Japan International Cooperation Agency

Part 1: Overview - Power / Africa

April 2019
JICA’s Main Policy of Cooperation in Energy Sector

“3 L” Policy

- **Low-Cost**
  Reduction of the total cost, not just limited to the initial investment but also the life cycle cost and external diseconomies. The policy also contributes to utilizing commercial investments under an appropriate development plan.

- **Low-Carbon**
  Realization of low carbon emissions by utilizing excellent technologies, introducing such low-carbon power sources as highly efficient thermal, hydro, geothermal, and other sources of renewable energy, reducing loss from power grids, and promoting energy conservation.

- **Low Risk**
  Stable securing of the primary energy, realizing the best mix of energy and ensuring power system stabilization

Features of JICA’s Cooperation in Energy Sector

- Supporting **Large-Scale Development** with advanced technology.
- Develop Energy from the early stage, which is the **risk-taking part**.
- Utilizing **Japan’s experience and technology** to address global issues.
Tokyo International Conference on African Development (TICAD)

**TICAD 6**
(August, 2016, Kenya)

1. Development of base load energy with utilizing indigenous energy resources: geothermal, hydro and natural gas

2. Development of “Power Pool”: International/domestic backbone transmission lines and distribution networks

3. Capacity development of utilities: Policy setting, planning, business management and O&M

**TICAD 7**
(2019, Yokohama)

We are looking forward to discussing further cooperation!
e.g. Contribution for access to electricity (SDG7)
Recent Energy Development Projects in Africa

**Kenya**
- Olkaria I Geothermal PP Additional Unit (YL)
- Olkaria I Geothermal Rehab (YL)
- Olkaria V Geothermal PP (YL)
- Geothermal Drilling Management (TC)
- GDC Corporate Strategy (TC)
- T/L, Olkaria=Lessos=Kisumu (YL)

**Mozambique**
- Maputo Gas CC PP (YL)
- Rehabilitation of Substation, Maputo (GA)
- Substation and Distribution, Nacala (GA)
- T/L, Caia=Nacala (YL)

**Ethiopia**
- Geothermal Power Devt Plan (TC)
- Well-Head Geothermal PP, Alto Langano (GA)
- Geothermal PP, Alto Langano (YL)
- Geothermal Test Drilling, Tendaho (TC)

**Zambia**
- T/L Construction, Livingston-Kafue (YL)

**Rwanda**
- Substation, Kigali (GA)
- Geothermal Power Devt Plan (TC)

**Djibouti**
- Geothermal Test Drilling, Hanle (TC)
- Distribution System, Djibouti (GA)

**Malawi**
- Tezani Hydro PP Expansion (GA)

**Tanzania**
- T/L, Iringa - Shinyanga(YL)
- National and Capital Power Devt Plan(TC)
- T/L and D/L, Dar es Salaam (GA)
- T/L and D/L OM (TC)

**Cabo Verde**
- T/L and D/L System, Santiago Is. (YL)

**Zambia**
- T/L Construction, Livingston-Kafue (YL)

**DRC**
- Rehabilitation of Inga 2 Hydro PP (GA)

**Angola**
- Power Sector Reform (YL)
- National Power Development Plan (TC)

**Uganda**
- T/L and Substation, Kampala (YL)

**Nigeria**
- National Power Devt Plan (TC)
- Rehabilitation of Jebba Hydro PP (GA)
- Substation, Lagos and Abuja (GA)

**Senegal**
- Substation, Dakar (GA)

**Sierra Leone**
- Diesel G. and Distribution, Free Town (GA, TC)

**Liberia**
- Diesel G., Monrovia (GA)

**Ghana**
- T/L and D/L OM Capacity Devt, Region(TC)

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Various Capacity Development Opportunities
: Introduction of JICA seminars in Japan

<table>
<thead>
<tr>
<th>Energy Policy</th>
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<tbody>
<tr>
<td>Promotion of High Efficiency and Clean Thermal Power Generation</td>
</tr>
<tr>
<td>Improvement of Maintenance Skills for Gas Turbine and Coal Fired Steam Turbine Thermal Power Engineering</td>
</tr>
<tr>
<td>The Improvement for Electric Power Distribution Grid</td>
</tr>
<tr>
<td>Executive Seminar for Grid Operators</td>
</tr>
<tr>
<td>Promotion of Hydropower Development</td>
</tr>
<tr>
<td>Electric System Engineering (Except Distribution)</td>
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<tr>
<td>Energy-Saving Technology and Governmental Promotion</td>
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<tr>
<td>Energy Efficiency and Conservation Technology in Commercial and Residential Sector</td>
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<td>Policy Planning for Energy Efficiency and Conservation</td>
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<td>Training for Planners to the Promotion of Photovoltaic Power Generation</td>
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<tr>
<td>Sustainable Biomass and Bio-Energy Utilization in Tropics</td>
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<tr>
<td>Training for Planners to Promote Renewable Energy in Micro Grid</td>
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<tr>
<td>Photovoltaic Power Generation Technology</td>
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<tr>
<td>Enhancement of the Planning Capacity of Geothermal Power Development</td>
</tr>
</tbody>
</table>
Integration with up-to-date Japanese techniques and knowhow

Japanese beneficial forefront technologies can be applied in our projects!

**LL (Low Loss) Conductor**

- Conventional ACSR
- Low Loss Conductor LL-(T)ACSR/AS

**GTCC (Gas Turbine Combined Cycle)**

- Gas Turbine
- Steam Turbine
- Generator

**Substation Equipment**

- Non-Flammable, Non-Explosive
- No fire-fighting system requirement
- Flexible arrangement
- Easy maintenance
- Reduction of installation period

**Power System Stabilization**

- Solar power generation
- Wind power generation
- Protection relay

For the details, please check below website:
http://libopac.jica.go.jp/search/detail.do?rowIndex=1&method=detail&bibId=1000035099

Data collection survey on southern African power pool final report : appendix(3.Documents of Power Engineering Seminar)
1. Ethiopia (M/P, 2015)
3. Rwanda (M/P, 2016)
4. Uganda (M/P, 2011)
5. Tanzania (M/P, 2017)
6. Mozambique (M/P, 2018)
7. Angola (M/P, 2018)
8. Nigeria (M/P, 2019)
10. Senegal

(M/P): Countries that JICA recently conducted (or is conducting) masterplan study and completion year.
[Grant] Introduction of Clean Energy by Solar Electricity Generation System

Objective
- Clean energy utilization
- Emissions reductions
- Cost effective power

Component
- Solar panel installation at Usuma Dam
- Operation and maintenance TC

Project Period
May 2014 - February 2017

Counterparts
FMoP, FCTA, FCTWB, NPC

[Grant] Emergency Improvement of Electricity Supply Facilities in Abuja

Objective
- Reduce voltage drop in the network
- Protect consumers' equipment by stable voltage supply

Component
- Install power capacitor in Apo substation
- Install power capacitor in Keffi substation
- Operation and maintenance TC

Project Period
Feb 2016 - May 2018

Counterparts
FMoP, TCN, NPC
Japan International Cooperation Agency
Part 2: Private Sector Investment Finance (PSIF)
April 2019
1. JICA Overview

**Leading the world with trust**
JICA, with its partners, will take the lead in forging bonds of trust across the world, aspiring for a free, peaceful and prosperous world where people can hope for a better future and explore their diverse potentials.

**The world’s largest bilateral aid agency** that administers all Official Development Assistance (ODA) programs including (i) technical cooperation, (ii) grand aid, (iii) ODA loans, and (iv) Private Sector Investment Finance in an integrated manner.

**Rating: S&P A+ (stable) equivalent to GoJ / JICA bond identified as Social Bond**
- Capital: JPY 8,037B ($71.6B), 100% owned by GoJ (capital ratio at 80%)
- Outstanding Balance: JPY12,279B ($109.4B) of ODA Loan & JPY 80B ($0.7B) of PSIF
- Offices: 96 overseas offices and 14 domestic offices
- Operation: Operating in 146 countries
- Staffs: 1,882 staffs

**Results in 2017**

<table>
<thead>
<tr>
<th>Sovereign</th>
<th>Grant</th>
<th>$1.0B</th>
<th>86 PJ</th>
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<tbody>
<tr>
<td>ODA Loan</td>
<td>$16.8B</td>
<td>59 PJ</td>
<td></td>
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<tr>
<td>Tech Coop</td>
<td>$1.7B</td>
<td>526 PJ</td>
<td></td>
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<tr>
<td></td>
<td>17,138 trainees</td>
<td></td>
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<table>
<thead>
<tr>
<th>Private</th>
<th>Debt</th>
<th>$445M</th>
<th>7 PJ</th>
</tr>
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<tbody>
<tr>
<td>Equity</td>
<td>$22M</td>
<td>1 PJ</td>
<td></td>
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* USD equivalent amount calculated at the exchange rate of 112.2 JPY/USD
2. PSIF Product: Debt & Equity

**Debt**
- Corporate Finance
  - Agribusiness (upstream to downstream), Natural resources, Manufacturing, Social sector (Health, Education etc.) + Infrastructure
- Project Finance
  - Power & Energy, Infrastructure such as Transport (port, airport, road, railway), Water and sewerage, Waste to Energy, Health etc.
- Financial Institutions (Bank Loan)
  - Local Tier 1 –Tier 2 banks outreaching to SMEs, MFIs, farmers and vulnerable people.
  - Multi-project facility for climate change etc.

**Equity**
- Private Equity Investment
  - Ranging from early-stage to growth-stage
  - Strong justification of JICA participation required
- Fund Investment (Limited Partner)
  - Climate change (renewable energy, energy efficiency), SMEs, vulnerable regions/countries etc.

*Note: Mezzanine products (sub-debt, preferred equity, CB etc.) can be also considered.*
3. PSIF Criteria

**Partner (Client)**

“Aim-high” companies (SDGs-aligned, ESG-centric etc.). Both private enterprises and sub-sovereign entities.

**Purpose (Impact)**

1. SDGs (Sustainable Development Goals)
2. Climate change
3. Quality infrastructure

**Supplement**

Necessity to take more risks (tenor, price etc.) than commercial banks to supplement bankability/investability of the project

**Japan Nexus**

Certain Japan-nexus preferable but NOT must
Strong development story is a big plus (or even prevail)

**Use of Proceeds**

CAPEX primarily required for development impact.
Permanent WC can be considered together with CAPEX.
4. PSIF Major Terms (Debt)

**Amount**: $10M - $150M as typical ticket size. Maximum amount of JICA loan should be equal to the lead co-financier (or, sometimes 70% of total project cost)

**Currency**: JPY, USD, EUR, and Local Currencies (through cross-currency swap operation)

**Interest Rate**
- JPY: FILP Rate* + Margin (Fixed)
- USD: 6 month LIBOR + Margin (Floating)
- LCY: Swap rate equivalent to JPY Interest Rate (Fixed/Floating)

*FILP (Fiscal Investment and Loan Program) Rate is long term low interest funding by the Japanese government to achieve policy objectives and utilized by Japanese official agencies such as JICA. Currently FILP rate for 10 years is 0.01% p.a.*

**Tenor**: Up to 20 years (door to door: with grace period up to 5 years)

**Repayment**: Semi-annual repayments

**Fees**: Same rate of front end fee and any other fees applicable with co-financers. **No commitment fee** is taken.

**Security**: Standard and customary security package including financial covenants

**Safeguards**: Compliance with JICA’s Environmental and Social Guidelines

**Generally lower than commercial cross-border loan pricing as country risk premium is not included in the Margin**

**Generally longer than commercial loan especially for Corporate and FI Loan (indicative benchmark is nearly twice longer)**
5. PSIF Major Terms (Equity)

**Amount**
- Max. 25% of total capital (PE) / fund size as a Minority Investor
- $5M - $20M as typical size for private equity investment
- $10M - $50M as typical size for fund LP investment

**Currency**
- No currency limitation in principle

**EIRR**
- No explicit hurdle rate.
- To be determined by evaluating the level of risk.

**Exit Strategy**
- Exit Strategy is MUST and agreed among shareholders
- 5-7 years as typical investment period with various Exit Strategy
  - e.g. strategic sale (put option), trade sale (M&A), market sale (IPO) etc.

**Necessity**
- Strong reason for JICA participation in case of private equity investment
  - e.g. sovereign hook, business model that requires patient capital etc.

**Safeguards**
- Compliance with JICA’s Environmental and Social Guidelines
6. PSIF D/D Cycle

Concept Approval 1-2 months
- Early stage discussion
- Indicative T/S Offering
- Concept Review Meeting
- Consultation with GoJ
- JBIC screening

Due Diligence 3-4 months
- Financial, Tech, Market, E&S, Legal D/D (incl. site visit)
- Finalize T/S
- Investment Committee
- Reporting to GoJ
- JICA Board Meeting

Finance Close 2-3 months
- Documentation
- Commitment (L/A signing)
- CP Satisfaction
- 1st Disbursement
- Monitoring

Concept Approval:
- 1-2 months

Due Diligence:
- 3-4 months

Finance Close:
- 2-3 months

Timeline:
- Concept Approval:
  - 1-2 months
- Due Diligence:
  - 3-4 months
- Finance Close:
  - 2-3 months

Steps:
- Early stage discussion
- Indicative T/S Offering
- Concept Review Meeting
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7. Cooperation with DFIs

- **Apr 2015:** MCA signing
- **May 2017:** MOC signing

  - Collaboration in origination and structuring
  - $3B co-financing target over next 5 years
  - 3 co-financing deals executed (2 BAN, 1 JOR)
  - 5 deals under structuring

- **Mar 2016:** LEAP Fund setup
- **Mar 2018:** First co-financing

  - $1.5B blended finance credit line
  - 7 LEAP projects executed (4 loans, 3 equities)
  - 1 co-financing deal executed (VIE)
  - 2 deals under structuring

- **Sep 2016:** First co-financing

  - 1 co-financing deal executed (MON)
  - Periodical pipeline exchanges in process

- **Mar 2018:** MOC signing

  - Collaboration in origination and structuring
  - 2 pipeline projects under discussion

- **Sep 2018:** MOC signing

  - Collaboration in sourcing and origination
  - OPIC-Citi-JICA collaboration
8. PSIF Portfolio

30 Projects (18 Debt & 12 Equity, o/w LEAP 7) in 13 countries / 4 regions

as of end-February 2019

Pakistan
PE: First Microfinance Bank Limited - Pakistan
L-PF: ReNew Clean Energy Project
L-PE: DCDC Health Service Ltd.

India
L-PF: ReNew Clean Energy Project
L-PE: DCDC Health Service Ltd.

Bangladesh
PF: Sirajganj Combined Cycle Gas-fired Power Plant Project
PF: Moheshkali Accelerate FSU Project
PF: East-West Medical College & Hospital

Mongolia
PF: Tsetii Wind Farm Project

Thailand
L-PE: Gulf Energy Development PCL

Cambodia
PF: Emergency Life Saving Center Development Project (Sunrise Hospital)
PE: Sihanoukville Port New Container Terminal Development Project

Vietnam
BL: ACB Industrial Human Resources Development Project
BL: VietinBank Utility Management for Industrial Parks and Water Supply Project
BL: BIDV Rental Factory Development Project for SMEs
CL: Coffee Value Chain Enhancement Project

Philippines
CL: Maynilad Non-Revenue Water Improvement Project

Brazil
CL: Amaggi Agri Supply Chain Enhancement Project

LAC Region
Fund: MGM Sustainable Energy Fund

Legend
PF: Project Finance
CL: Corporate Loan
BL: Bank Loan
PE: Private Equity Investment
Fund: Fund Investment
L-XX: LEAP’s subprojects

Asian Region
Fund: Asia Climate Partners Fund
Fund: Japan ASEAN Women Empowerment Fund
Fund: Leading Asia’s Private Infrastructure Fund (LEAP)

Indonesia
BL: BII Industrial Human Resource Development Project
BL: JIF Renewable Energy and Infrastructure Acceleration Facilities
L-PF: Muara Laboli Geothermal Power Generation Project
L-PF: Jawa 1 LNG to Power Project
L-PE: Eastern Indonesia Renewable Energy Project
L-PE: PT Medikaloka Hermina

Myanmar
PE: MJTD Thilawa SEZ Development Project
CL: MJTD Thilawa SEZ Development Project (Zone B)

Cambodia
PF: Emergency Life Saving Center Development Project (Sunrise Hospital)
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LAC Region
Fund: MGM Sustainable Energy Fund
9. PSIF Strategy

### Duration
- **Early Stage**: 2011-18
- **Growth Stage**: 2019-21
- **Expansion Stage**: 2022-26

### Become a...
- **Early Stage**: Trusted Partner
- **Growth Stage**: Proactive Financier
- **Expansion Stage**: Major Financier

### Main targets
- **Early Stage**: Participate in readily bankable & investable transactions to establish track records and networks.
- **Growth Stage**: Originate, structure and execute complex transactions by JICA own. Construct a well-balanced portfolio to accelerate financing.
- **Expansion Stage**: Create challenging transactions and mechanisms to maximize private resource mobilization with All-JICA approach.

### Actual Annual Commitment (100 Million JPY)
- **2011**: 0
- **2012**: 0
- **2013**: 0
- **2014**: 0
- **2015**: 153
- **2016**: 425
- **2017**: 518
- **Cumulative Commitment (RHD)**: 1,160

**Legend**
- Commitment (loans)
- Commitment (equity)
- Commitment (Leap)
- Cumulative Commitment (RHD)
Outline
The Project aims to extend the electricity accesses in remote areas without power grid electricity through providing LED lamp rental services and mobile phone charging services at the retail shops for the BOP customers carried by WASSHA Inc. in Tanzania and other Sub-Sahara African countries, thereby contributing to poverty alleviation and sustainable socio-economic development.

Impact & Importance
1. Making electricity services more accessible to the BOP/poor in remote area, resulting in better socio-economic situation in various aspects: creating local businesses, increase of children's education opportunity, and improve health condition etc.
2. Adaption of technology innovation from Tokyo University via UTEC Fund
3. Follow up of TICAD VI Nairobi Declaration (August 2016) in innovation and private sector investment promotion

Project Structure

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<tr>
<th>Existing Investors</th>
<th>New Investor</th>
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<tr>
<td>DBJ</td>
<td>jICA</td>
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<tr>
<td>UTEC</td>
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<tr>
<td>Others</td>
<td>Equity</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
</tr>
</tbody>
</table>

WASSHA Inc.

Service Provider / Customer
KIOSK Owners in Rural Off-grid Area

Ultimate Beneficiaries
End Users in Rural Off-grid Area
Contacts

Japan International Cooperation Agency
Private Sector Partnership and Finance Department

TEL: +81-3-5226-6960

E-mail: ostpp-contact@jica.go.jp

URL: http://www.jica.go.jp/english/index.html