Hybrid Power System installation to existing BTS (Base Transceiver Stations) by JCM (Joint Crediting Mechanism) Project

22 May 2015

ADB Promoting Bilateral Mechanisms in Asia and the Pacific
Crowne Plaza Hotel, Jakarta

PT Awina Sinergi Indonesia (Arranger)

Agenda

Message

Section 1: Overview of Awina Sinergi Indonesia

Section 2: Our Proposal; Hybrid Power System installation to existing BTS

Section 3: Proposed Cost and Economic Value

Section 4: JCM project procedure and roles

PT Awina Sinergi Indonesia (in cooperation with A-Wing Co. Ltd. and AAI Co. Ltd. Japan

"Provide energy from renewable energy and drinking water to people without electricity and clean water access"

"Providing opportunities to people without opportunities"

SOLUTION

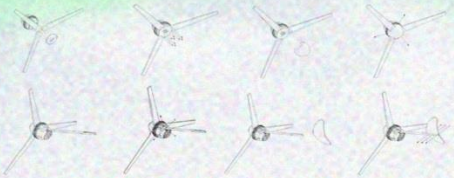
- **Micro Wind Turbine**
- **Hand Powered Desalination System**
- **Renewable energy system (wind, solar, hydro)**
- **Business support (consultation, market research, business intelligence, company services, etc)**
- **Business Incubation (in preparation)**

A-WING INTERNATIONAL

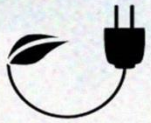
ENERGY CAN BE A BREEZE

MICROWIND TURBINE

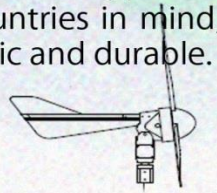
Easy Set-up
A-WING Wind Turbine can be assembled in mere minutes and can be easily set up even by a novice.



Just a breeze
Start-Up Speed of 1 m/s (Industry`s lowest unassisted Start-Up Speed) efficient energy production even in areas with slow or highly variable wind speeds.



Simple & Durable Design
As our turbines were originally designed with an application in developing countries in mind, our design is simplistic and durable.



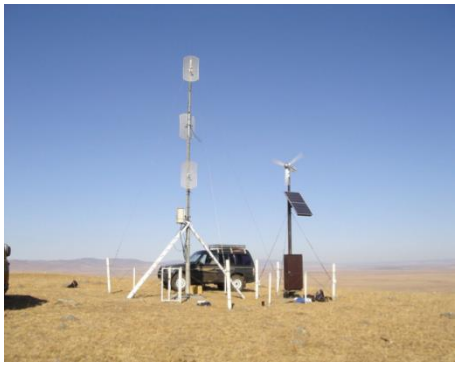
High Quality Manufacturing
Through our inspirations of Japanese technology achievement, we maintain a high quality control in our production line. No reduction in output efficiency at sustained high wind speeds due to our innovative heat dissipation technology.

Extremely quiet operation
A-WING turbine operates extremely quietly, and is barely audible at only 19dB (3-4 m/s).Extremely quiet operation.

WIND TURBINE INTERNATIONAL EXPERIENCE

Philippine

Myanmar



Mongolia

South Korea

Syria

Nigeria

- 1500 Unit installed in total 10 countries
- Major markets in South Korea and Japan

Thailand

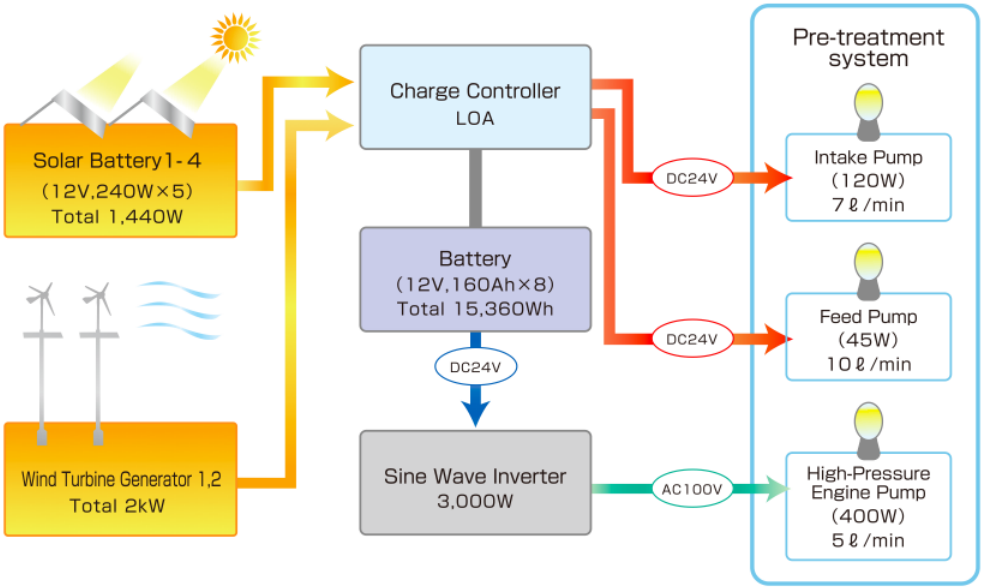
Indonesia

Japan

Seawater Desalination Unit System

Product features:
◯ This system produce clean and sanitized water, also available with wind and solar power even in an area with no electric source.
◯ Powered by renewable energy/AC/diesel generator
◯ Compact and Energy saving system.

Specification



Water Shop Business
(non renewable energy type)

- Sell water with better quality and cheaper price then existing bottled mineral water
- Break even point in less then 3 years and system able to run minimum 7 years

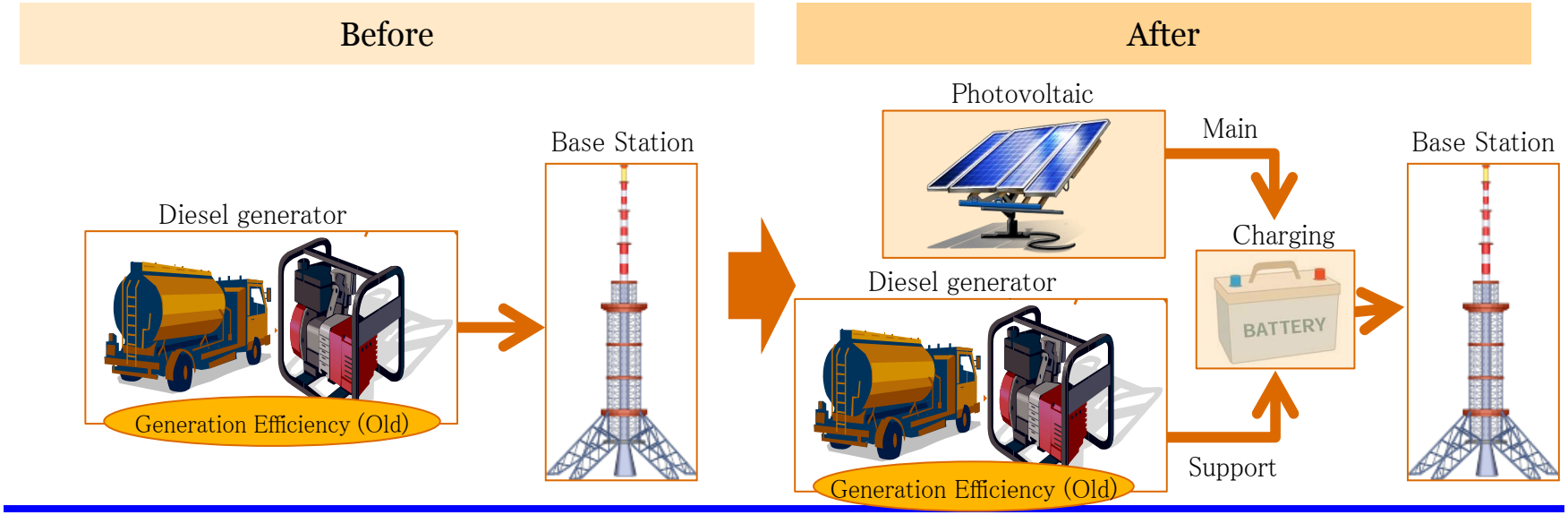

WATER
DEPOT
HART
WATER
DEPOT


Pretreatment Equipment
(前処理装置)
distilling plant
(造水装置)
Treated Water
(処理水)
Treated Water Tank
(処理水タンク)
Raw Water
(原水)
Circulating Pump
(取水ポンプ)
Raw Water Tank
(原水タンク)
Concentrated Wastewater
(濃縮排水)
Gallon Bottle
Sea Water
Well Water River
Water Lake Water


Industry
Restaurant
Family
School
Masjid
Hospital
Store

2.1. Our Proposal; Hybrid Power System installation to existing BTS

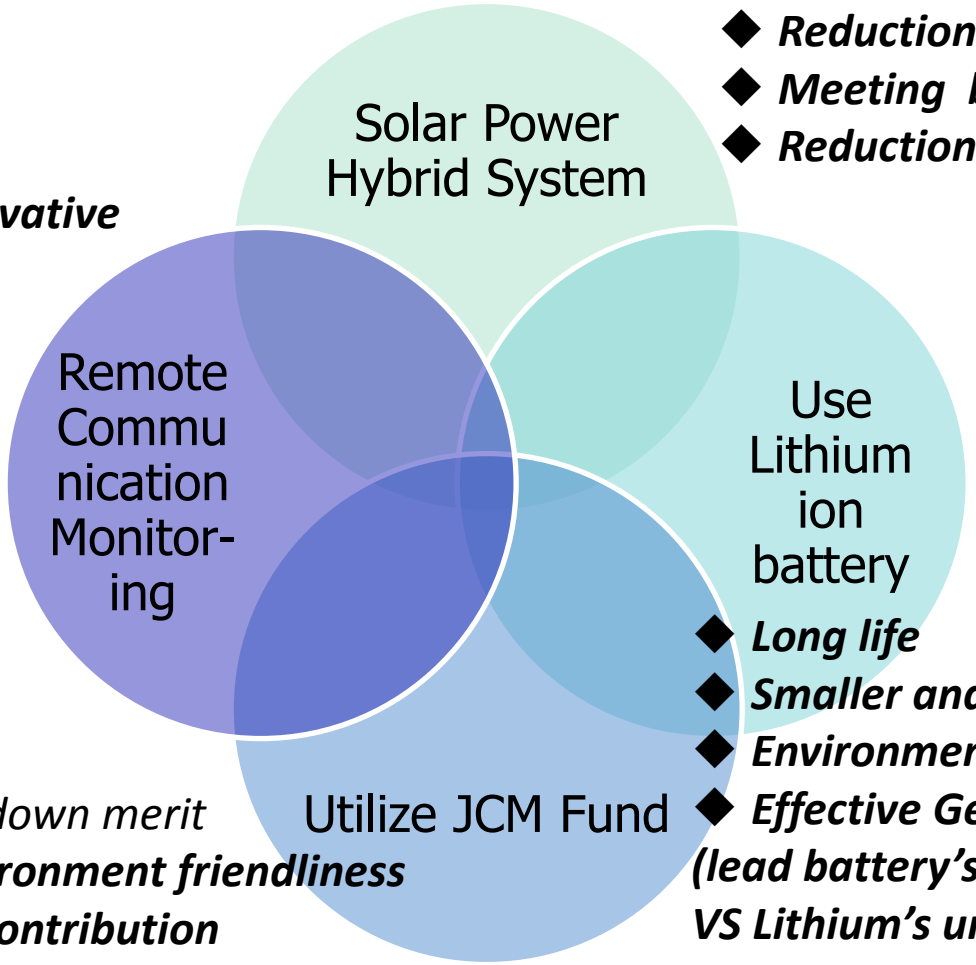
- This project will focus on installing power to mobile base stations in off-grid areas using a hybrid power system (solar power, lithium ion battery and diesel generators).
- Using the abundant solar energy supply, CO2 emissions from diesel generators will be reduced.
- The lithium ion batteries in the hybrid system are more environmentally friendly, smaller and easier to carry, and have a longer life than conventional lead storage battery technology.



2.2. Strength of Our Project; Innovative・Pioneering

- ***Reduction of O&M Cost***
- ***Meeting both dry and rainy season***
- ***Reduction of CO2 Emission***

- *World most **innovative** method*



- ***Long life***
- ***Smaller and easier to carry***
- ***Environmental friendly***
- ***Effective Generation Consumption (lead battery's consumption until 70% VS Lithium's until 90%)***

- ***Initial cost** down merit*
- *Appeal **Environment friendliness** and **social contribution***

3.1. Proposed Cost

50sites, Location To Be Discussed, Rough System Design

Proposed Project Case

Life cycle cost at least 9years;
140K USD/1BTS without funding
90K USD /1BTS with funding
4.5Mil. USD/50 BTS
Payback period: 6.9 years
Accumulated cost saving: ± 5.85 Mio USD

- Low cost Solar Panel
- Long Life Lithium Battery (9year, Compact)
- 24h・Remote communication monitoring

Lead battery Project

Life cycle cost 9years;
*Battery replacement is required in every 3years
50K USD/1BTS
2.5 Mil. USD/50 BTS
Payback period: 3.8 years (additional 15K USD every 3 years)
Accumulated cost saving: ± 3.6 Mio USD

- Low cost High Efficiency Solar Panel
- Short Life Lead Battery (3 year, Environmental Impact)
- Manpower Bi-Annual monitoring

◆ Proposed cost may be increased if total sites is less then 50 sites, isolated island and depends on geographical condition of the site.

3.2. Economic and Environment Benefit

- Fuel usage for diesel generator will be reduced 70-90% resulting from installation of Hybrid system (Lithium Battery and Solar Panel)
- Following economic and environment benefit from the project is expected (in the case of 80% cut)

Benefits for 1 BTS	Benefits for 50 BTS
Fuel reduction 24,000 L/year	Fuel reduction 1,200,000 L/year
Fuel cost reduction 13.000 USD/year	Fuel cost reduction 650,000 USD/year
CO2 Emission reductions 62 tCO2/year	CO2 Emission reductions 3.100 tCO2/year

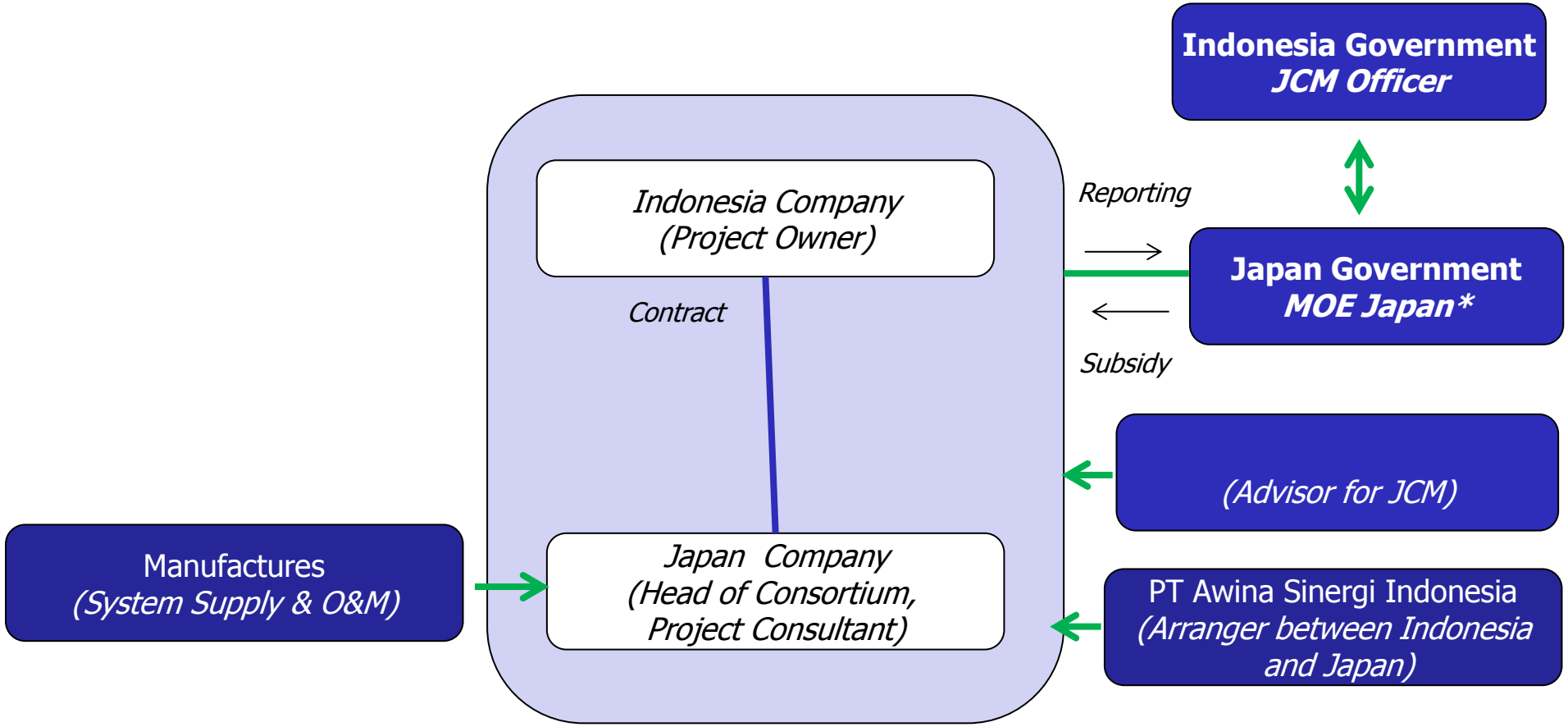
3.3. Other Social and Environmental Benefits

You can appeal to shareholders, government, and other stakeholders.

- **Contribution to Climate Change Issue;** You can disclose reduction of fossil fuels and CO2 emission as a leading company in Indonesia, contribute to Indonesian government, and be continuously pioneer in Asia.
- **Ecofriendly Battery Use;** You take cares of environment , because of longer life cycle and lower environmental impact than lead acid battery.
- **Green Telecommunication;** You can lead solar system technology in Indonesia.
- **Job creation;** You can contribute to job creation and increase in solar system and battery engineering expertise.

4.1. Cooperation

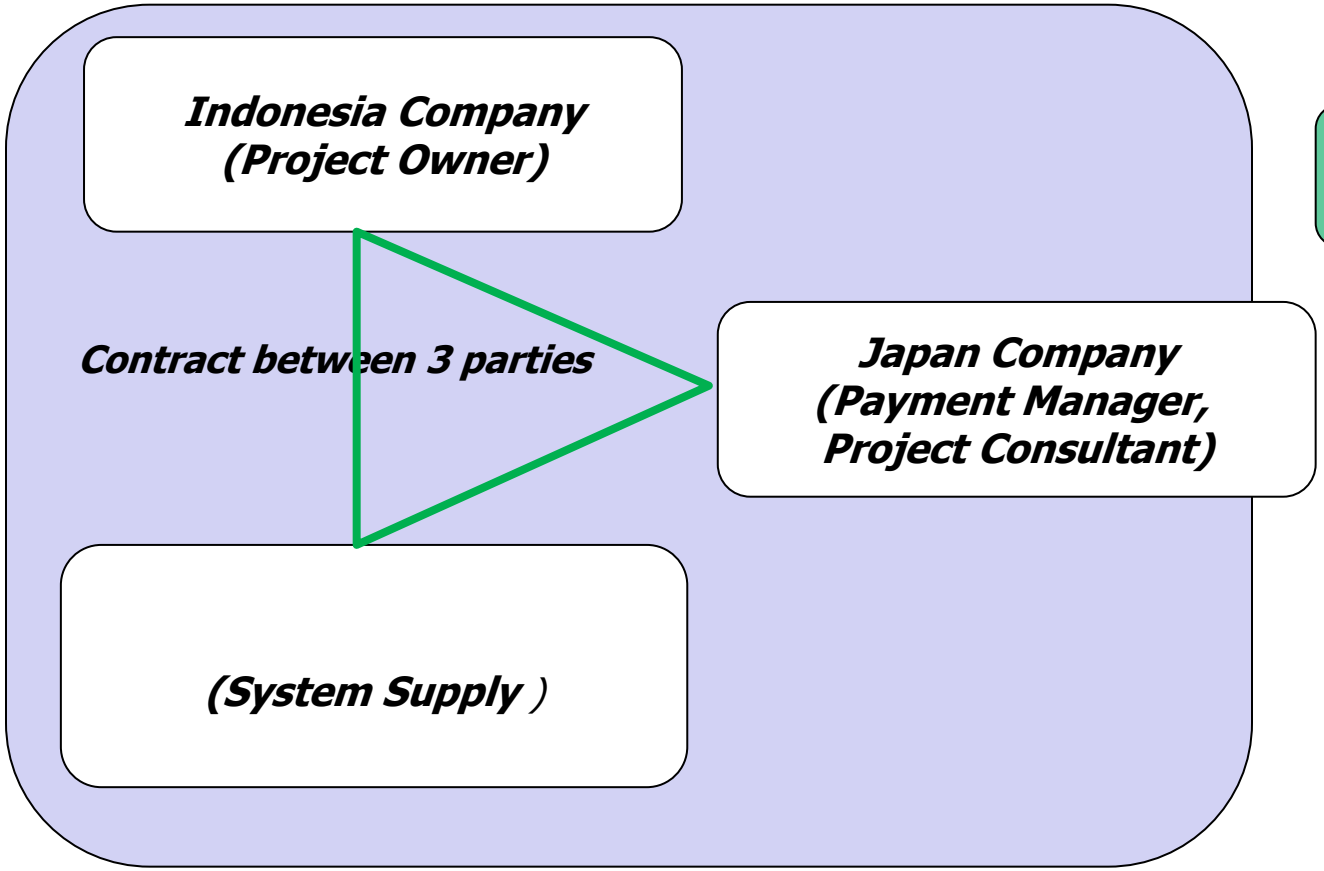
Consortium Structure



* MOE Japan; Ministry of Environment Japan

4.2. Project Structure

Construction Contract Structure idea



PT Awina Sinergi Indonesia
(Advisor between Indonesia and Japan)

4.3. Roles under the JCM

In order to obtain the benefit of JCM Fund,

- To acknowledge to be a member of the consortium as Project Owner, and sign the Cooperation Agreement for the consortium.

After being adopted as JCM Project

- To cooperate with monitoring CO2 emission reduction, and verification by the 3rd party,
  - By 2020, responsibility of whole consortium
  - Itochu, Awina, PwC propose simple and reasonable monitoring method.
  - Verification cost spent by MOE Japan.
- To manage appropriately facilities and equipment installed as a result of funding, until the end of useful life designated by law
  - In the case of broken, stopped, please keep it without resale or disposal.
  - In the case of resale and disposal, received funding should be returned to the Japanese government.

Contact;

PT Awina Sinergi Indonesia (Arranger);

Ananda Setiyo Ivannanto, President Director
ivannanto@awing-i.com