= Narrative Report =

INTERNATIONAL TRAINING PROGRAMME ON BIOENERGY DEVELOPMENT

held in cooperation of:
the Government of the Republic of Indonesia
and the Non-Aligned Movement
Centre for South-South Technical Cooperation (NAM CSSTC)
(Yogyakarta, Indonesia, 26 October - 1 November 2016)

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1. General Situation of the Project

Background

Bioenergy is renewable energy made available from materials derived from biological sources. Biomass is any organic material which has stored sunlight in the form of chemical energy. As a fuel it may include wood, wood waste, straw, manure, sugarcane, and many other byproducts from a variety of agricultural processes.

In its most narrow sense it is a synonym to biofuel, which is fuel derived from biological sources. In its broader sense it includes biomass, the biological material used as a biofuel, as well as the social, economic, scientific and technical fields associated with using biological sources for energy. This is a common misconception, as bioenergy is the energy extracted from the biomass, as the biomass is the fuel and the bioenergy is the energy contained in the fuel.

Biomass energy programmes offer a wide range of potential benefits for developing countries. Already traditional biomass products like firewood, charcoal, manure, and crop residues provide the main source of household energy use for some 2-3 billion people in the developing world, and this demand is likely to grow in the years ahead. But new technologies for commercial energy production from biomass are emerging that could lead to dramatic new opportunities for agriculture and the rural sector, as well as help developing countries reduce their dependence on expensive oil imports. Both the traditional and the new options for biomass energy pose challenges that will require technology and policy solutions to ensure efficient, healthy, and environmentally sustainable outcome.

In the household fuel and health sector, tremendous gains in fuel reduction and health improvement are possible through the design and dissemination of improved stoves. At the same time, significant benefits to forest sustainability and biomass production are achievable by enforcing sustainable forest and agricultural waste management strategies.

The production of energy from biomass involves a range of technologies that include solid combustion, gasification, and fermentation. These technologies produce liquid and gas fuels from a diverse set of biological resources -- traditional crops (sugarcane, maize, oilseeds), crop residues and waste (maize stover, wheat straw,

rice hulls, cotton waste), energy-dedicated crops (grasses and trees), dung, and the organic component of urban waste. The results are bioenergy products that provide multiple energy services: cooking fuels, heat, electricity, and transportation fuels. It is this very diversity that holds the potential of a win-win development path for the environment, social and economic development, and energy security. There is a clear link between access to energy services and poverty alleviation and development.

Training Substance and Methodology Applied

With reference to some successful bioenergy development programmes in many developing countries, the Non-Aligned Movement Centre for South-South Technical Cooperation (NAM CSSTC) with the support of the Government of Indonesia (Ministry of Foreign Affairs and Ministry of Energy & Mineral Resources) jointly conducted an International Training Programme on Bioenergy Development. The training was conducted in Grand Zury Hotel, Yogyakarta, Indonesia, from 26 October to 1 November 2016.

The 12 (twelve) Training Subjects were shared in the Class and Field Sessions, namely: (1) Introduction to Bioenergy; (2) Characteristics and Potency of Feedstock; (3) Technology and Management of Bioenergy Production; (4) Energy Forest; (5) Utilization of Bioenergy; (6) Mechanical and Biological Treatment of Municipial Waste to Energy; (7) Advanced Biofuel; (8) Financial and Economic Aspects of Bioenergy Project; (9) Sustainability Aspect of Bioenergy Project; (10) Set up a Bioenergy Project; (11) Microalgae-based Biofuel Production; and (12) Tofu Industrial Waste. The participants were requested to present their respective country papers on the first session.

Field study was conducted at the Microalgae-based Biofuel Production at the Nogotirto Algae Park in Sleman District. Another field study was conducted at a successful home industry producing tofu which waste is processed in digester for Biogas Production in Kulonprogo District. Hence total training subject become 14 (fourteen).

On the concluding session the participants also prepared and presented their Action Plans to be implemented in their respective countries when they are back home.

The series of evaluations were made by using forms as described in the Chapter 3 Project Achievement, *pages 3-11.* Participants were also requested to express their expectations in written using form provided by the Committee before departing to Indonesia to be further discussed in the last session before the Closing Ceremony.

2. Participant and Resource Person

Total participant is 13 (thirteen) persons from 8 (eight) developing countries, namely: Brunei Darussalam, Cambodia, Cuba, Indonesia, Lao PDR, Myanmar, Philippines and Vietnam.

Resource persons are from the University of Gadjah Mada (Yogyakarta), the Institute of Technology Bandung, University of Indonesia (Jakarta) and the Ministry of Energy and Mineral Resources of Indonesia.

The participants are from the government institution, university and research institution working on energy-related activities. *Detail of participants and resource persons is described on pages 14-17.*

3. Project Achievement

Objective

(a) The main objective of the training is to provide an instant benefit to energy-related policy makers and renewable energy (especially bioenergy) practitioners. Upon completion of this training the trainee is expected to be aware of: (i) the importance of renewable energy; (ii) knowledge of bioenergy and its development; (iii) technical aspect and benefits of bioenergy; (iv) financial and economic aspects of bioenergy; and (v) sustainability issues.

(b) The criteria of successful achievement are as follows:

a. participant's expectations were satisfactorily met;
b. training subjects delivered and discussed were relevant, efficient and clearly understood;
c. field studies enriched participants with theory and technical aspects of the subjects concerned; and
d. participants could prepare action plans to be implemented in their respective countries post training.

Actual Output

The actual training outputs are Action Plans prepared by participants on country basis. They also indicated what internal and/or external assistance is required. Participants becoming aware of bioenergy both substantively and technically.

Evaluation Results

Following is the result of series of evaluations made:

1. Checked Expectations and Evaluation

Before participants departed to Indonesia, all participants were requested to express their expectations in written using the form prepared by the Committee. Their expectations were compiled by different subject matters concerned and openly discussed on the last session. They all together checked whether their expectations were met or not. There are also series of post-class and post-field evaluations by training subjects. Overall evaluation was made before the Closing Session.
The results are described as follows:

1. Checked Participant's Expectations:

No.	EXPECTATIONS	MET			NOT MET		
		10	8	6	4	2	0
I	**ON THE GENERAL KNOWLEDGE RELATED WITH RENEWABLE ENERGY**						
1	My main expectation is to expand and deepen my knowledge on the topic of bioenergy. More specifically, I hope to use the knowledge acquired to help diversify the economy of Brunei Darussalam away from oil and gas. (Lim Ren Chong, Brunei Darussalam)		X				
2	Get a basic understanding on the uses, progress, applicability and effectiveness of bioenergy in different regions of the world. This will also cover the challenges and difficulties that may arise from bioenergy and the solution to tackle the challenges. (Abdul Hanif Mahadi, Brunei Darussalam)	X					
3	I would like to learn about used renewable energy and can be defined as "energy contained in living or recently living biological organisms" (fossil fuels are thus excluded). (Sokchea Yang, Cambodia)	X					
4	Bioenergy relation with the solar wind hydro and biomass. (Yim Sophy, Cambodia)		X				
5	• Experiences, troubles and solutions organizing technology supply chain for implementation. • Regulatory and institutional good practices for promotion of bioenergy technology. (Alfredo Jose Curbelo Alonso, Cuba)		X				
6	1) Understanding the principal process and technology of bioenergy production from many kind of biomass sources.	X					
	2) Learning the bioenergy application in many countries, including the local development in technology, policy, social and economy aspects in order to achieve sustainability.		X				
	3) Having knowledge to analysis and formulate strategies for maintaining, strengthening and improving bioenergy existing program in Indonesia.			X			
	4) Developing idea to make the bioenergy programme for personal and communal in community.		X				
	5) Developing idea to research. (Anggun Rahmada, Indonesia)	X					
7	I want to know and understand how to develop bio energy system (Technical, Social, Economic, and Environmental aspect) to support energy supply in Indonesia, especially in remote and rural area. (Muhammad Noviansyah Aridito, Indonesia)		X				
8	Bioenergy is renewable energy made available from materials derived from biological sources. Biomass is any organic material which has stored sunlight in the form of chemical energy. As a fuel it may include wood, wood waste, straw, manure, sugarcane, and many other byproducts from a variety of agricultural processes. In its most narrow sense it is a synonym to biofuel, which is fuel derived from biological sources. In its broader sense it includes biomass, the biological material used as a biofuel, as well as the social, economic, scientific biomass, as the biomass is the fuel and the bioenergy is very important on the future. (Keomany Vhansaly, Lao PDR)	X					
9	I would like to know Biodiesel project and up-to-date knowledge related with Biodiesel from your Bioenergy development training. (Ye Lin Win, Myanmar)		X				
10	I expect to learn about the scope and limits of the sources and applications of bioenergy, including the utilization for rural communities as an alternative renewable source of energy for electrification and other purposes. (Bernie Cangrejo, Philippines)	X					
11	The training will give a broader view of bioenergy development which is essential in project evaluation and management. (Julius Lacdoa Mayorga, Philippines)	X					
12	To learn experiences about governmental supports and relevant mechanism on realization, financing … for bioenergy development (Dang Huong Giang, Vietnam)	X					
13	– To learn the types of bioenergy currently used in the world, and benefits that bioenergy provides for sustainable environment.	X					
	– To find out the current status of bioenergy in the world, its advantages and challenges for developing the bioenergy sector as well as measures to adopt bioenergy in developing countries;		X				
	– To study technologies, equipment, methods of bioenergy production. (Tran Thi Thu Trang, Vietnam)		X				
II	**ON THE BASIC TECHNICAL ASPECTS OF BUILDING AND DEVELOPING BIOENERGY**						
1	With regards to the technical aspects, I would like to learn about the infrastructure and human capacity required to grow this sector. This knowledge can be used to gauge the investment required from both the public and private sector. In addition to the above, this programme can help introduce me to the key regional players in this sector who are crucial for the development of this sector. (Lim Ren Chong, Brunei Darussalam)	X					
2	Understand the fundamental of bioenergy technologies and also get updated knowledge on new development of bioenergy technologies applied in countries internationally. (Abdul Hanif Mahadi, Brunei Darussalam)	X					
3	To building more knowledge who working this sector (bioenergy) and do more research on bioenergy. Workshop, conference and training are requiring from training of trainer and provide to people who didn't get the electric. Farmer is the one of important point to give	X					

	us for bioenergy. (Sokchea Yang, Cambodia)						
4	Bioenergy for sustainable rural development project. (Yim Sophy, Cambodia)		X				
5	• Technical sustainability of bioenergy technologies.		X				
	• Questions related to maintenance works and operation of bioenergy facilities.	X					
	• Lesson learnt on technological maturity of Bioenergy technology. (Alfredo Jose Curbelo Alonso, Cuba)	X					
6	1) Assessment the potential biosource into energy production.	X					
	2) Knowing the the basic design and model for bioenergy technology. Comparing technology and selecting the appropriate (Anggun Rahmada, Indonesia)	X					
7	• I want to know technical aspect of Bio energy system (Biomass, BioGas, bio ethanol, biodiesel (from CPO), Bio Oil from Pyrolysis and Gasification, especially biomass energy from waste. How to build a Power Plant from Bio Energy in rural and remote area.	X					
	• To understand and learn about thermochemical and biochemical process to convert bio resource into bioenergy.		X				
	• To understand how to develop and built Power Plant. For example Gasifier to convert waste biomass as syngas and electricity		X				
	• o know Feasibilty Study on Bioenergy System		X				
	• To understand how to preparing, planning, developing, managing bioenergy system in remote and rural area		X				
	• To evaluate bioenergy system to improve performance (Muhammad Noviansyah Aridito, Indonesia)		X				
8	Mobilize people and stakeholders to recognize the importance and to participate in renewable energy Development, □Inform actors at all levels and in all sectors of promotional policies and increase access to information. (Keomany Vhansaly, Lao PDR)		X				
9	I would like to know Biodiesel project and Biodiesel plants related with technical aspects of building and developing bioenergy. (Ye Lin Win, Myanmar)		X				
10	I expect to gain knowledge on design strategies to improve the efficiency of specific bioenergy production systems, especially the microbionergy systems, and the latest innovative technologies on bioenergy conversion and production. (Bernie Cangrejo, Philippines)		X				
11	I expect to enhance my knowledge in bioenergy which in our agency there are many bioenergy researches and development that was being evaluated for possible approval and funding. (Julius Lacdoa Mayorga, Philippines)	X					
12	Vietnam is under pressure of rapid increasing of electricity demand which requires a huge development in power generation sources. In which, among others, bioenergy is given great interest recently. Therefore, I am interested in learning experiences in other countries about: - Technology of medium and large scale biogas digesters - Electricity generation from biogas digesters (Dang Huong Giang, Vietnam)		X				
13	– To learn basic techniques, materials for bioenergy production	X					
	– To study various principles of transformation, renewable energy schemes, waste sources transformed diagram from productive activities into bioenergy types, technological processes for biofuels production, especially from palm oil Indonesia...		X				
	– To be introduced to production technology of pure biofuel from algae, micro-algae, fungi and bacteria	X					
	– To witness improved performance of the small-scale bioenergy factory; learning basic techniques, materials for bioenergy production, (Tran Thi Thu Trang, Vietnam)		X				
III	**ON SOCIAL AND ECONOMIC ASPECTS RELATED WITH THE DEVELOPMENT OF BIOENERGY**						
1	The development of a healthy bioenergy sector is a sustainable form of economic diversification away from oil and gas for Brunei Darussalam. This sector can help generate employment and revenue to address the socio-economic needs for Brunei Darussalam. (Lim Ren Chong, Brunei Darussalam)		X				
2	To have an overview of the social and economic impacts of bioenergy applied in different regions of the world. This includes the policy and regulations introduced by different governments to facilitate the development of bioenergy. (Abdul Hanif Mahadi, Brunei Darussalam)		X				
3	Social and Economic can add-on environment impact assessment and to support biomass certification schemes. Bioenergy will bring development opportunities by tacking rural area. They also perceive opportunities in relation to the export of modern energy which can further a country's economic development. (Sokchea Yang, Cambodia)		X				
4	Bioenergy also offers opportunities to increase income and employment in rural areas.	X					

	(Yim Sophy, Cambodia)						
5	• Social aspects: assessment of contribution of Bioenergy solutions to improvement of social and economic local development.		X				
	• Economic: techno and economic assessment of bioenergy projects. (Alfredo Jose Curbelo Alonso, Cuba)		X				
6	1) Understanding, how to start bioenergy programme, educating (recognizing) and participating the society in bioenergy plan.			X			
	2) Learning how to arrange stakeholders.			X			
	3) Assessing Economycal analysis (cost and benefit calculation) (Anggun Rahmada, Indonesia)		X				
7	• Propoor, Projob, ProPlanet, Progrowth and Three Pillar of Sustainable Development/Triple-P (Planet,People,Profit)		X				
	• Social impact : building social capacity , responsibility, awareness, and movement to use product bioenergy in daily activity. Social impact start from plantation of bioenergy resource, supply chain , conversion into thermal-chemical energy (biogas, biodiesel, syngas,etc) and electricity, and product to end user.		X				
	• Agricultural is one of suitable resources in Indonesia , bioenergy system is depend on agricultural. There are many farmer in Indonesia will get positif impact from bioenergy system. IMHO, Farmer is domanited by poor people (low income) in Indonesia		X				
	• Conversion energy of waste from agricultural will be one of the added value for society and economic. There are niche of propoor, proplanet, and projob		X				
	• To improve social movement on bioenergy systems , as sociopreneur. There are more jobseekers in Indonesia, there will be UMKM (Small Enterprise) in bioenergy trading from raw until product.		X				
	• To give solutions from bioenergy as other the alternative source of energy to prevent poverty by saving energy cost from fossil fuel (Muhammad Noviansyah Aridito, Indonesia)		X				
8	Social aspects of bioenergy sustainability relate to people themselves their access to food and reliable energy, their standard of living in both economics and safety, and their attitudes toward bioenergy in the present and future markets. To develop a greater understanding of this range of interactions, the Office supported Oak Ridge National Laboratory (ORNL) to investigate the social sustainability aspects of bioenergy systems. (Keomany Vhansaly, Lao PDR)	X					
9	In Myanmar, Ministry of Education is focal ministry for renewable energy. So, Department of Research and Innovation in Ministry of Education play a key role in renewable energy. In this, bioenergy is a branch of renewable energy. Our department co-operate with Ministry of Natural Resource and Conservation. I hope this training Program to provide the Biofuel project for remote of Myanmar. (Ye Lin Win, Myanmar)	X					
10	I expect to learn from the success stories including the challenges and best practices from specific case studies, in relation to the social and economic aspects related with the development of bioenergy in various countries. (Bernie Cangrejo, Philippines)	X					
11	I expected to hear some of their bioenergy resources and what is their most trends in terms of technology and how does it affect their economic is it for good or not. (Julius Lacdoa Mayorga, Philippines)		X				
12	- At household level: the application of small scale biogas digesters for replace/reduce the use of traditional nature resources (wood from forest, charcoal, oil..) to reduce the impact to environment/ ecology		X				
	- Effective management of domestic animal manure at the farms would help generating power from medium and large biogas digesters and reducing greenhouse gases emission. (Dang Huong Giang, Vietnam)	X					
13	– The benefits of protecting environment, pollution and greenhouse gas emission reduction induced by bioenergy.	X					
	– The impacts of biofuel on lives and health of community.	X					
	– Diversification and sustainable development of the agricultural sector, improving the efficiency of agricultural economy through the provision of clean energy		X				
	– Solutions to improve the efficiency of land use and to facilitate worker employment; (Tran Thi Thu Trang, Vietnam)			X			
IV	**HOW YOU MAY RELATE THE SUBSTANCES (EITHER THEORY OR TECHNICAL ASPECTS) THAT WILL BE DELIVERED IN THE SESSION TO YOUR COUNTRY'S INTEREST**						
1	The theory and technical aspects would need to be tailored specifically in order to implement them successfully in Brunei Darussalam. This would require a good understanding of how the theory and technical aspects alongside the implementation aspects in Brunei Darussalam. (Lim Ren Chong, Brunei Darussalam)	X					
2	To understand and compare the similarities and differences in bioenergy technologies as well as its impact and progress in other countries to Brunei. By learning from these experiences, this can help to enhance the development of bioenergy in Brunei. (Abdul	X					

	Hanif Mahadi, Brunei Darussalam)						
3	The use of biomass to produce bioenergy in order to provide a wide range of energy services (heat, light, comfort, entertainment, information, mobility) and to produce biomaterials. These include equity, development, energy supply, security, rural employment and climate change mitigation. It's very useful to deal some of climate change. It might be share people who live in countryside. (Sokchea Yang, Cambodia)			X			
4	My idea the rural area is very important for installation the bioenergy because some people can be income. (Yim Sophy, Cambodia)		X				
5	Development of Bioenergy technologies is closed to national priorities like: • Implementation of national policy for development of renewable energy. Bioenergy is the RES that has higher contribution to achievement of policy goals.			X			
	• Increasing of food security.			X			
	• Improvement of social and economic indicators in rural areas.			X			
	• Contribution to adaptation and mitigation of climate changes. (Alfredo Jose Curbelo Alonso, Cuba)			X			
6	I use the substances to depict Indonesia existing condition for bioenergy utilization, analysis the potential and constraint in Indonesia and formulating the strategies for maintaining the current programs and improving the new implementation of bioenergy. (Anggun Rahmada, Indonesia)	X					
7	Electrification in Indonesia less than 76%. Energy demand for transportation, cooking, industry is dominated by fossil fuels in Indonesia. Sometimes, fossil energy is rare and expensive in the market. Bioenergy is potential renewable energy resource in Indonesia. Whereas, Indoesia is Agricultural Country, rich of natural/bioresource that spread along islands. The other problem in Indonesia is an Archiopelago. Technical problem can be identified to deliver and supply fossil energy and electricty in rural and remote area. It will be expensive and sometimes rare in remote and rural area. This problem will be systemic impact, for example progress on developing left-behind region (3T) will be late. Development Bioenergy system become one of the solutions to developing region. (Muhammad Noviansyah Aridito, Indonesia)		X				
8	Promotion Bioenergy development quality about bioenergy from basic to International. (Keomany Vhansaly, Lao PDR)	X					
9	I also expect that Biodesel Project, Bioalgae project, Bioethanol project, Gasifier and Biomass Digester project will be delieverd in the session in my country. (Ye Lin Win, Myanmar)	X					
10	I expect to learn and develop ways on how the academe or education can be used to advance the benefits of bioenergy in the interest of the Philippines in promoting sustainable renewable energy sources. (Bernie Cangrejo, Philippines)		X				
11	Opportunity to expand network and linkages with other ASEAN countries about their bioenergy development and trends. (Julius Lacdoa Mayorga, Philippines)	X					
12	I expect that the information/ knowledges gained after participating in this course would effectively help me in doing my prefessional tasks in my institute, particularly in study and advisory to higher authorities with regards to supporting mechanism etc. for encouraging the application of electricity generation from biogas digesters etc. in order to reduce the use of fossil fuel in power generation, reducing greenhouse gases emission. (Dang Huong Giang, Vietnam)	X					
13	The advanced production technology of biofuels, in line with the scale and capacity of the Vietnamese economy						
	- The diverse applications of bioenergy in industries, environment, and human health		X				
	- Measures to encourage and promote the development of bioenergy in developing countries like Vietnam (Tran Thi Thu Trang, Vietnam)		X				
V	**POSSIBLE APPLICATION OF KNOWLEDGE AND EXPERIENCES SHARED IN THE SESSION TO YOUR COUNTRY'S RENEWABLE ENERGY PROGRAMME**						
1	There are many possible applications of knowledge and experiences shared in the session. For instance, how could use the knowledge and experience obtained to work on white papers detailing how it is possible to implement a healthy and sustainable bioenergy sector in Brunei Darussalam. Furthermore, such white papers can discuss the infrastructure, human capacity and investment required to grow this sector. (Lim Ren Chong, Brunei Darussalam)	X					
2	The knowledge and experiences shared by other countries will be beneficial to Brunei's bioenergy progress, especially on countries in the Southeast Asian region that share the same climate and economy as Brunei. (Abdul Hanif Mahadi, Brunei Darussalam)		X				
3	The vast majority of the world's bioenergy is currently produced from traditional uses of primary solid biomass in developing country. Consumption of biomass is driven by a variety of factors. For example, the production of heat and power from pulping waste is economically viable because of high value of the pulping chemicals recovered during the process and the high demand for heat and power in pulp and paper processing facilities. (Sokchea Yang, Cambodia)		X				

4	I will to be share my experience from the training course to the department for development in my country. (Yim Sophy, Cambodia)		X				
5	We have the opportunity to apply knowledge and experiences shared in the session in the scope of projects that are implemented by Bioenergy Group of CUBANERGIA. Those projects are focused on introduction of bioenergy technology and other RETs in rural areas. But also we are working on energy use of agro-residues and organic fraction of Municipality Solid Wastes. (Alfredo Jose Curbelo Alonso, Cuba)	X					
6	Learning the failure and success of bioenergy programme in many countries (technology, social, economy and environmental aspects) as lesson learnt, in order to avoid the similar error and stepping more efficient and effective in the upcoming programme. (Anggun Rahmada, Indonesia)		X				
7	• Indonesia is agricultural country, has potential bioresource		X				
	• Indonesia have many employess and jobseeker (demography bonus – more than 270 millions peoples), there are many low-ecomonic income		X				
	• Knowledge on Renewable energy, especially bioenergy development will be support Sustainable Development Goals (SDGs) in Indonesia (Muhammad Noviansyah Aridito, Indonesia)		X				
8	I am Developing partnership Bionergy Development and Networking for upgrading Knowledge and experiences. I am attempting at any workshop related to my field. This Bionergy development programme will be a great opportunity for me to learn, share and discover other technics to my country. (Keomany Vhansaly, Lao PDR)	X					
9	I also hope to share Biodesel Project and Bioethanol project to our country's bioenergy development programme. (Ye Lin Win, Myanmar)	X					
10	I expect to apply the knowledge I will gain in the area of information dissemination related to the Philippines' bioenergy development programme by promoting research projects in the area of bioenergy for engineering faculty and students. (Bernie Cangrejo, Philippines)	X					
11	Awareness of other knowledge and experience of bioenergy projects across the country (Julius Lacdoa Mayorga, Philippines)	X					
12	The development of biogas application in Vietnam mainly focuses on small scale for household level. In recent years we have several projects funded by international institutions/ foreign organization to built hundred thousands of household biogas digesters mostly in countryside areas. Base on experience from these projects, the upscaling of these models to medium and large scale with focusing on electricity generation in now ongoing. The implementation experiences in other countries are really helpful for us, especially about supporting mechanism etc. for encouraging the application of electricity generation from biogas digesters. (Dang Huong Giang, Vietnam)	X					
13	– To share knowledge related to technology production of biodiesel from palm oil, jatropha; developing biomass energy from livestock waste, waste from the production of cocoa,	X					
	– The potential of bioenergy production through the process of converting biomass into algal oil algae, then into biodiesel	X					
	– The status of bioenergy applications in the water; current issues, challenges and solutions of bioenergy use;		X				
	– Policies that encourage governmental investment, subsidies, and long-term development strategies for the bioenergy manufacturing industry; (Tran Thi Thu Trang, Vietnam)		X				
VI	**OTHER EXPECTATIONS**						
1	More importantly, I must not forget the other participants attending this training programme. They play will play an important role in bioenergy development in the years to come. As such, I hope to expand my network through this programme which will help foster further co-operation on developing the bio-energy sector in the Asian-Pacific region. (Lim Ren Chong, Brunei Darussalam)	X					
2	This training programmes will be a good opportunity to network with colleagues in the same bioenergy field that will lead to collaboration and sharing of ideas to accomplish the same goal. (Abdul Hanif Mahadi, Brunei Darussalam)	X					
3	After complete this training, I hope I could apply all my knowledge to my department and colleagues. It's such a useful programme. One another hand, I shall visit your country and learn your culture, economic and livelihoods. Hopefully, my expectation in the training are gain more knowledge and skill for my tasks and be able to transfer all of my knowledge and experience to my department or next generation on purpose to develop my country and build more straight forward relationship between our country. (Sokchea Yang, Cambodia)	X					
4	I expect that this training course program will provide me more experience and knowledge. (Yim Sophy, Cambodia)		X				
5	No more expections (Alfredo Jose Curbelo Alonso, Cuba)	-	-	-	-	-	-
6	The success story of implementation bioenergy in Indonesia is depending from the people/institution who use as energy source. Many companies have shown the bioenergy could minimize consumption of fossil fuel. The reason is company has rule and support system to use it. For example; POME utilization as energy. In the other hand, implementation bioenergy in society have many challenges. Regarding	X					

	the observation, the problems aren't coming from the raw material, but the people who running the program. The social organization are the most problem, furthermore in the communal installation. The role and job distribution sometime splash social conflict and followed by the unworked system and installation In the other hand, for the utilization in larger scale are need complex requirements. For example in converting biogas to electricity cases on connecting the electrical utility from PLN. Although, the government of Indonesia has rule in renewable energy, but PLN require the stability of the electricity production, while the product from bioenergy has problems in the stability. Regarding to these challenges above, I expect can improve the knowledge from the theoretical and sharing from the others programme throughout NAM's member countries. The improvement could give many benefit both in contribute suggestion to the government in policy and the developing programme in the society. (Anggun Rahmada, Indonesia)						
7	• Get experience to develop Technical Aspect of Bioenergy system into thermal and electricity	X					
	• Get experience to develop small enterprise on bioenergy system, especially waste to energy	X					
	• Get information, experience, relation to develop waste to energy (also on municipal solid waste) from this training (Muhammad Noviansyah Aridito, Indonesia)	X					
8	➢ I hoping on bioenergy development programme be responsible cooperation with (NAM CSSTC) technical aspects of building and developing bioenergy	X					
	➢ Development of RE industry, contribution to national economic growth;		X				
	➢ Issue a Biofuels Decree which provides an overall legal framework for setting the targets stipulates specific development goals; defines incentives, support and obligations of private investors including small-scale producers who are committed to produce exclusively for the domestic market; and establishes institutional arrangement for the promotion and development of biofuels. In the case of oversupply of biofuels, export will be allowed but no incentives or subsidies will be given to investors for the production for export. (Keomany Vhansaly, Lao PDR)	X					
9	I expect to research Biodesel Project in future and I will also try to apply knowledge, theory from your training in paper. (Ye Lin Win, Myanmar)	X					
10	I expect to learn aside from the technical lessons from the training, other information from participants coming from other countries, and to form network and build friendships among all participants and organizers. (Bernie Cangrejo, Philippines)	X					
11	For this training I more expecting to know more about Bioenergy, what is the best for the bioenergy, and what is not, after the training im equipped in terms of bioenergy that I can use as my capability to evaluate more project for possible funding in our agency. (Julius Lacdoa Mayorga, Philippines)	X					
12	- Chance for learning and sharing experiences from other participants.	X					
	- Chance to get more contacts for futher cooperation/ discussion on same interests. (Dang Huong Giang, Vietnam)	X					
13	Technological solutions to improve and develop biomass energy, reduce GHG emissions and generate abundant biofuels recommended for developing countries with tremendous economic and social difficulties (Tran Thi Thu Trang, Vietnam)	X					
Total		**58**	**53**	**9**	**0**	**0**	**0**
		120			**0**		
Percentage		**100%**			**0%**		

Based on the percentage of met expectations (100%), we may conclude that the participants are satisfied with the training programmes they participated.
[*As 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 Evaluation by Training Subjects:

Participants were requested to fill up the Evaluation by Subject/Field Form right after the related subject/field was finished. The Evaluation by Subject/Field Form is shown on *pages 19-20.* The tabulation result of the filled up questionnaires shows its summary/conclusion as follows:

No	A1	A2	B1	B2	B3	Score	Relevance	Efficiency
1	4.2	4.2	4.2	4.4	4.0	4.2	4.2	4.2
2	4.2	4.3	4.4	4.4	4.2	4.3	4.3	4.3
3	4.2	4.0	4.2	4.3	4.0	4.1	4.1	4.2
4	4.2	4.4	4.2	4.2	4.2	4.2	4.3	4.2
5	4.4	4.5	4.4	4.6	4.3	4.4	4.5	4.4
6	4.5	4.4	4.2	4.4	4.5	4.4	4.4	4.4
7	4.5	4.5	4.6	4.8	4.5	4.6	4.5	4.6
8	3.8	4.0	4.3	3.5	4.0	3.9	3.9	3.9
9	4.3	4.5	4.3	4.2	4.3	4.3	4.4	4.3
10	4.6	4.5	4.5	4.8	4.5	4.6	4.5	4.6
11	4.8	4.5	4.7	4.7	4.5	4.6	4.6	4.6
12	4.8	4.7	4.6	4.7	4.6	4.7	4.7	4.6
13	4.6	4.6	4.5	4.9	4.5	4.6	4.6	4.6
14	4.8	4.7	4.3	4.4	4.8	4.6	4.8	4.5
Average	**4.4**	**4.4**	**4.4**	**4.4**	**4.4**	**4.4**	**4.4**	**4.4**

Block A for Relevance; Block B for Efficiency

The score range is from 1 to 5. [1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree]. If the average score of all training subjects is closer to 5, it means that the 14 subjects delivered in the Class and Field Sessions are well understood by the participants and most appropriate for them. Based on the average of scores described above (4.4), the evaluation result is good. The relevance of the training subjects shared is also good as well as the training efficiency.

Number on the left column of the table above represents the resource persons with their respective training subjects as described following:

1. Tatang Hernas Soerawidjaja on *Introduction to Bioenergy*
2. Erick Hutrindo on *Characteristics and Potency of Feedstocks*
3. Arief Budiman and Rochim B. Cahyono on *Technology and Management of Bioenergy Production*
4. Joko Sulistyo and Muhammad Ali Imron on *Energy Forest*
5. Misri Gozan and Rochim B. Cahyono on *Utilization of Bioenergy*
6. Teguh Ariyanto on *Mechanical and Biological Treatment of Municipal Waste to Energy*
7. Eko Agus Suyono on *Advanced Biofuel*
8. Djoko Sihono Gabriel on *Financial and Economic Aspects of Bioenergy Project*
9. Adi Surjosatyo on *Sustainability Aspect of Bioenergy Project*
10. Rachmawan Budiarto and Teguh Ariyanto on *Set up a Bioenergy Project*
11. Eko Agus Suyono on *Microalgae-based Biofuel Production*
12. Agus Prasetya on *Tofu Waste-based Biogas Production*
13. Observatory Visit to the Microalgae-based Biofuel Production
14. Observatory Visit to the Tofu Waste-based Biogas Production

3. Summary of Overall Evaluation:

Participants were requested to fill up the Overall Evaluation Form on the last session. The Overall Evaluation Form is shown on *pages 20-22.* The tabulation results of the filled up questionnaires show the conclusion as follows:

No	A1	A2	B1a	B1b	B2	C1	C2	C3	C4
1	4	4	4	4	5	5	5	5	2
2	5	5	5	5	5	5	5	5	3
3	5	5	5	5	5	5	5	5	5
4	4	4	5	5	4	5	5	5	5
5	5	5	4	5	5	4	5	5	5
6	5	5	5	5	5	5	5	5	5
7	4	4	4	4	4	4	5	5	5
8	5	5	5	5	5	5	5	5	5
9	5	5	5	5	5	5	5	5	5
10	5	5	5	5	5	5	5	5	5
11	4	5	5	4	4	5	5	5	5
12	4	5	5	4	4	5	4	5	5
13	5	5	5	5	4	5	5	4	4
Total	60	62	62	61	60	63	64	64	59
Score	4.6	4.8	4.8	4.7	4.6	4.8	4.9	4.9	4.5
	4.7		**4.7**			**4.8**			
	Total Score		**42.6**						
	Final Score		**4.7**						

Block A for Relevance; Blok B for Effectiveness; Block C for Efficiency
The score range is from 1 to 5. [1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree]. If the average score of all training subjects is closer to 5, it means that overall subjects delivered in the Class and Field Sessions are well understood by the participants and most appropriate for them. Based on the average of final score (4.7), the overall evaluation result is good. This evaluation also to cross-check the result of evaluation by training subjects. There's consistency between evaluation by subjects and overall performance of the training sessions.

Number on the left column of the table above represents the number of participants or respondents (n).

4. Work Activities / Progress

The training programme was conducted through:

Class Session:

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

Field Session:

Observatory visit to the Nogotirto Algae Park at Sleman District which was intended to see how microalgae is properly cultivated to produce quality biofuel raw material to be further engineered at the production stage. Another observatory visit to a successful home industry producing tofu at Kulonprogo District that was intended to see how tofu waste is a good feedstock to be processed in digester to generate biogas energy for electricity and cooking.

Pesentation of Country Reports:

Participants were requested to prepare and present their Country Reports covering problems and potentials of renewable energy development, especially of bioenergy, in their respective countries. 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 to be implemented in their respective countries when they are back home. They also indicated possible future collaboration post training.

Language:

The language used in the Training Programme is English.

5. Problems and Difficulties

Basically problems and difficulties were not significantly found, either during the training preparation or implementation. However there was only one thing that should be carefully managed and anticipated which is related to the nomination and the selection processes. The nominees tend to come late due to some bureaucratic procedures in their countries.

The nomination forms received were not in schedule as expected. Most of the nominees were late in the selection process, although they were still in time to proceed with administrative works.

In general, the qualification of participants was met.

6. Recommendations

Following is the conclusion and recommendation for further anticipation:

The overall implementation of the training programme on bioenergy has been successfully implemented, both substantially and logistically.

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

1. Despite the training subjects have been considered appropriate, it could be enriched with more guest resource person(s) from other country(ies) that have similar cases/subjects. Guest resource person from Cuba was highly appreciated. The Cuban participant/resource persons proposed an additional subject of "Biomass Gassification" in the future similar training.

2. Technical exercises in the field session could be applied using appropriate instruments which are not complicated. It is intended partly for learning by doing practices.

3. Since the observatory visit is not merely on technical matters, it is suggested to extend more days at fieldsite to observe and practise relevant field works related to social, institutional and economic development. Moreover if the benefits go to the local communities.

4. There is also strong recommendation from the participants to conduct another similar training with considering relevant additional subject(s). In this regard, NAM CSSTC and the Ministry of Energy and Mineral Resources is requested to further identify another potential best practices of bioenergy development – either at community scale or commercial scale – that productively generate value added within local/national development process.

7. Name and title of persons preparing the report

1. **Achmad Rofi'ie**
   Assistant Director for Programme, NAM CSSTC
   for Narrative Report

2. **Subandiyo**
   Assistant Director for Administration and Finance, NAM CSSTC
   for Financial Report

Attachments

List of Participants

No.	COUNTRY	NAME	POSITION AND ORGANIZATION	CONTACT DETAILS
1	Brunei Darussalam	Dr. Haji Abdul Hanif Bin Dato Paduka Haji Mahadi	Lecturer in Nanomaterials, Centre for Advanced Material and Energy Sciences (CAMES), Universiti Brunei Darussalam	Centre for Advanced Material and Energy Sciences, Universiti Brunei Darussalam, Jalan Tungku Link, BE 1410, Brunei Darussalam Ph: +6732463001 Email: hanif.mahadi@ubd.edu.bn
2	Brunei Darussalam	Ren Chong Lim, DPhil (Oxon), MRes (Imperial), MSci (London), DIC, ARCS.	Lecturer at the Centre for Advanced Material and Energy Sciences (CAMES), Universiti Brunei Darussalam (UBD)	Centre for Advanced Material and Energy Sciences (CAMES), Universiti Brunei Darussalam (UBD) Tungku Link Road, BE1410, Brunei Darussalam Ph: +673 8739915 Cell: +673 2 461381 Email: renchong.lim@ubd.edu.bn
3	Cambodia	Sokchea Yang	Senior Technical Officer of Green Economy Department, National Council for Sustainable Development (NCSD), Ministry of Environment, Kingdom of Cambodia	Department of Science and Technology, National Council of General Secretariat for Sustainable Development, Ministry of Environment Morodok Techno Building (lot 503) Tonle Bassac, Chamkamorn, Phnom Penh, Cambodia Ph: +855 23213908 Home: #215, Group 02, Sangkat Dongkor, Khan Dongkor, Phnom Penh, Cambodia Ph: +855- 016 564 189 Email: yang_sokchea@yahoo.com
4	Cambodia	Yim Sophy	Vice Chief of Management and Promotion Office of Department of New and Renewable Energy under Ministry of Mines and Energy	#79. 89, Pasteur Street (51), Sangkat Phsar Thmey 3, Khan Daun Penh, Phnom Penh, Cambodia. Ph: +855 23 219 574; +855967573777 Fax: +855 23 219 584; Cell: +855 96 7573 777 Email: yimsophymime@ymail.com
5	Cuba	Dr. Alfredo Jose Curbelo Alonso	Senior Researcher at CUBAENERGIA, Havana, Senior Professor at High Institute for Technology and Applied Sciences, Havana	Calle 20# 4103 c/ 4/y 47, Playe, Mebena, Cuba Ph: +53-7 206 2062; Cell: +53-5-3398633 Email: acurbelo@cubaenergia.cu; acurbelo2002@yahoo.com

6	Indonesia	Anggun Rahmada, S.TP, M.Sc.	Researcher Assistant and Manager of UGM University Refinery Center Project	Waste Refinery Center, Chemical Engineering Department, Faculty of Engineering, Universitas Gadjah Mada. Jln. Grafika No.2, Bulaksumur, Yogyakarta 55281-Indonesia Ph: +62 274 649 2171 Fax: +62 274 649 2171 Cell: +62- 856-1715598 Email: anggun.rahmada@gmail.com
7	Indonesia	Muhammad Noviansyah Aridito, M.Sc.	Head of Environmental Engineering Study Program, Proklamasi 45 University (UP 45); Staf of Center for Energy & Environmental Study, UP 45 Renewable Energy Division	Jalan Proklamasi No. 1, Babarsari, Caturtunggal, Sleman, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55283 Ph: +62-274-485517, 485535 Fax: +62-274-486008 Cell: +62- 85729010501 Email: noviansyaharidito@yahoo.co.id
8	Lao PDR	Keomany VHANSALY	Bio-diesel Technical, Ministry of Science and Technology, Renewable Energy and New Materials Institute	Danxang village, Saythany District , Vientiane Capital, Lao PDR Ph:. + +85621790010; +85620-78866175 Fax: +85621-739009 Cell: +8562055895757 Email: manyy_yyy@hotmail.com
9	Myanmar	Ye Lin Win	Researcher of Biomass, Department of Research and Innovation, Ministry of Education	Department of Research and Innovation, Ministry of Education No.6, Kabar Aye Pagoda Road, Yankin Township, Yangon, Myanmar. Ph: +95-1-663894 Fax: +95 Cell:+95-9-797352406 Email: yelinwin84@gmail.com; scholarmost@gmail.com; re.mstrd@gmail.com
10	Philippines	Bernie Cabalfin Cangrejo	Chair, Packaging Engineering Department, Central Philippine University (CPU)	CPU Centennial Village, Aganan, Pavia, Iloilo, Philippines 5001 or Central Philippine University Lopez Jaena St., Jaro, Iloilo City, Philippines Ph: +63 920 5608980,+63 333211971 loc. 2190 Fax: +63 333203824 Cell: +63 9205608980 E-mail: bcangrejo@yahoo.com
11	Philippines	Julius Lacdao Mayorga	Science Research Specialist, Philippine Council for Industry, Energy and Emerging Technology Research and Development	Philippine Council for Industry, Energy and Emerging Technology Research and Development 4th and 5th Level Science Heritage Bldg, Science Cummunity Complex. Gen, Santos Avenue, Bicutan, Philippines Ph: +632 8372935 Fax: +632 8376154 Cell: +632-09194861407 Email: juliuslmayorga@gmail.com

12	Vietnam	Dang Huong Giang	Researcher on Bioenergy, Institute of Energy-Ministry of Industry and Trade	Institute of Energy No. 6, Ton That Tung, Dong Da, Hanoi, Vietnam Ph: +84-4-22117624; +84-915064159 Fax: +84-4-3 8529302 Email: giangdhie@gmail.com
13	Vietnam	Tran Thi Thu Trang	Lecture of Biological Energy Application in Agriculture, College of Management for Agriculture and Rural Development	Truong Can Bo Quan Ly Nong Nghiep Va Ptnt I Vinh Quynh, Thanh Tri, Hanoi, Vietnam or College of Management for Agriculture and Ruraul Development No. 1 Vinh Quynh, Thanh Tri, Hanoi, Vietnam Tel: +84-0438615283;+840942856756 Fax: +84-0438615283;+840942856756 Email: tranthutrang88@gmail.com

List of Resource Persons

No.	NAME	POSITION AND ORGANIZATION	CONTACT DETAILS
1	Dr. Rachmawan Budiarto, M.T.	Centre for Energy Studies (PSE) UGM Dept. of Physics Engineering, Fac. of Engineering UGM Institute for Research and Community Service (LPPM) UGM	Centre for Energy Studies (PSE) UGM Dept. of Physics Engineering, Fac. of Engineering UGM Institute for Research and Community Service (LPPM) UGM Yogyakarta, Indonesia Cell: +62-813-92932566 Email: rachmawan@ugm.ac.id Blog: sustainability-rachmawan.blogspot.com
2	Dr. Ir. Tatang Hernas Soerawidjaja	InstitutTeknologi Bandung (ITB), Indonesia	Jl. Ranca Kendal No. 228A, Bandung 4019, Indonesia Fax: +62-22-2501438 Cell: +62-812 234 947 Email: thsoerawidjaja @gmail.com
3	Erick Hutrindo, M.T.	Trainer, Human Resource Development Centre for Electricity, New and Renewable Energy, and Energy Conservation, Ministry of Energy and Mineral Resources, Indonesia	Jl. Poncol Raya No. 39 Ciracas, Jakarta Timur, Indonesia Ph: +62-21-8729101, Fax: +62-21-8729109 Email: hutrindro_75@yahoo.com
4	Prof. Arief Budiman, D.Eng	Centre for Energy Studies, Chemical Engineering Department, Universitas Gadjah Mada (UGM)	Jl. Grafika 2 Kampus UGM, Yogyakarta, Indonesia Ph: +62-274-902171 Fax: +62-274-902170 Email: abudiman@ugm.ac.id
5	Dr. Muhammad Ali Imron	Lecturer, Faculty of Forestry, Universitas Gadjah Mada	Fac. of Forestry UGM Komplek Agro No. 1 Komplek Agro No. 1 Bulaksumur, Yogyakarta, Indonesia Cell: +62-812 1539 2583 Email: maimron@ugm.ac.id
6	Dr. Joko Sulistyo	Lecturer, Faculty of Forestry, Universitas Gadjah Mada	Fac. of Forestry UGM Komplek Agro No. 1 Komplek Agro No. 1 Bulaksumur, Yogyakarta, Indonesia Cell: +62-813 2840 5498

			Email: jsulistyo@ugm.ac.id
7	Dr. Rochim Bakti Cahyono	Lecturer, Center for Energy Studies and Department of Chemical Engineering Universitas Gadjah Mada	Department of Chemical Engineering Universitas Gadjah Mada Jl. Grafika 2 Kampus UGM, Yogyakarta, Indonesia Home: Nogosaren, Gamping, Yogyakarta, Indonesia Cell: +62-81 393 696 232 Email: rochimbakti@ugm.ac.id
8	Prof. Dr. Ing. Ir. Misri Gozan, M. Tech.	Lecturer/Professor, Department of Chemical Engineering, Faculty of Engineering, Universitas Indonesia	Department of Chemical Engineering, Faculty of Engineering, Indonesia University, Fak. Tek. Depok 16424, Indonesia Ph: +62-21-7863516 Fax: +62-21-7863516 Email: mrgozan@gmail.com
9	Dr. Ing. Teguh Ariyanto, S.T., M. Eng.	Lecturer, Gadjah Mada University	Jl. Grafika 2 Kampus UGM, Yogyakarta, Indonesia Cell: +62-81392441487 Email: teguh.ariyanto@ugm.ac.id
10	Dr. Eko Agus Suyono, M.App.Sc.	Lecturer, Center for Energy Studies and Faculty of Biology Universitas Gadjah Mada	Perum Citra Ringin Mas C-19 Purwomartani, Kalasan, Sleman, Yogyakarta, Indonesia Cell: +62-81328765344 Email: eko_suyono@ugm.ac.id
11	Dr. Djoko Sihono Gabriel	Lecturer, Department of Industrial Engineering, Faculty of Engineering, Universitas Indonesia	Fakultas Teknik, Universitas Indonesia, Depok 16424, Indonesia Cell: +62-812 1376300 Email: gabrieldsihono@gmail.com
12	Prof. Dr. Ir. Adi Surjosatyo, M.Eng.	Lecturer, Department of Industrial Engineering, Faculty of Engineering, Universitas Indonesia	Fakultas Teknik, Universitas Indonesia, Depok 16424, Indonesia Cell: +62-813 16164269 Email: adi_sur@yahoo.com; adisur@eng.ui.ac.id
13	Dr. Ir. Agus Prasetya, M. Eng.Sc.	Lecturer, Department of Chemical Engineering Universitas Gajah Mada	Jl. Grafika 2, Faculty of Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia Cell: +62-815 687 4629 Email: aguspras@ugm.ac.id
14	Dr. Bambang Priandoko, M.T.	Head of Standardisation & Planning, Human Resource Development Centre for Electricity, New and Renewable Energy, and Energy Conservation, Ministry of Energy and Mineral Resources, Indonesia	Jl. Poncol Raya No. 39 Ciracas, Jakarta Timur, Indonesia Ph: +62-21-8729101, Fax: +62-21-8729109 Cel: +62-21-82114604460 Email: bpriandoko@yahoo.com

Training Programme

Date	Time	Agenda
D-1: Wednesday 26 Oct 2016	08:30 – 09:00	**Welcome Speech** - *Mr. Tisnaldi, MEMR Indonesia* - *Group Photo*
	09:00 – 09:15	**Coffee break**
	09:15 – 10:00	- Briefing on the Programme, Logistics and Action Plan *Achmad Rofi'ie*
	10:00 – 13:00	- Presentation of Country Papers - *(Facilitated by Rachmawan Budiarto)*
	13:00 – 14:00	**Lunch break**

Date	Time	Agenda
	14:00 – 15:30	- Introduction to Bioenergy *Tatang Hernas Soerawidjaja*
	15:30 – 15:45	**Coffee break**
	15:45 – 17:15	- Introduction to Bioenergy (*continued*) *Tatang Hernas Soerawidjaja*
	19.00 – 19.30	**Official Opening Speech** *Esti Andayani*
	19.30 - End	**Welcome Dinner** - *Hosted by NAM CSSTC*
D-2: Thursday 27 Oct 2016	08:00 – 09:30	- Characteristics and Potency of Feedstock - Solid Biomass *Erick Hutrindo*
	09:30 – 09:45	**Coffee break**
	09:45 – 11:15	- Characteristics and Potency of Feedstock - Biofuel - Biomass *Erick Hutrindo*
	11:15 – 12:45	- Technology and Management of Bioenergy Production *Arief Budiman*
	12:45 – 13:45	**Lunch break**
	13:45 – 15:15	- Technology and Management of Bioenergy Production (*continued*) *Rochim B Cahyono*
	15:15 – 15:30	**Coffee break**
	15:30 – 17:00	- Chemurgy (Energy Forest) *Joko Sulistyo, Muhammad Ali Imron*
D-3: Friday 28 Oct 2016	08:00 – 09:30	- Utilization of Bioenergy *Misri Gozan*
	09:30 – 09:45	**Coffee break**
	09:45 – 11:15	- Utilization of Bioenergy (*continued*) *Rochim B Cahyono*
	11:15 – 12:00	- **Jumat Prayer and Lunch break**
	12:00 - 13:30	- Mechanical and Biological Treatment of Muncipal Waste to Energy *Teguh Ariyanto*
	13:30 – 15:00	- Mechanical and Biological Treatment of Muncipal Waste to Energy (*continued*) *Teguh Ariyanto*
	15:00 – 15:15	- **Coffee break**
	15:15 – 17:00	- Advanced Biofuel *Eko Agus Suyono*
D-4: Saturday 29 Oct 2016	08:00 – 09:30	- Financial and Economic Aspects of Bioenergy Project *Djoko Sihono Gabriel*
	09:30 – 09:45	**Coffee break**
	09:45 – 11:15	- Sustainability Aspects of Bioenergy Project (Best Practice in Indonesia) *Adi Surjosatyo*
	11:15 – 12:00	- Sustainability Aspects of Bioenergy Project (continued) *Adi Surjosatyo*
	12:00 – 13:00	**Lunch break**
	13:00 – 14:30	- Set up a Bioenergy Project (Case Study) *Rachmawan Budiarto, Teguh Ariyanto*
	14:30 – 15:15	- Set up a Bioenergy Project (Case Study) - (*continued*) *Rachmawan Budiarto, Teguh Ariyanto*
	15:15 – 15:30	**Coffee break**
	15:30 – 17:00	- Microalgae-based Biofuel Production *Eko Agus Suyono*
D-5: Sunday 30 Oct 2016	***Whole Day***	- Free
D-6: Monday 31 Oct 2016	08:00 – 09: 30	- Tofu Industrial Waste-based Biogas Production *Agus Prasetya*

Date	Time	Agenda
	09:30 - end	- Field Study a. Microalgae-based for Biofuel Production *Arief Budiman, Eko Agus Suyono* b. Tofu Waste-based Biogas Production *Rachmawan Budiarto*
D-7 Tuesday 1 November 2016	08:00 – 09:30	- Preparation of Action Plan by Participants *(Briefing by Rachmawan Budiarto)*
	09:30 – 09:45	- **Coffee break**
	09:45 – 10:30	- Preparation of Action Plan by Participants (*continued*)
	10:30 – 13:00	- Presentation of Action Plan by Participants *(Facilitated by Rachmawan Budiarto)*
	13:00 – 14:00	- **Lunch break**
	14:00 – 15:00	- Check Expectations and Overall Evaluation - *Achmad Rofi'ie, Ramdani Taihitu*
	15:00 – 15:30	**Closing Ceremony** - *Speech by Participants' Representative (Bernie Cangrejo, Philippines)* - *Speech by Achmad Rofi'ie, NAM CSSTC* - *Certificate Awarding* - *Official Closing Speech by Sukiman, MEMR Indonesia* - *Group Photo*
	15:30 – 16:00	**Coffee break**

Evaluation Forms

SUBJECT/FIELD EVALUATION
International Training Programme on
Bioenergy Development
Yogyakarta, 26 October - 1 November 2016

Name of Subject/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:
……

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:
……

1	2	3	4	5

B3. The time given was appropriate.

Comment:
.....

……...

.....

OVERALL EVALUATION
International Training Programme on
Bioenergy Development
Yogyakarta, 26 October - 1 November 2016

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 :
……...
……...

A2. The content of the course (how to understand, develop and manage micro hydro power, and its benefit for rural development seem workable in my country.

1	2	3	4	5

Comment:
……..
……..

BLOCK B: EFFECTIVENESS

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

a. Knowledge and practices of Micro Hydro Power.

1	2	3	4	5

Comment:
……
……

b. Explain and analyse Micro Hydro Power Development, its context, actors and venues, its relevance to your host country and the skills it requires.

1	2	3	4	5

Comment:
……
……

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

1	2	3	4	5

Comment:
……
……

BLOCK C: EFFICIENCY

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

1	2	3	4	5

Comment:

……

……

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:

……

……

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

1	2	3	4	5

Comment:

……

……

C4. One-week course is appropriate.

1	2	3	4	5

Comment:

……...

……...

Selected Photos

Welcoming Remarks by Tisnaldi
Head of Human Resource Development for Electricity, New Energy, Renewable and Energy Conservation, MEMR Indonesia (Moderator: Achmad Rofi'ie of NAM CSSTC)

Group Photo

Briefing Session

Presentation of Participant's Country Papers

Class Session

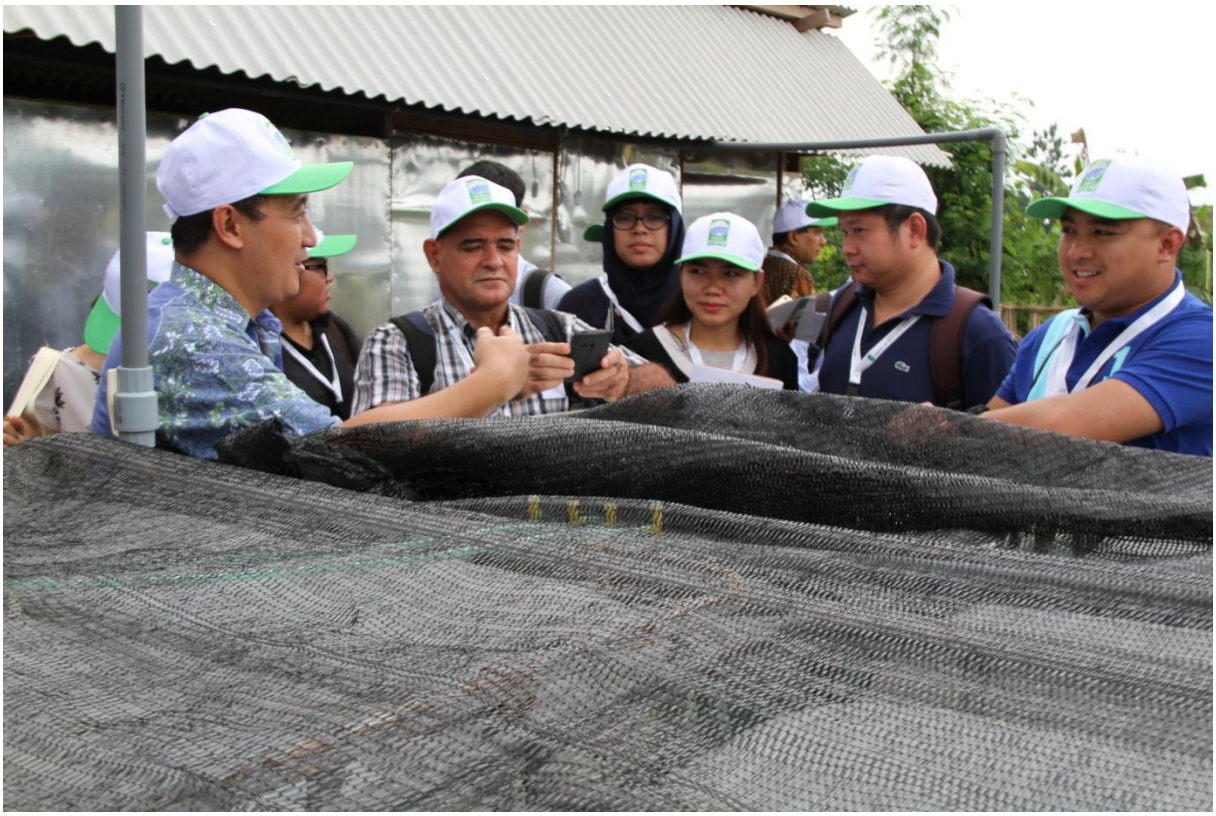
Opening Remarks by H.E. Ambassador Esti Andayani
Director General for Information and Public Diplomacy of MOFA Indonesia,
Director of NAM CSSTC

Group Photo

Discussion in the Class Session

Discussion Prior to Field Session

Field Session at the Microalgae-based Biofuel Production at Nogotirto Algae Park



Discussion on the Carefully Managed Cultivation of Microalgae

Certificate of Appreciation Delivered to Dr. Eko Agus Suyono, the Resource Person,
by Subandiyo of NAM CSSTC

Field Session at Tofu Production

Discussion on Tofu Waste-based Biogas Production

Group Photo on the Biogas Digester

Subandiyo on Behalf of NAM CSSTC Giving a Certificate of Appreciation
to the Tofu Producer and the Owner of Biogas Plant

Presentation of Action Plan by Country

Closing Session

Participants' Representative, Bernie Cangrejo (Philippines), Delivering Vote of Thanks

Achmad Rofi'ie of NAM CSSTC Delivering Remarks

Awarding of Certificate of Participation to Participants

Awarding of Certificate of Appreciation to Dr. Rachmawan Budiarto, the Training Coordinator

Sukiman of MEMR Indonesia Delivering Closing Remarks

Group Photo
after the Official Closing Session of the Training Programme

Non-Aligned Movement Centre for South-South Technical Cooperation (NAM CSSTC) was established in 1995 at the 11th Summit of NAM held in Cartagena as one of the vital and effective means for promoting and accelerating development in the developing countries. As a centre for actions and pooling resources as well as a forum for dialogue, its objective is to achieve the development goals of developing countries in attaining sustained people-centred development and to enable developing countries to participate more actively and equally in the process of globalization. The programmes carry direct and long-term benefit to render the economy of developing countries to be more broad-based, efficient and resilient.

Director:
Ambassador Esti Andayani
Assistant Director for Programme:
Achmad Rofi'ie
Assistant Director for Administration & Finance
Subandiyo

NAM CSSTC Address:
Jl. Rendani Kav-B10 No. 6, Kemayoran, Jakarta 10610, Indonesia
Telephone: +62-21-6545326, 6545321
Fax: +62-21-6545325
E-mail: office@csstc.org or namcsstc@gmail.com
Website: www.csstc.org