interim evaluation/ Evaluation immediately after completion] (Evaluation by the companies, participants, and AOTS during and immediately after the training)**

### **1 Training Program**

#### **(1) Technical Training**

- Technical training consists of general training conducted by AOTS and on-site training conducted by the accepting companies.

[1] General Orientation Course (Objectives: "adaptability for on-site training", "spreading ability of technical transfer", and "increasing familiarity with Japan")

(i) Evaluation of goal achievement level in the general training < Self-evaluation of the participants about 17 items with 7 grades >

- In all 17 items, the evaluation goal exceeded 5.0 at the time of completion (5.5-6.3 with the full score of 7.0), which increased by 1.7-2.9 compared with the initial scores prior to training. ⇒ The goals were thought to be achieved.

(ii) Evaluation of goal achievement level in Japanese proficiency < Evaluation by AOTS>

- The average achievement scores did not reach the goal, and many of the participants needed to continue studying. (6-week course=Level of finishing the first half of the beginner course, 13-week course=Level of finishing the second half of the beginner course.) Their command of the language is expected to improve by using the knowledge of the language they learned in the general training for actual communication.

## [2] On-site Training

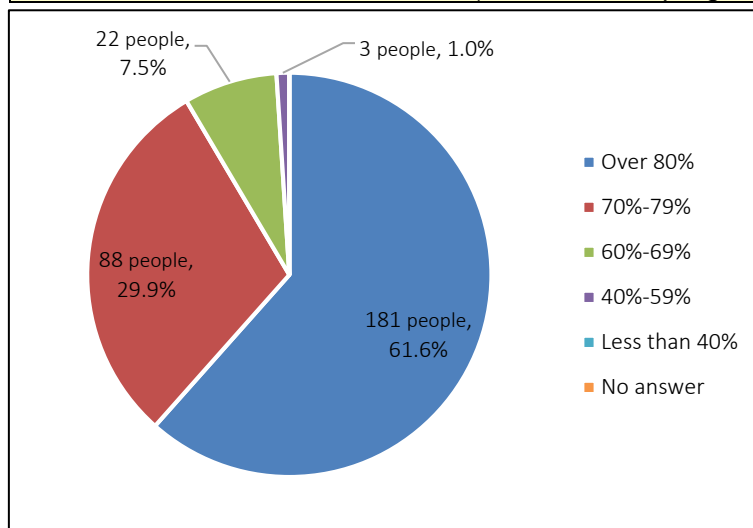
(i) Evaluation of effect of general training in on-site training < Evaluation by accepting companies and participants >

- Accepting Companies: General satisfaction level was 4.1 on average out of a full score of 5.0, generally showing satisfaction.
- Participants: Generally high evaluation (4.4 on average). The goals were achieved both in general training and on-site training. In particular, many participants found the Japanese language training useful.

(ii) Evaluation of goal achievement level in on-site training < Evaluation by accepting companies and participants >

- As many as 90% of accepting companies answered “achievement of 70% or higher”. The goals of the initial plan were thought to be mostly achieved.

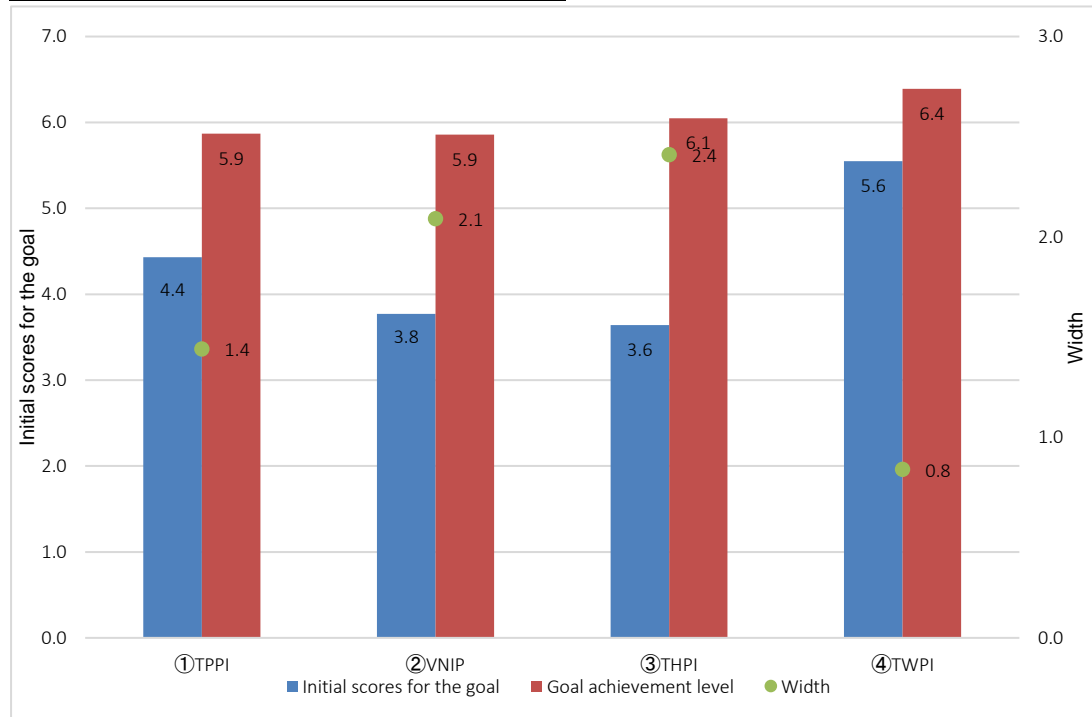
Evaluation of Goal Achievement Level (evaluator: accepting companies) (n=294)



## (2) Management Training (Evaluation of goal achievement level)

- In all courses, the evaluation at completion was around 6.0 (full score: 7.0), showing the goal items to be achieved set for each course were mostly achieved.

**Management Training Distribution of evaluation of goal achievement level by course and average**  
**Evaluated by participants (Evaluation goal 5.0)**



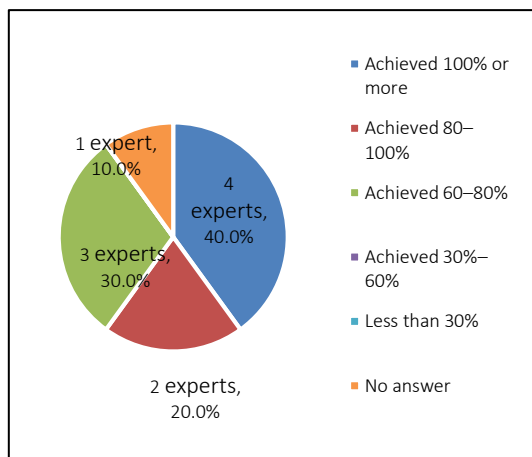
(\*TPPI : Training course for improving productivity for target countries, VNIP: same for Vietnam, THPI: same for Thailand, TWPI: same for Taiwan)

**(2) Expert Dispatch Program**

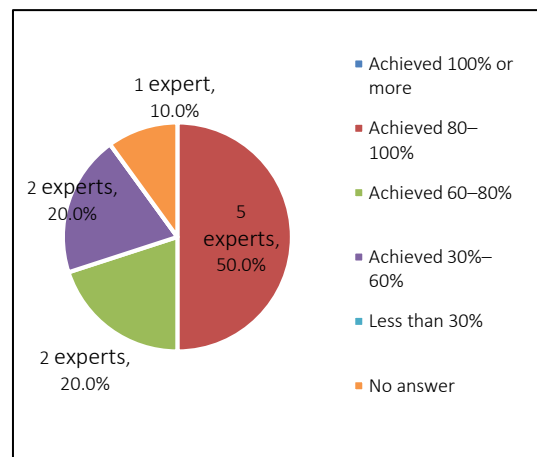
(1) Evaluation by experts (evaluation by 10 experts who returned to their country within the financial year)

- Goal of technical improvement = All valid responses indicated an achievement of 60% or more, and 4 of them answered 100%.
- Goal of human resource training = 70% of the participants answered an achievement of 60% or more, 5 of them answered an achievement of 80% or more.

**Goal Achievement Level of Technical Improvement (n=10)**



**Goal Achievement Level of Human Resource Training (n=10)**



## (2) Management effects for companies

Receiving guidance and dispatching companies, changes in employees of companies receiving guidance

- All dispatching companies answered, “some effects can be expected”. The contents provided by the experts are directly connected to the reduction of energy consumption and also contribute to management effects such as “productivity improvement”, “technical improvement”, “quality improvement”, “cost reduction”, “shortening of production time”, and “change in employees of the companies receiving guidance”, etc.

## (3) Effects of reduction in environmental load (Evaluated by experts)

- Evaluating the effects of reduction in environmental load by technical guidance on “reduction in CO2 emissions”, “energy saving”, and “power saving”, etc.

## [Chapter 4 Ex-Post Evaluation]

- A questionnaire survey was conducted on companies (Japanese and local companies) and participants that used the system in FY2019.

### 1. Training Program / Expert Dispatch Program (Appearance of results of the programs, ripple effect)

(1) Training and guidance results (settlement of participants, spread of techniques and knowledge, etc.), contribution to local and Japanese companies

- As many as 87% of technical training participants continue to work for the local companies after returning to their countries. Also, 90% or more of them answered that they spread the knowledge and techniques acquired in Japan in the local companies. Thus, we think the goal of technical transfer was achieved.
- One third of local companies answered the contribution to the entire company and two thirds answered that they were expecting future contributions.
- Japanese companies answered the contribution of the AOTS system to “strengthening cooperation with the local companies” and “reduction in CO2”, etc.

## [Chapter 5 CO2 Reduction Effects]

- When all programs were compiled, CO2 reduction was 37,946t-CO2 and the amount of effects was 585 million yen.

	Technical Training	Expert Dispatch	Management Training	Overseas Training	Total
Volume of CO2 reduction	25,549t-CO2		12,303 t-CO2	94 t-CO2	37,946t-CO2
Amount of effects	395 million yen		189 million yen	1 million yen	585 million yen

\*Conversion: Crude oil CO2 emission coefficient=2.62t-CO2/kL-Crude oil, Unit price of crude oil=40,424 yen/kL

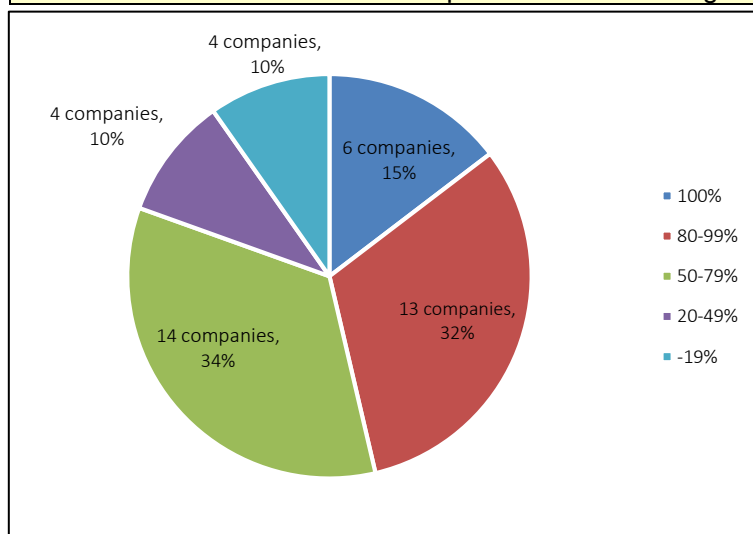
**[Chapter 6 Aging Evaluation]** (The results of the survey of the companies at a set period [3 years] after use of the system)

**1. Training Program (Technical Training) / Expert Dispatch Program** (Results of the questionnaire and on-site survey)

(1) Results of training and guidance, and contribution to the local and Japanese companies (Changes between FY2015 and FY2019)

- After conducting the questionnaire for local and Japanese companies about the results of training and guidance, management effects, and contribution of AOTS system, 14% of Japanese companies answered that they “achieved 100%” of the CO2 reduction goal set at the time of using the system in FY2015. If including “achieving 80% or more”, about half of all companies could achieve the goal.

**Achievement level of the affiliated department to the initial goals (n=41)**



- Answers to similar questions at the time of FY2015 were 0% for “achievement of 100%” and 12.5% for “achievement of 80%-99%”. Compared to these results, effects are surely manifesting.

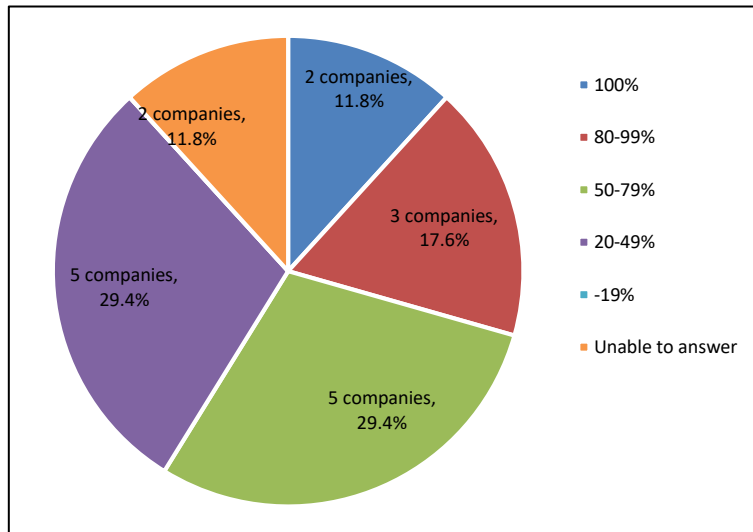
(2) Overseas on-site survey

- According to the results of the visiting survey of external researchers for 6 local companies that used the system in FY2015 (3 companies in Thailand and 3 companies in Indonesia), the training and expert dispatch in this system greatly contributed to the expansion of the business of the using companies and helped reinforce the competitiveness of Japanese companies in Southeast Asia where there is severe market competition. As a result, it was confirmed that the system was highly evaluated by the using companies.
- Considering the current condition of energy saving initiatives in local companies, we think it is effective to cooperate with Japanese companies and provide expert support in order to achieve further energy saving.

**2. Training Program (Management Training)** (Describing the results of the questionnaire regarding the change in the situation after 3 years)

- To the CO2 reduction goal set in FY2015, about 70% of the companies answered they had “achieved 50% or more”.

Goal achievement level of reducing CO2 (n=17)



### 3. Summary

- The results of the aging investigation showed that human resource training in this program contributed to the achievement of the low carbon goal (CO2 reduction) as well as “management effects” (“transfer of technology”, “improvement in energy saving awareness”, “cost reduction”, “improvement in employee morale”, “increasing the sale”, “profitability improvement” etc.).
- AOTS promotes the international deployment of manufacturing technologies with a low environmental load, production technologies, and management technologies related to them owned by Japanese companies through human resource training.
- It is appropriate for AOTS to continue this program with a mid-to long-term perspective in the future and this program will contribute to the achievement of a low carbon society.