Brief Report

"Training Programme on Renewable Energy:
Micro Hydro Power for Rural Development in ASEAN Region"

in cooperation of the Government of Indonesia, ASEAN Foundation and NAM CSSTC

I. Introduction

Demand for electricity is substantially increasing in line with the increasing population number, the growing industry and expansion of housing complex. However, people living in some remote areas still do not have access to electricity. Governments' capacity to supply electricity to their people is limited due to budget shortage, insufficient power plant capacity and other factors. One of the solutions to this problem is micro hydro energy that is relatively cheap, sustainable and appropriate for small communities.

Countries possessing river flows and streams have potential to generate electricity using micro hydro technology, a technology that is environmentally sound and friendly. This technology is emission free and does not attempt to interfere significantly with river flows. In short, micro hydro power plant will benefit the people in two ways: supply of electricity and environment protection. With electricity the community will get more advantage for their income generating activities such as drying agricultural products, saw mill industry, rice milling and other small-scale economic activities.

The Government of Indonesia in cooperation with the ASEAN Foundation and the Non-Aligned Movement Centre for South-South Technical Cooperation (NAM CSSTC) shared its experience with ASEAN member countries through Training Programme on Renewable Energy: Micro Hydro Power for Rural Development.

The training programme was conducted from 18 to 25 June 2012 in Bandung, West Java.

II. Objective

The objective of the training programme is to provide participants with the basic knowledge of micro hydro technology and its implementation in rural area.

The training programme covered the following subjects:

a. introduction to renewable energy;
b. introduction to micro hydro development;
c. basic knowledge of technical aspects (mechanical, electrical and civil engineering);
d. social and economic aspects; and
e. sustainability issues

III. Methodology

The training programme was conducted through:

Class Session:

The session conducted using adult-learning methodology. There is no instruction but knowledge-sharing approach is applied.

Field Session:

Field study to the best practice of micro hydro power plants to see how micro hydro works to generate electric power.

Pesentation of Country Report:

Participants were requested to prepare and present their Country Report covering problems and potentials of renewable energy development, especially of micro hydro power. Their knowledge and experiences were shared during the class and field sessions.

Preparation of Action Plan:

At the end of the Class Session, participants were asked to prepare Action Plan supposed to be implemented in their respective countries when they are back home.

Language:

The language used in the Training Programme is English.

IV. Programme Activities

The Training Agenda was organized as follows:

Date	Time	Agenda/Activities
Mon, 18 June	08.00-09.30	***Opening Ceremony*** Speeches: NAM CSSTC, MEMR, ASEAN Foundation, MOFA
	09.30-09.45	*Coffee break*
	09.45-12.00	- Briefing on the Programme and Logistics - Orientation on ASEAN - **Presentation of Country Papers**
	12.00-13.00	*Lunch*
	13.00-13.45	- Presentation of Country Papers- *continued*
	13.45-15.15	- **Introduction to Renewable Energy in Indonesia** *Presenter:* Iman Budi Santoso
	15.15-15.30	*Coffee break*
	15.30-17.45	- Introduction to Renewable Energy in Indonesia - *continued* *Presenter:* Iman Budi Santoso
Tue, 19 June	08.00-09.30	- **Basic Knowledge of Micro Hydro Power (MHP)** *Presenters:* Ifnu Setiadi Gunawan Iman Permana
	09.30-09.45	*Coffee break*
	09.45-12.00	- Basic Knowledge of MHP - *continued* *Presenters:* Ifnu Setiadi Gunawan Iman Permana
	12.00-13.00	*Lunch*
	13.00-15.15	- Basic Knowledge of MHP - *continued* *Presenters:* Ifnu Setiadi Gunawan Iman Permana
	15.15-15.30	*Coffee break*
	15.30-17.45	- **Financing Aspect of MHP** *Presenters:* Chayun Budiono Agung Feinnudin
Wed, 20 June	08.00-09.30	- **Technical/Engineering Aspect of MHP** *Presenters:* Priyono Sutikno Ifnu Setiadi Gunawan
	09.30-09.45	*Coffee break*
	09.45-12.00	- Technical/Engineering Aspect ofMHP- *continued* *Presenters:* Priyono Sutikno Ifnu Setiadi Gunawan
	12.00-13.00	*Lunch*
	13.00-13.45	- Technical/Engineering Aspect of MHP – *continued* *Presenters:* Priyono Sutikno Ifnu Setiadi Gunawan
	13.45-15.15	- **Social and Economic Aspects of MHP** *Presenter:* Yuniardi Nugraha
	15.15-15.30	*Coffee break*

	15.30-17.45	- Social and Economic Aspects of MHP – *continued* - *Presenter:* Yuniardi Nugraha
Thu, 21 June	08.00-12.00	- **Field Study to Hydro Power Plant of Bengkok**(Bandung)
	12.00-13.00	*Lunch*
	13.00-17.45	- **Field Study to Micro Hydro Power Plant of Melong Jambelaer** (Subang)
Fri, 22 June	08.00-12.00	- **Field Study to the Gallery of Micro Hydro Engine and Parts of Heksa Prakarsa** (Cimahi)
	12.00-13.00	*Lunch*
	13.00-14.30	- Field Study to the Gallery of Micro Hydro Engine and Parts of Heksa Prakarsa (Cimahi) – *continued*
	14.30-15.15	- **Sustainability Aspect of MHP** *Presenters:* Akhmad Taufik Sentanu Hindrakusuma
	15.15-15.30	*Coffee break*
	15.30-17.45	- Sustainability Aspect of MHP – *continued* *Presenters:* Akhmad Taufik Sentanu Hindrakusuma
Sat, 23 June	*Daylong*	- **Preparation of Action Plan by Participants**
Sun, 24 June	*Daylong*	- Free / Visit to Interesting Places
Mon, 25 June	08.00-09.30	- **Presentation of Action Plans**
	09.30-09.45	*Coffee break*
	09.45-12.00	- Presentation of Action Plan – *continued*
	12.00-13.00	*Lunch*
	13.00-15.15	**Overall Evaluation**
	15.15-15.30	*Coffee break*
	15.30-16.00	***Closing Ceremony and Certificate Awarding*** Speeches: NAM CSSTC, MEMR, ASEAN Foundation, MOFA

V. Participants

Total participant is 18 persons from ASEAN member countries, namely: Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Thailand and Vietnam.

They are from the government institutions, state-owned enterprises and non-governmental organizations working on energy-related activities. Details are as follows:

No	Country	Name	Office
1	Cambodia	Mr. Hang Seiha	Ministry of Industries, Mines and Energy
2	Cambodia	Mr. Sin Samnang	Ministry of Industries, Mines and Energy
3	Indonesia	Mr. Didik Hadiyanto	Ministry of Energy and Mineral Resources
4	Indonesia	Mr. Robert Werner	GIZ Indonesia

5	Indonesia	Ms. Amalia Suryani	GIZ Indonesia
6	Indonesia	Mr. Dadan Ramdhany	Ministry of Energy and Mineral Resources
7	Indonesia	Mr. Mahmud Al Faiz	Ministry of Energy and Mineral Resources
8	Indonesia	Mr. Hermas Rintik	WWF Indonesia
9	Lao PDR	Mr. Houmpheng T.	Ministry of Science and Technology
10	Lao PDR	Mr. Phonepasong S.	Ministry of Energy and Mines
11	Malaysia	Mr. Mohd Din	Ministry of Energy, Green Technology and Water
12	Malaysia	Mr. Edisham Sukor	Sustainable Energy Development Authority
13	Myanmar	Mr. Kyaw Naing Soe	Ministry of Agriculture and Irrigation
14	Myanmar	Mr. Soe Thiha	Ministry of Agriculture and Irrigation
15	Thailand	Mr. Teerachai N.	Ministry of Agriculture and Cooperatives
16	Thailand	Mr. Weera Sriwarom	Depatment of Alternative Energy Development
17	Vietnam	Ms. Le Thi Thoa	Directorate General of Energy
18	Vietnam	Mr. Do Anh Tuan	Institute for Hydro Power and Renewable Energy

VI. Resource Persons and Facilitators

Resource persons and facilitators are from the Indonesian Ministry of Energy and Mineral Resources, the Indonesian Ministry of Education and Culture for the Hydropower Competence Centre, Entec Indonesia, Development Studies Foundation and the Association of Hydro of Bandung and Its Network. Details are as follows:

No	Name	Office
1	Mr. Iman Budi Santoso	Ministry of Energy and Mineral Resources
2	Mr. Iman Permana	Ministry of Education and Culture
3	Mr. Chayun Budiono	Network of the Association of Hydro of Bandung
4	Mr. Priyono Sutikno	Network of the Association of Hydro of Bandung
5	Mr. Yuniardi Nugraha	Entec Indonesia
6	Mr. Akhmad Taufik Moekhith	Development Studies Foundation
7	Mr. Kusetiadi Raharjo	Network of the Association of Hydro of Bandung
8	Mr. Faisal Rahadian	Association of Hydro of Bandung
9	Mr. Sentanu Hindrakusuma	Association of Hydro of Bandung
10	Mr. Agung Feinnudin	Association of Hydro of Bandung
11	Mr. Ifnu Setiadi Gunawan	Association of Hydro of Bandung

VII. Expectations and Evaluation

Prior to the starting session, all participants were requested to expres their expectations in written form using the form prepared by the Committee. Their expectations were compiled by subject of concerns and openly discussed at the ending session. They all together checked whether their expectations were met or not. There were also post-class and post-field evaluation by subjects. Overall evaluation was also made before the Closing Session.

The results are as follows:

1. Check the Participant's Expectations:

No.	EXPECTATIONS	MET			NOT MET		
		10	**8**	**6**	**4**	**2**	**0**
I	**ON THE GENERAL KNOWLEDGE RELATED WITH RENEWABLE ENERGY**						
1	To improve my knowledge on renewable energy for development in my country and sharing ideas with other participants (Seiha Hang, Cambodia)		√				
2	Increase and improvement of renewable energy knowledge and skill (Sin Samnang, Cambodia)		√				
3	To get experience from other countries for developing renewable energy in Cambodia (Sin Samnang, Cambodia)		√				
4	Study the economic and financial aspects of renewable energy (Didik Hadiyanto, Indonesia)		√				
5	Understand more about ASEAN Policies on renewable energy development and support (Robert Schultz, Indonesia)			√			
6	Rule of thumb in developing micro hydro power or renewable energy in general (Amalia Suryani, Indonesia)			√			
7	Better (improve) basic and philosophy knowledge on renewable energy: technically and policy (Dadan Mochamad Ramdhany, Indonesia)		√				
8	After I join this training can be added my knowledge of latest technology of building microhydro system. After that I can share and applicated in my country especially West Jawa Indonesia, so that I can develop my rural area more faster with technology (Mahmud Al Faiz, Indonesia)			√			
9	To get better understanding about micro hydro power development especially tehnical aspect or civil work (Hermas Rintik Maring, Indonesia)		√				
10	Sharing experiences on renewable energy applications for rural development (Houmpheng Theuambounmy, Lao PDR)		√				
11	To improve my knowledge on renewable energy especially micro hydro for rural development (Phonepasong Sithideth, Lao PDR)		√				
12	To gain more knowledge and to share some policy on renewable energy among the participants (Rahman Mohd Din, Malaysia)		√				
13	To gain knowledge and better understanding of renewable energy implemented in ASEAN countries especially in Indonesia (Edishan Mohd Sukor, Malaysia)		√				
14	I installed micro hydro power at main canal in MaMya Dam Project (Kyaw Naing Soe, Myanmar)	--	--	--	--	--	--

15	I want to know more about renewable energy. How to improve the renewable energy in the area of Thailand? (Teerachai Niamluang, Thailand)	√					
16	Renewable energy is energy from natural for green energy to reduce greenhouse gases. Therefore I expect to know renewable energy technology for development to suitable use in my country, especially micro hydro electric (Weera Sriwarom, Thailand)		√				
17	I am graduated energy economic and planning. I had a time to work in field of renewable energy such as biogas, biomass, micro hydro power plant. For the biogass energy, I am a senior technical because I have 5 years working in this field (Le Thi Thoa, Vietnam)			√			
18	To learn and discuss about micro hydro power equipment. Learn about how to develop micro hydro power in Vietnam and other country (Do Anh Tuan, Vietnam)			√			
II	**ON THE BASIC TECHNICAL ASPECTS OF BUILDING AND DEVELOPING MICRO HYDRO POWER PLANT**						
1	Follow up Indonesia hydro power plant success on micro hydro at rural communities (Seiha Hang, Cambodia)		√				
2	Learning successful experience of micro hydro power in Indonesia to developing in Cambodia (Sin Samnang, Cambodia)		√				
3	Try to capture new technology of Indonesia and apply to Cambodia (Sin Samnang, Cambodia)		√				
4	Study of civil construction, mechanical construction and electrical construction of micro hydro (Didik Hadiyanto, Indonesia)		√				
5	Hope to gain deeper, technical insights, particularly on troubleshooting, quality criteria, field difficulties (Robert Schultz, Indonesia)	√					
6	Components of micro hydro power (Amalia Suryani, Indonesia)	√					
7	How to measure the potential of water flow (Amalia Suryani, Indonesia)			√			
8	Financial aspects of developing a micro hydro power (Amalia Suryani, Indonesia)						
9	Improvement of basic technical aspects – capability (Dadan Mochamad Ramdhany, Indonesia)		√				
10	As a technical aspect of building and developing micro hydro power plant, I hope to gain the latest of technology system of micro hydro, more simple but more effective can result the electricity (Mahmud Al Faiz, Indonesia)			√			
11	Identifying a potential (indicator of potential water to be developed as micro hydro power) how to construct properly based on nature condition (Hermas Rintik Maring,		√				

	Indonesia)						
12	To learn how to potential source for micro hydro power, system design and installation (Houmpheng Theuambounmy, Lao PDR)	√					
13	On basic technical aspects of building how to good design and economic –the basic survey and design (Phonepasong Sithideth, Lao PDR)		√				
14	To gain more knowledge on technical aspects of micro hydro power project (Rahman Mohd Din, Malaysia)	√					
15	To get knowledge in theoretical and practical, problem, successful project in micro hydro power plant in Indonesia (Edishan Mohd Sukor, Malaysia)	√					
16	I want to learn about the best practice especially in technical aspects. What are the limitation or minimum requirement for micro hydro power project (Teerachai Niamluang, Thailand)		√				
17	What's the new technology which proper for renewable energy (Teerachai Niamluang, Thailand)		√				
18	I would like to learn design technology for control (Weera Sriwarom, Thailand)			√			
19	Dam, water sources, rivers and stream (Le Thi Thoa, Vietnam)		√				
20	Safety requirements as environment, social issues (Le Thi Thoa, Vietnam)			√			
21	I think technical aspects of building and developing micro hydro power plant are water resources, technical mechanical, electrical and construction (Do Anh Tuan, Vietnam)			√			
III	**HOW YOU RELATE THE SUBSTANCES (EITHER POLICY OR TECHNICAL ASPECTS) THAT WILL BE DELIVERED IN THE SESSION TO YOUR COUNTRY'S INTEREST**						
1	My idea, I should share my knowledge to my Director and to my Minister to set up renewable energy policy and renewable energy should be sharing in power sector (Seiha Hang, Cambodia)	√					
2	To improve technical and policy through sharing experience that I learned from Indonesia to my colleague in Cambodia (Sin Samnang, Cambodia)	√					
3	Keen interested in successful approaches for Indonesia (Robert Schultz, Indonesia)				√		
4	By applying the relevant information and knowledge to my work which is based in Indonesia (Amalia Suryani, Indonesia)		√				
5	The technical aspects and policy (non-technical aspects) need from the planning to the application programme (Dadan Mochamad Ramdhany, Indonesia)		√				

6	I'll bring the new information system of micro hydro (actually a good one) to influence my government policy to improve to the better one, and as a technical aspects I'll apply the latest technology for the building next micro hydro system in my rural area of West Java (Mahmud Al Faiz, Indonesia)			√			
7	Our office work in rural area to deliver natural/environment services, now we are start identifying micro hydro power potential in some area we work, so we would like to improve our understanding and networking in developing micro hydro power (Hermas Rintik Maring, Indonesia)	√					
8	Technique for micro hydro, site assessment, system design, installation, operation and maintenance (Houmpheng Theuambounmy, Lao PDR)	√					
9	Financial support and contribution of rural people, and policy to promote micro hydro power utilization (Houmpheng Theuambounmy, Lao PDR)		√				
10	Development of micro hydro power for rural area is one factor for social and economic development. If we have good knowledge for technical aspects that will support rural development (Phonepasong Sithideth, Lao PDR)		√				
11	I will share the successfull of micro hydro project experience and knowledge with my ministry and related energy in my country (Rahman Mohd Din, Malaysia)	√					
12	I will share experience in successful project of renewable energy project and the Malaysia's policy to encouraging the development of renewable energy (Edishan Mohd Sukor, Malaysia)	√					
13	The policy in renewable energy is in responsibility of Thai Government. The policy is not changed too much in the present. But the technique or best practice of micro hydro power are needed to improve our action plan (Teerachai Niamluang, Thailand)		√				
14	My job relate technical aspects so I interesting in technical for development in my country (Weera Sriwarom, Thailand)			√			
15	Relating the substances when developing micro hydro power plant in my country is policy and dam safety (Le Thi Thoa, Vietnam)		√				
16	Technical aspects about mechanical: design, manufacturing, assembly and calculation, select type of turbine (Do Anh Tuan, Vietnam)			√			
IV	**POSSIBLE APPLICATION OF KNOWLEDGE AND EXPERIENCES SHARED IN THE SESSION TO YOUR COUNTRY'S RENEWABLE ENERGY PROGRAMME**						
1	It's really, I would like to share my knowledge (Seiha Hang, Cambodia)		√				

2	Sharing of experiences from Indonesia to Cambodia and sharing of new technology (Sin Samnang, Cambodia)	√					
3	Feasibility study of micro hydro (Didik Hadiyanto, Indonesia)	√					
4	Find synergies and common challenges (Robert Schultz, Indonesia)	√					
5	How is private sector strengthened (Robert Schultz, Indonesia)					√	
6	How is product/construction quality ensured (Robert Schultz, Indonesia)				√		
7	Community preparation (Amalia Suryani, Indonesia)	√					
8	Monitoring and evaluation (Amalia Suryani, Indonesia)						√
9	Productive use of energy (PUE) application (Amalia Suryani, Indonesia)					√	
10	Renewable energy possibilities application, better approach in: planning, application (development), monitoring and Evaluating (Dadan Mochamad Ramdhany, Indonesia)			√			
11	Better system and technology to influence either policy or technical aspects (Mahmud Al Faiz, Indonesia)			√			
12	Basic knowledge of hydro power technique (Houmpheng Theuambounmy, Lao PDR)	√					
13	Site assessment, system design, installation (Houmpheng Theuambounmy, Lao PDR)		√				
14	Practical implementation of micro hydro power for rural development (Houmpheng Theuambounmy, Lao PDR)		√				
15	Policy and financial support to promote micro hydro power (Houmpheng Theuambounmy, Lao PDR)		√				
16	General and technical aspects of micro hydro power (Phonepasong Sithideth, Lao PDR)	√					
17	With sharing knowledge and experience from other countries, I can apply for micro hydro project in remote area (Rahman Mohd Din, Malaysia)	√					
18	Application of the new Feed in Tariff (FiT) under Sustainable Energy Development Authority (SEDA Malaysia) that implementing and managing the renewable energy programme (Edishan Mohd Sukor, Malaysia)		√				
19	The basic requirement for this successful renewable energy, that's my expectation to get from this Training (Teerachai Niamluang, Thailand)		√				
20	I expect got design and technical technology to share in my country (Weera Sriwarom, Thailand)			√			
21	Mechanism and safety requirements (Le Thi Thoa, Vietnam)				√		
22	Design and manufacturing equipments for micro hydro power plant (Do Anh Tuan, Vietnam)				√		

23	Show some hydro power projects (Do Anh Tuan, Vietnam)		√				
V	**OTHER EXPECTATIONS**						
1	I expect to ASEAN network for developing in our region (Seiha Hang, Cambodia)	√					
2	I hope for other developing country to support and provide any training programme for technicians in Cambodia (Sin Samnang, Cambodia)	√					
3	I hope we can share our experience, knowledge and policy about renewable energy (Didik Hadiyanto, Indonesia)		√				
4	How community-based management of micro hydro power can be strengthened (Robert Schultz, Indonesia)					√	
5	Gaining good network with both local/national stakeholders and the stakeholders from ASEAN region (Amalia Suryani, Indonesia)		√				
6	Getting other experiences from other countries in development and problem solving in micro hydro application (Dadan Mochamad Ramdhany, Indonesia)		√				
7	I can get so many other information system of micro hydro power plant from other participants in ASEAN areas especially for the experience of building micro hydro system, based on so many aspects like a technology system, economic aspect, and social aspect (Mahmud Al Faiz, Indonesia)		√				
8	Share of experience of renewable energy application among participants (Houmpheng Theuambounmy, Lao PDR)		√				
9	Create network cooperation with participants and organizing committee for future cooperation in renewable energy development and promotion in Lao PDR (Houmpheng Theuambounmy, Lao PDR)		√				
10	Operation and maintenance of technical works in rural area (Phonepasong Sithideth, Lao PDR)		√				
11	Good experience and exposure to all the participants among ASEAN countries such culture, social and environment in the organization country (Rahman Mohd Din, Malaysia)		√				
12	To gain good experience and exposure with ASEAN countries delegates (Edishan Mohd Sukor, Malaysia)		√				
13	I want to learn about the way of each other country to plan and action with renewable energy especially from the best practice of each (Teerachai Niamluang, Thailand)			√			
14	Have a more time to visit Bandung (Le Thi Thoa, Vietnam)	√					
15	To supply micro hydro power equipments for other country. My Institute have made turbines (Francis, Kaplan, Crossflow, Turbular, Tidal Power) capacity up to 2 MW (Do Anh Tuan, Vietnam)			√			
16	To consulting and investing small hydro power projects (Do				√		

	Anh Tuan, Vietnam)							
17	Education and technology transfer about small hydro power equipments for other country (Do Anh Tuan, Vietnam)		√					
Total		**22**	**44**	**18**	**5**	**3**	**1**	
		84			**9**			
Percentage		**90.32**			**9.68**			

Based on the percentage of met expectations (90.32%), we may conclude that the participants are satisfied with the training programmes they participated.

[*As a reference, the scoring range is classified as follows: 81-100% met is Satisfied; 51-80% met is Good; 26-50% met is Sufficient; and 0-25% met is Failed*]

2. Summary of the Evaluation by Training Subjects:

No	a1	a2	b1	b2	b3	**Score**	**Relevance**	**Efficiency**	**Name**
1	4,1	4,1	4,2	4,1	3,8	**4,03**	**4,06**	**4,02**	Iman Santoso
2	4,2	3,9	4,2	4,4	4,4	**4,22**	**4,06**	**4,33**	Iman Permana
3	4,1	3,9	4,1	4,6	3,8	**4,10**	**4,00**	**4,17**	Chayun Budiono
4	3,9	4,0	4,1	4,3	3,8	**4,02**	**3,94**	**4,07**	Priyono Sutikno
5	3,9	3,7	3,8	4,1	4,0	**3,91**	**3,83**	**3,96**	Ardi Nugraha
6	4,0	4,0	4,3	4,1	4,1	**4,09**	**4,00**	**4,15**	Akhmad Taufik
7	4,3	4,5	3,9	3,9	4,1	**4,14**	**4,39**	**3,98**	Field Study 1
8	4,2	4,2	4,0	4,5	4,3	**4,22**	**4,17**	**4,26**	Field Study 2
	4,08	**4,03**	**4,08**	**4,26**	**4,02**	**4,09**	**4,06**	**4,12**	Average

The ranging figures are from 1 to 5. If the average score of all training subjects is closer to 5, it means that all subjects delivered in the Class and Field Sessions are well understood by the participants and most appropriate for them.

[*The Class/Field Evaluation Form is attached for reference*]

3. Result of the Overall Evaluation:

No	a1	a2	b1a	b1b	b2	c1	c2	c3	c4
1	4	4	4	4	4	4	4	4	4
2	4	4	4	4	4	4	4	5	4
3	4	4	4	4	4	4	4	4	3
4	4	5	4	3	4	3	3	4	3
5	4	4	4	4	4	5	3	5	3
6	5	5	5	3	5	5	5	5	4
7	5	4	4	3	4	4	4	4	4
8	4	5	5	3	5	5	4	4	5
9	5	4	4	5	5	4	5	5	3

10	5	4	5	4	5	5	5	4	3
11	4	4	4	3	4	4	4	4	4
12	4	4	5	4	5	3	4	4	5
13	4	4	4	4	4	4	4	4	4
14	4	5	5	3	5	5	4	5	5
15	4	4	4	4	5	5	4	4	3
16	5	5	5	3	5	4	4	5	4
17	4	5	4	4	5	4	5	4	4
18	4	5	5	4	5	5	5	5	4
Total	77	79	79	66	82	77	75	79	69
Score	4,3	4,4	4,4	3,7	4,6	4,3	4,2	4,4	3,8
	4,33		**4,20**			**4,17**			
					Total Score				37,9
					Final Score				**4,22**

The result also shows that the final score is 4,22, almost 5. The overall training was justified very good.

[*The Overall Evaluation Form is attached for reference*]

VIII. Conclusion and Recommendation

The overall implementation of the training programme on micro hydro power for rural development in ASEAN Region is well organized, both substantially and logistically.

However, there are some feedbacks from the participants expressed during the overall evaluation that could be accommodated in the similar training in the future, as follows:

1. Training subject may be added with complementary important issues, such as 'productive use of electricity', 'metering system for microhydro', and 'community-based social and economic development'.

2. Field study is not necessarily to visit several sites, but a one-day comprehensive field study at a carefully selected best practice one is more appropriate and more technically experienced.

Therefore there is a strong recommendation to conduct another similar training with considering the feedbacks from the participants. In this regard, the Committee has identified the best practice of microhydro prower development which is community-based that is located in Mojokerto, East Java. The venue for the next training could be in Surabaya. It takes about an hour to Mojokerto from Surabaya by toll road.

ATTACHMENTS

TOPIC/FIELD EVALUATION

The Training Programme on Renewable Energy:
Micro Hydro Power for Rural Development in ASEAN Region
Bandung, 18 - 25 June 2012

Name of Topic/Field :

Name of Trainer/ Resource Person :

Date : **Time :**

Instruction:
Use the following score to indicate the extent to which you agree or disagree with each of the statements below.
Score Code:

Strongly disagree	= 1
Disagree	= 2
Neutral	= 3
Agree	= 4
Strongly agree	= 5

If you have any comment, please write down on the space at the end of each item.

BLOCK A: RELEVANCE

A1. I was able to understand the operating system of Micro Hydro Power. (Level of Understanding)

1	2	3	4	5

Comment:

……

……..

A2. Knowledge/skills gained from this field visit could be applied in my country. (Level of Application)

1	2	3	4	5

Comment:

……

BLOCK B: EFFICIENCY

B1. Documents provided (Training Materials) are appropriate and useful.

1	2	3	4	5

Comment:

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……..

B2. The Trainer/ The resource person is professional (Method of instruction, Communication skills: clear explanation, clear answers to questions)

1	2	3	4	5

Comment:

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……..

B3. The time given was appropriate.

1	2	3	4	5

Comment:

……

……..

OVERALL EVALUATION

The Training Programme on Renewable Energy:
Micro Hydro Power for Rural Development in ASEAN Region
Bandung, 18 - 25 June 2012

Instruction:
Use the following score to indicate the extent to which you agree or disagree with each of the statements below.

Score Code:

Strongly disagree	= 1
Disagree	= 2
Neutral	= 3
Agree	= 4
Strongly agree	= 5

If you have any comment, please write down on the space at the end of each item.

BLOCK A: RELEVANCE

A1. The knowledge and practices of Micro Hydro Power for Rural Development scheme seem workable in my country.

1	2	3	4	5

Comment :

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...

A2. The content of the course (how to understand, build, develop and operate Micro Hydro Power for Rural development) meets the needs in my country.

1	2	3	4	5

Comment:

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BLOCK B: EFFECTIVENESS

B1. I was able to achieve the following objectives of this course:

a. Knowledge and practices of Micro Hydro power plant.

1	2	3	4	5

Comment:

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b. Knowledge on the different of New Energy and Renewable Energy.

1	2	3	4	5

Comment:

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B2. The course contents are clearly related to your present or future works.

1	2	3	4	5

Comment:

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BLOCK C: EFFICIENCY

C1. This course has covered the subjects that I expected.

1	2	3	4	5

Comment:

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C2. In general, the study visits arranged were suitable to help me deepen my understanding or further improve my skills on each subject.

1	2	3	4	5

Comment:

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C3. I consider the course is "timely" implemented according to the country's needs in building and developing micro hydro power for rural development (objective of the course).

1	2	3	4	5

Comment:

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C4. One-week course is appropriate.

1	2	3	4	5

Comment:

SELECTED PHOTOS

Group photo of Participants and the VIP Guests

Opening Session

Welcoming Speech by the Executive Director of ASEAN Foundation

Keynote Speech by the Special Assistant to the Minister of Energy and Mineral Resources

Opening Speech by the Chairperson of the Governing Council of NAM CSSTC

Class Session

Presentation of Country Reports

Special Session on Technical Subjects at HYCOM

Technical Workshop at HYCOM


Class Session at HYCOM

Technical Discussion on the Computerized System at HYCOM

Group Photo at HYCOM

Visiting Hydro Power Plant of PLTA Bengkok, Bandung


Class Session at PLTA Bengkok

Group Photo at PLTA Bengkok

Technical Discussion at PLTA Bengkok

Checking Inside of the Turbine

Checking Electric Panel

At the Electric Circuit System

Checking the Water Resource

Another Field Study at the Micro Hydro Power Plant at Melong Jambelaer, Subang

Checking Electric Panel Connected to Grid

Indonesian Made Turbine

Endless Running Water Resource

Visit and Discussion at the Gallery of Micro Hydro Machineries and Parts, Cimahi

Discussion with the Producer of Indonesian Made Turbine

Discussion on the Main Parts of Turbine


Class Session at the Gallery

Technical Discussion on Turbine and Its Performance

Group Photo at the Gallery

Session Break: Visiting the Asia-Africa Conference Museun

Session Break: Enjoying Sundanese Traditional Dances

Presentation of Action Plan

Check Participant's Expectations and Evaluation

Closing Session: Certificate Awarding

Closing Session: Certificate Awarding

Closing Session: Participants' Representative's Vote of Thanks

Closing Session: Assistant Director for Programme of NAM CSSTC's Speech

Closing Speech by Director of ETCENEREC, Ministry of Energy and Mineral Resources

The Supporting Team