

PEREZ-GUERRERO TRUST FUND FOR ECONOMIC AND TECHNICAL  
COOPERATION AMONG DEVELOPING COUNTRIES

(G77 Project)

Final Report

On

Forum for the Development of Inter-Regional Biogas  
Cooperation and Capacity Building



BIOMA

Biogas Institute of Ministry of Agriculture (BIOMA), P.R.China

/FAO Reference Center for Biogas Research and Training

June 2019, Chengdu, China

# G77 PGTF Project Final Report

## Introduction

The Group of 77 approved the project entitled “Forum for the Development of Inter-Regional Biogas Cooperation and Capacity Building” for funding from Perez-Guerrero Trust Fund (PGTF)-Reference Number INT-18-K08 at the 32nd Meeting of the Committee of Experts of PGTF (New York, 25-28 July 2017), which was submitted by Biogas Institute of Ministry of Agriculture (BIOMA), P. R. China, P. R. China (hereinafter referred to as BIOMA). The duration of the project was 1 year, started on April 2011, and was allowed to be postponed to the end of 2018.

The Final Report included the project implementation activities and expenses and other related content.

## I. Project Overview

**1. Project Title:** Forum for the Development of Inter-Regional Biogas Cooperation and Capacity Building

**2. Abstract:** A forum for inter-regional biogas cooperation and capacity building will be held to exchange information related to exploiting the biogas value chain, biogas production and utilization, financing of biogas projects and programs, technical matters, safety matters, and competency building through training and development. They will also gain access to the latest in research and development and technologies on biogas.

**3. Background Analysis:**

Biogas, a clean, renewable source of energy is produced from the anaerobic digestion of organic matter, and can be done on a household small-scale level all the way to large commercial scale projects. Biogas can be used for electricity generation, for cooking and even as a vehicle fuel. As an energy source, biogas is carbon negative, and can produce useful byproducts such as organic fertilizer and slurry. Moreover, biogas can be used as a treatment method for waste, from agricultural waste produced by farms, to industrial waste produced by the agro-industrial plants, to even municipal waste generated by human consumption.

However, not many governments recognize the contributions that biogas can make to the environment and biogas development has been pursued to varying degrees of success all over Asia. Various countries in the region have pursued independent plans for biogas development, and many are still not aware of the advantages that biogas can bring, do not fully understand the technology and process that goes into biogas production, and do not know how to properly operate and maintain a biogas plant. Many government officials and stakeholders are also not aware of the immense contribution that biogas can make to the economy and environment, and thus, have not been developing or putting together policies that can help the industry to grow.

On the other hand, there are also countries in Asia that have managed to grow their biogas program very well. For example in China, with a stable government policy aimed at growing the biogas program for waste management purposes, the industry has grown tremendously over the past decade and China has hundreds of thousands of small scale digesters and have begun to develop the market for large scale, commercial digesters for increased biogas production.

There is the lack of a source of information and network that can help countries further develop their biogas sector and not much is shared between countries. Various international agencies including GIZ, SNV has helped countries such as Thailand and Vietnam to develop their biogas programs, but resources are limited and the programs have not expanded to other countries in Asia.

The main problems causing a bottleneck for biogas development in the region include:

- Lack of understanding on the true biogas value chain amongst government and industry leaders
- Lack of coordination between the different countries in Asia on biogas development
- Lack of policies governing the biogas sector
- Lack of safety standards in biogas digester designs, construction, operation and maintenance
- Lack of skilled manpower to operate and maintain biogas plants
- Lack of access to funding for biogas projects
- Subsidies for fossil based fuels distorting the market for biogas as an alternative fuel

According to CARACAS DECLARATION OF THE MINISTERS OF FOREIGN AFFAIRS OF THE GROUP OF 77 ON THE OCCASION OF THE TWENTY-FIFTH ANNIVERSARY OF THE GROUP, integrated approach towards biogas development in the region would produce the following results:

- Reduction in carbon emissions by replacing traditional fuels with biogas to produce electricity and vehicular fuel
- Reduction in land, water and air pollution utilizing biogas as waste treatment option for agricultural, agro-industrial, waste water and municipal waste
- Greater access to energy in rural and off-grid areas
- Reduction in poverty with increased access to fertilizer as a by-product of biogas production leading to increased revenue potential and increased agricultural production

The Conference stressed that exchange of energy should be extended to other sources of energy such as biomass. It also recommended that developing countries should regularly exchange information on the various aspects related

to energy production and utilization in the developing countries, particularly in regard to demand and supply, technical matters, energy use, conservation, energy-related technologies. It was agreed that increased exchange of technical information and closer coordination among developing countries was necessary in order to enable the successful establishment and operation of joint ventures in energy-related activities. The facilities of existing training institutions in developing countries should be expanded and, if appropriate, new ones created in developing countries, with the cooperation of competent organizations, in order to meet the increasing training requirements of developing countries for finding and developing indigenous energy resources, particularly in relation to the skills required for negotiation and management of energy exploration and exploitation projects.

## **I. Implementation**

National Biogas Associations, Government Officials from Ministries governing the development of Biogas, and NGO stakeholders that are responsible for biogas promotion and development, should be convened to address the problems and recommend ways and means of stimulating cooperation amongst the countries in Asia to further develop and exploit biogas as a source of energy and waste management solution. In particular, countries can share their experience acquired at the national and regional levels, as well as make an evaluation of the potential contribution in the short and long-term of biogas to the development of Asian economies and environment. The group would establish the principles of cooperation pertaining to the development of biogas on a regional basis.

The group should also be exposed to a comprehensive set of recommendations to govern safety aspects in the design, building, operations and management of biogas facilities as well as prepare a roadmap for the field of training and development of personnel of developing countries in biogas design, operations and maintenance. This should include, exchange of personnel, sharing of experiences and the establishment of training courses that will give countries access to technological and research progress on biogas.

### **Partner Institutions: Asia-Pacific Biogas Association**

The forum will take the following format over the course of 4 days:

16 April: Seminar on Biogas Value Chain

17 April: Orientation:

- Policy Making in relation to Biogas Development
- Setting National Standards in Safety
- Competency and Capacity Development through Training Standards

18 – 19 April Forum for Inter-Regional Biogas Cooperation and Capacity Building  
The forum will consist of presentations of experiences, technology and know-how by countries in the region.

- Phase 1: MOU on cooperative partnership establishment between BIOMA and APBA.
- Phase 2: Agreement between BIOMA and APBA on the co-organization of the forum.
- Phase 3: Lobbying for the event of forum on website and by email.
- Phase 4: Invitation of participants.
- Phase 5: Confirmation with vendors of hotel and booths

- Phase 6: Organization of forum.

**Benefits:**

The forum is expected to promote inter-regional biogas cooperation and capacity building to exchange information related to exploiting the biogas value chain, biogas production and utilization, financing of biogas projects and programs, technical matters, safety matters, and competency building through training and development. Participants will also gain access to the latest in research and development and technologies on biogas.

**III. Completed Activities**

**Time:** 16-19 April, 2018

**Location:** Kuala Lumpur, Malaysia

**Participants:** more than 200 participants from countries including China, Malaysia, Indonesia, Philippines, Viet Nam, Thailand, India and Germany. They are mainly government officials, researchers and enterprise representatives. Seven from BIOMA and five from APBA attended, some as speakers and some organizing staff.

**Implementation:** The activities including seminar on Biogas Value Chain, orientation and forum were jointly held in due by BIOMA and APBA.

- Phase 1: MOU on cooperative partnership establishment between BIOMA and APBA.

MOU signed as follows.



To Whom It May Concern:

The ASIA PACIFIC BIOGAS ALLIANCE (APBA) incorporated in Singapore fully supports and would like to co-organize the FORUM FOR THE DEVELOPMENT OF INTER-REGIONAL BIOGAS DEVELOPMENT COOPERATION AND CAPACITY BUILDING together with the Biogas Institute of Ministry of Agriculture (BIOMA).

Thank you.

Warmest Regards,

  
Vincent Choy  
Secretary General  
ASIA PACIFIC BIOGAS ALLIANCE

T: +65 6506 0965  
F: +65 6749 7293  
E: [vincent.choy@apacbiogas.org](mailto:vincent.choy@apacbiogas.org)

UEN: T14SS0183F

- Phase 2: Agreement between BIOMA and APBA on the co-organization of the forum.

## AGREEMENT FOR THE CO-ORGANIZATION OF THE BIOGAS ASIA PACIFIC FORUM 2018

This agreement is made between:

Party A: The BIOGAS INSTITUTE OF MINISTRY OF AGRICULTURE AND RURAL AFFAIRS (BIOMA), P.R. China

Party B: ICESN, a division of ALL EVENTS GROUP PTE LTD, Singapore

Party A and Party B co-organized Asia-Pacific Biogas Forum in Kuala Lumpur, Malaysia during April 18-19, 2018.

Party A owes Party B US\$4121 for the fees including:

- US\$3000 for the backdrop and setup of venue
- US\$621 for the printing and dissemination of brochure
- US\$500 for the printing of materials

Party A will transfer US\$4121 to Party B's account:

ALL EVENTS GROUP PTE LTD  
UNITED OVERSEAS BANK

Account Number: 421-300-086-6  
SWIFT: UOVBSGSG

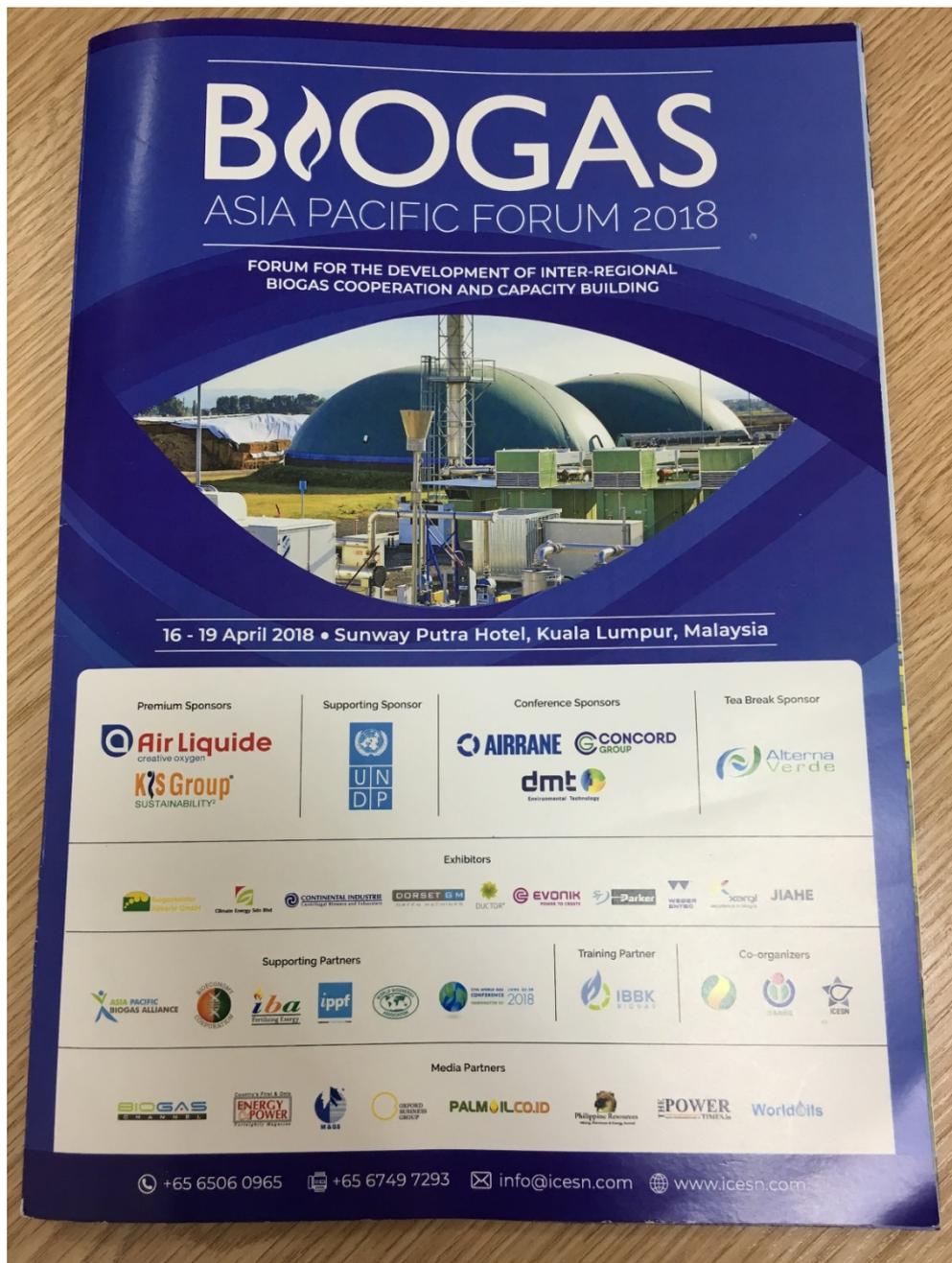
Signed By:



Signed By:



- Phase 3: Lobbying for the event of forum on website and by email.



The soft and hard copies of forum brochure were sent to government sectors, scientific institutes, and companies in countries of Asia-Pacific region. Announcement was publicized on website of BIOMA and APBA. The topics on policies, technical progress and economic analysis were highlighted.

- Phase 4: Invitation of participants.

Invitation letters were sent to biogas resource persons, buyers and agencies to attend the forum as speakers, participants or exhibitors. Supplementary demand from all stakeholders were focused on and the most number of countries were involved to invite.

Dear Luo Tao,

Have you noticed the changes to this year's program for the **BIOGAS ASIA PACIFIC FORUM 2018 (16 – 19 April 2018, Sunway Putra Hotel, Kuala Lumpur, Malaysia)**.

First of all, there is now a **TECHNICAL SESSION** that will run alongside the **COMMERCIAL SESSION**. Engineers and Operators of biogas plants will have the opportunity to learn more about the science and from the experiences of other biogas operators. Keep updated on the papers being presented on our website: [www.icesn.com/bgap2018](http://www.icesn.com/bgap2018) and don't miss out!

The **forum** is the largest biogas gathering for the community in the region. Joined by *over 400 biogas professionals all over the region*, this year will also feature our very first **BUYER'S NETWORK PROGRAM**. This innovative feature brings buyers of biogas equipment to the conference, by providing subsidies for travel and accommodation to pre-qualified buyers, plantation and feedstock owners who are evaluating biogas solutions to the forum to learn more about available technologies and how they can build sustainable viable biogas plants. (Please email us at [jessalou@icesn.com](mailto:jessalou@icesn.com) to find out more.)

*Don't miss out on the **7TH BIOGAS ASIA PACIFIC FORUM 2018** in Kuala Lumpur!*

[Sign up today!](#)

Warmest Regards,  
Jessalou Obal  
Biogas Online Portal

Join our Facebook page (<https://www.facebook.com/BiogasAPAC/>) to keep abreast of the latest developments and keep up to date on the latest news.

### THINKING OF BUILDING A BIOGAS PLANT TO ENHANCE YOUR PLANTATION?

We are here to make it easier for you. Our buyer's network for plantation owners, dump sites, landfills, farm owners subsidizes your travel and accommodation expenses. Limited spaces are available, so sign up today!

Get **FREE** passes to the BIOGAS ASIA PACIFIC FORUM, cash rebates, travel subsidies and more as a member of the BIOGAS BUYER NETWORK!

For more information, contact Jessalou at [jessalou@icesn.com](mailto:jessalou@icesn.com)

- Phase 5: Confirmation with vendors of hotel and booths

Based on site visit and negotiation, the following items were confirmed with vendors:

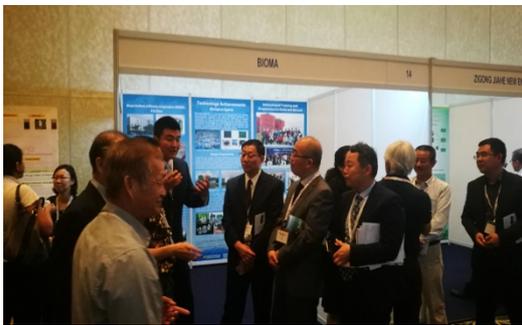
Venue: Sunway Hotel, Kuala Lumpur, Malaysia

Setup of backdrop and booths: Sunway Hotel, Kuala Lumpur, Malaysia

Printings: All Events Group PTE Ltd.

- Phase 6: Organization of forum

Presentations were given as scheduled. Exhibition was held during the forum. Q&A time was left after each session.



#### IV. Follow-ups

##### Follow-up 1:

In order to enhance the knowledge acquisition of applying biogas in agricultural sector and to equip participants with an direct understanding of biogas promotion in other areas of the region, BIOMA invited APBA to recommend participants to a training course entitled “Training Course on Biogas and Circular Agriculture for Asian Countries in 2018” which is sponsored by Ministry of Agriculture of China and implemented by BIOMA in Chengdu, China. The training lasted for 14 days, and 22 participants from Malaysia (10), Bangladesh (2), India (2), Indonesia (2), Malaysia (10), Philippines (1), Thailand (2) and Viet Nam (2) attended the training. The training has a comprehensive content of biogas application in circular agriculture by waste-to-energy and waste-to-fertilizer ways. Lectures, field visits and lab experiments were involved in the training, thus the training is a fruitful learning and another chance of regional communication to the participants.

##### Follow-up 2:

A team of government official from Penang state attended the PGTF project of the

forum in Malaysia and had a discussion with BIOMA on biogas technology in animal waste treatment which caused headache to the Malaysia government. Then a couple of officials from Penang state government were invited to the Training Course on Biogas and Circular Agriculture for Asian Countries in 2018 as part of the Malaysian group, led by PHEE BOON POH, COUNCILLOR OF MUNICIPAL COUNCIL OF SEBERANG PERAI. During the training, an MOU was signed between Penang state government and BIOMA on the biogas promotion in Penang.

Participants from some other countries also managed to sign MOUs with BIOMA, including:

Department of Agro-Industrial Technology, Universitas Lambung Mangkurat, the Ministry of Research, Technology and Higher Education, Republic of Indonesia

BIOMA will keep focusing on the progress of collaborative project establishment with Asian Countries in biogas and circular agriculture fields.

This cooperative document is in validation of five years within duration of 2018 to 2022, effective from the date of signature by the representatives of the two parties.

Representative of	Representatives of
Biogas Institute of Ministry of Agriculture	Biogas IndianTech Association
P.R.China	India
Deputy Director General	Chairman
Hu Guoquan	G. Ramesh Kumar Kedia
(Signature)	(Signature)



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地址: 成都市人民南路四段13号邮编: 610041  
ADD: Action 4-13, RenminNanlu, Chengdu 610041, P.R.China  
电话(tel): +86-28-85212629 传真(fax): +86-28-85230677  
网址: www.blogas.cn

Fig. Signature page of MOU between BIOMA and India Biogas Association



# 农业部沼气科学研究所

Biogas Institute of Ministry of Agriculture

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## Memorandum of Understanding

Sept. 26th, 2018

Chengdu, China

Party A: Biogas Institute of Ministry of Agriculture (BIOMA), P.R.China

Address: No. 13, Section 4, South Renmin Road, Chengdu, China

Tel.: +86-85212629

Email: biomac@163.com

Website: <http://www.biogas.cn>

Party B: Energy Research and Development Institute-Nakornping, Chiang Mai University

Address: 239, Huay Kaew Road, Muang District, Chiang Mai, 50200 Thailand

Tel: +66 5394 2007

Email: pruk.a@cmu.ac.th, kunpruk@gmail.com

Website: <http://erdi.cmu.ac.th>

Both parties expressed the intention of establishing cooperation on biogas and other bio-energies.

### Modalities for cooperation

- Consultancy work on policies and standards established for biogas development and promotion in national strategies for the host country.
- Capacity building on biogas development for research and managerial personnel from Party B.
- Pilot projects on both household biogas and small or medium biogas plant in the places selected by Party B.
- Basis laid for project scaling-up by joint-effort from China and the country of Party B with more international funds.

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地址: 成都市人民南路四段 13 号

邮编: 610041

ADD: Section 4-13, Renmin Nanlu, Chengdu 610041, P.R.China

电话(tel): +86-28-85212629

传真(fax): +86-28-85230677

网址: [www.biogas.cn](http://www.biogas.cn)

### Activities

- Assessment of the project feasibility through data collection and analysis, brief assessments of country needs and potential, local technical level and government policy environment, and on-site visits regarding on the local conditions.
- One pilot project on a selected demonstration site in the country of Party B regarding biogas, including in that are adaptable to local conditions and demand.
- Long-term training for local technicians on design, construction, maintenance and operation of the biogas pilot project during implementation.
- Short-term training on interesting biogas policies, regulations, standards and approaches.
- Exhibition of related product and equipment from Chinese enterprises every 2 years in China, to invite visitors from the country of Party B.
- Joint-research and education setup in colleges on technology promotion and standardization to be implemented among institutions of China and the country of Party B.

The above activities may be technically supported by Party A, and the funds for cooperation may be sourced by both parties.

This cooperative document is in validation of five years within duration of 2018 to 2022, effective from the date of signature by the representatives of the two parties.

Representative of  
Biogas Institute of Ministry of Agriculture  
P.R.China  
Deputy Director General  
Hu Guoquan  
(Signature)



Representatives of  
Energy Research and Development  
Institute-Nakornping, Chiang Mai University  
Director  
Assistant Professor Dr. Pruk Aggarangsi  
(Signature)



地址：成都市人民南路四段 13 号 邮编：610041  
ADD: Action 4-13, Renmin Nanlu, Chengdu 610041, P.R.China  
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网址: www.blogas.cn

Fig. 2 MOU - BIOMA-Chiangmai University

### V. Financial Costs and Expenses.

The project costs are strictly based on financial budget. Financial staffs were invited for evaluation and review of the economy for the project. Project manager

monitored the cost for each activity. Director General of BIOMA supervised the whole procedure.



Fig. 3 Air fare RMB46285 yuan (US\$7224.806444)

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UNITED OVERSEAS BANK

Account Number: 421-300-086-6  
SWIFT: UOVBSGSG

Signed By:



Signed By:



Fig. 4 Agreement between BIOMA and APBA regarding co-organizing the forum



中国建设银行 China Construction Bank		境外汇款申请书 APPLICATION FOR FUNDS TRANSFERS (OVERSEAS)		10033187	
中国建设银行股份有限公司 CHINA CONSTRUCTION BANK CORPORATION		日期 Date 2018.7.17		发电等级 Priority <input checked="" type="checkbox"/> 普通 Normal <input type="checkbox"/> 加急 Urgent	
申报号码 BOP Reporting No.		000000 0000 00		000000 0000	
20	银行业务编号 Bank Transac. Ref. No.	510104	0收0电0行0付0款0号0	180717	A001
32A	汇款币种及金额 Currency & Interbank Settlement Amount	USD 4121.00	金额大写 Amount in Words	美元肆仟壹佰贰拾壹元正	
其 中	现汇金额 Amount in FX	USD 4121.00	账号 Account No./Credit Card No.	51014008100221000419	
	购汇金额 Amount of Purchase		账号 Account No./Credit Card No.		
	其他金额 Amount of Others		账号 Account No./Credit Card No.		
收费账号		51001479066050741464			
50a	汇款人名称及地址 Remitter's Name & Address	Biogas Institute of Ministry of Agriculture Section 4-13, Renmin South Road, Chengdu, China			
<input checked="" type="checkbox"/> 对公 组织机构代码 Unit Code 49507153189-14		<input type="checkbox"/> 对私 个人身份证件号码 Individual ID NO.		<input type="checkbox"/> 中国居民个人 Resident Individual <input type="checkbox"/> 中国非居民个人 Non-Resident Individual	
54/56a	收款银行之代理名称及地址 Correspondent of Beneficiary's Bank Name & Address	BIC			
57a	收款人开户银行名称及地址 Beneficiary's Bank Name & Address	收款人开户银行在其代理行账号 Bene's Bank A/C No.		BIC WOVBSGSG	
59a	收款人名称及地址 Beneficiary's Name & Address	收款人账号 Bene's A/C No. 421-300-086-6 ALL EVENTS GROUP PTE LTD 52 Foch Road, #02-02, Singapore 209274			
70	汇款附言 Remittance Information 只限 140 个字符 Not Exceeding 140 Characters	CO-ORGANIZATION OF THE BIOGAS ASIA PACIFIC FORUM 2018		71A 国内外费用承担 All Bank's Charges If Any Are To Be Borne By <input type="checkbox"/> 汇款人 OUR <input type="checkbox"/> 收款人 BEN <input checked="" type="checkbox"/> 共同 SHA 备注	
收款人常驻国家(地区)名称及代码 Resident Country-Region Name & Code		新加坡		D O Z	
请选择: <input type="checkbox"/> 预付货款 Advance Payment <input type="checkbox"/> 货到付款 Payment Against Delivery <input type="checkbox"/> 退款 Refund <input checked="" type="checkbox"/> 其他 Others					
交易编码 BOP Transac. Code	相应币种及金额 Currency & Amount	USD 4121.00	交易附言 Transac. Remark	会议费	
本笔款项是否为保税货物项下付款 <input type="checkbox"/> 是 <input checked="" type="checkbox"/> 否		合同号	9175	发票号	P10263/V
外管局批件号/备案表号/业务编号					
银行专用栏 For Bank Use Only		申请人签章 Applicant's Signature		银行签章 Bank's Signature	
购汇汇率 Rate	等值人民币 RMB Equivalent	请按照贵行背面所列条款代办以上汇款并进行申报 Please Effect The Upwards Remittance, Subject To The Conditions Overleaf:			
手续费 Commission	50	 			
电报费 Cable Charges	50				
合计 Total Charges	100	申请人姓名 李忠 Name of Applicant 电话 85230693 Phone No.			
支付方式 In Payment of the Remittance	<input type="checkbox"/> 现金 by Cash <input type="checkbox"/> 支票 by Check <input type="checkbox"/> 账户 from Account		核准人签字 Authorized Person 日期 Date		
核印 Sig. Ver.	经办 Maker		复核 Checker		

填写前请仔细阅读各联背面条款及填报说明  
Please read the conditions and instructions overleaf before filling in this application.

Fig. 6 Funds transfer to APBA (US\$4121)



Fig. 7 USD and RMB change rate

No.	Items	Expense (yuan)	Expense (US\$)	PGTF Fund (USD)	BIOMA Fund (USD)
1	Air fare of 7 BIOMA staff to Malaysia	46285	7225		
2	Per diem of 7 BIOMA staff: 7 pax*5 days*USD195		6825		
3	Speakers fee: 14 pax*USD400		5600		
4	Cleric fee: 10 pax*5 days*USD200		10000		
5	Payment to APBA for the backup, venue setup, printings and brochure dissemination		4121		
	Total		29650	29,000	650

**Bank Information:**

CHINA CONSTRUCTION BANK CORP, SICHUAN BRANCH

51014008100221000419

SWIFT: PCBCCNBJSCX

TEL.: +86-28-84470350

ADDRESS: 19/F, CCB SICHUAN BLDG, NO. 86 TIDU ST, CHENDU, SICHUAN, CHINA

**VI. Conclusion**

Forum is a good platform to connect stakeholders of the field for communication

and discussion about the research findings, policy environment and market demand in the sector, as a way to explore cooperation opportunities.

BIOMA contracted with APBA on the duty clarification. As APBA has a branch in the location of forum, it is easier for APBA to do the preparation of venue, printings and backdrops. And BIOMA collects resource persons to be speakers so as to promote the informativeness of the forum. Therefore, finding a supportive and cooperative partner is important factor of the success of international or regional project, so as to make full use of the capacities of each side.

BIOMA covered the whole expense prior to the remittance of the fund from UNDP. This project is not profit-driven, but demand oriented for future cooperation opportunities. So MOUs were reached between BIOMA and the participants to the follow-up events.

PGTF fund being of limited amount, the project is of wide impact in the region, as connection of stakeholders may empower the strength of each related.