



JICA's Cooperation in

Renewable **E**nergy

and **E**nergy **E**fficiency

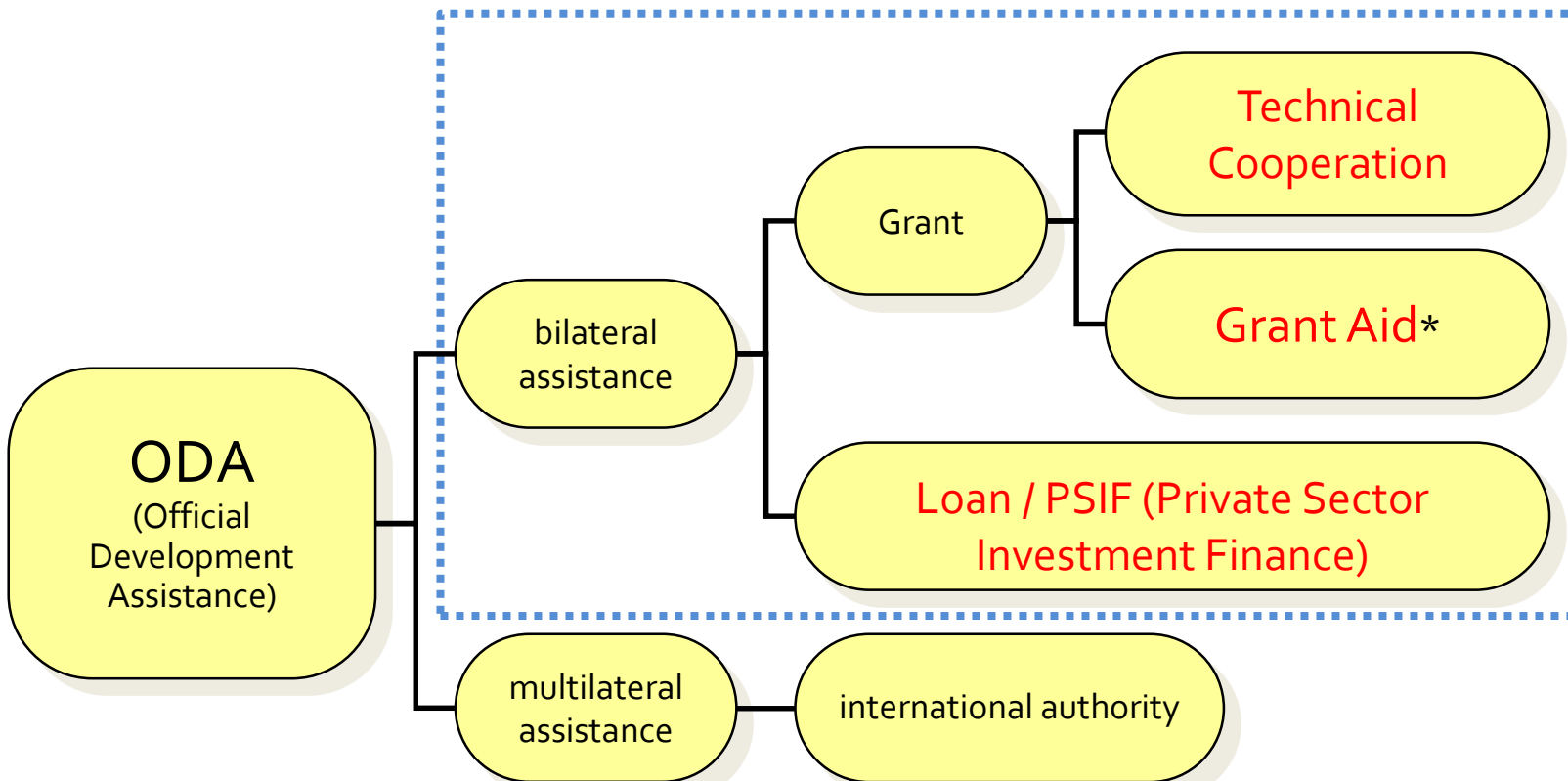
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*Representative
JICA INDIA Office*

What is "JICA"?

- ✓ JICA provides loan, grant aid and technical cooperation under Japanese ODA
- ✓ JICA is the world's largest bilateral development agency
- ✓ India is the largest and the oldest partner for JICA

Japan's Official Development Assistance (ODA)



* A part of grant aids are provided by Ministry of Foreign Affairs.

Around 100 offices are located worldwide



Types of JICA's Assistance

- **Technical cooperation:** Technical assistance extended to developing countries by dispatch of experts and volunteers, acceptance of trainees, various surveys, etc.
- **ODA loans:** Concessionary loans provided to developing countries
- **Grant aid:** Financial assistance extended to developing countries without an obligation for repayment

Technical Cooperation



UGANDA; NERICA Rice Promotion Project



PALESTINE; Project for Improving Reproductive Health (Maternal and Child Health)

ODA Loans



INDIA; Delhi Mass Rapid Transport System Project



LAOS and THAILAND; Second Mekong International Bridge Construction Project

Grant Aid



MALI; Project for Water Supply in Kayes, Segou and Mopti Areas



BANGLADESH; Construction of Multipurpose Cyclone Shelters Project V

India is JICA's Largest Partner in the World

Loan

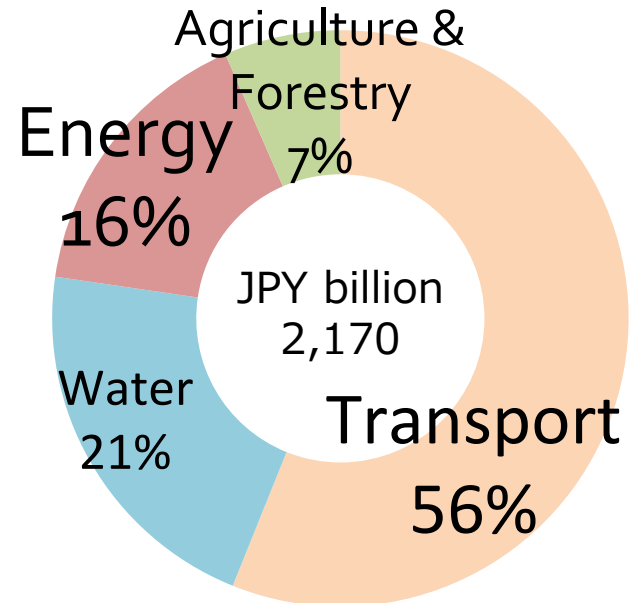
Operational Results in FY2013/14:

Commitment: 311.5 billion JPY
(equivalent to Rs. 16,000 crore)
Disbursement: 145.4 billion JPY
(equivalent to Rs. 7,500 crore)

Total Commitment:

4,164 billion JPY
(equivalent to Rs. 2.2 trillion)

Major Sector (FY2003/04-2013/14)



Grant Aid

One on-going project
in health sector in
Chennai

Technical Cooperation

- Results in FY 2013/14
3.5 billion JPY (Rs 200 Crore)

Over 200 Japanese experts to India
Over 650 government officials in Japan

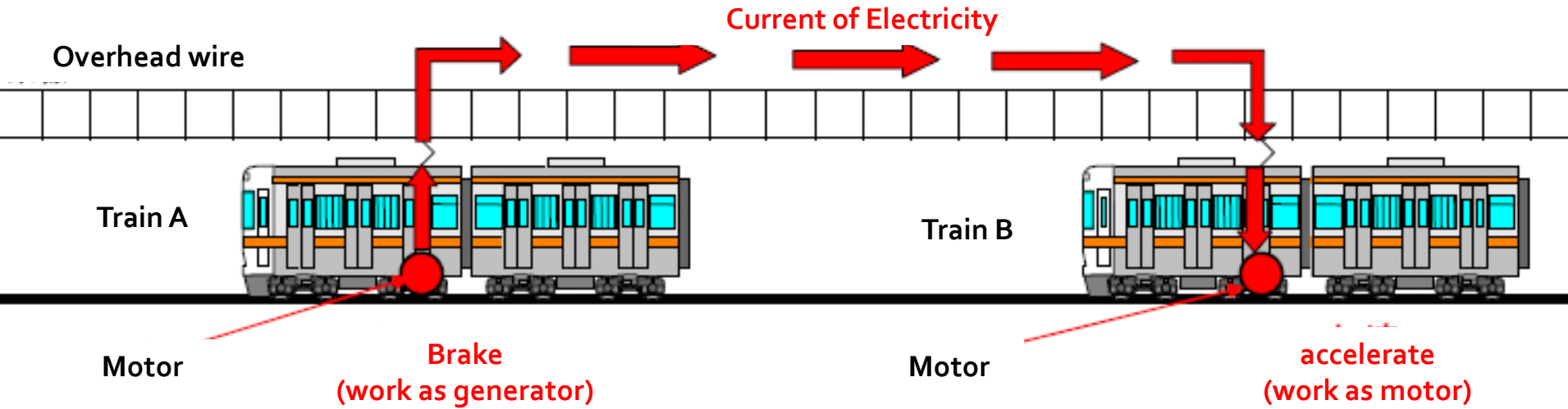
Citizen Partnership / Public-Private Partnership

- Japanese Volunteers
- Japanese NGO activities
- Partnerships with
Private-Sector Activities



- Delhi Metro is the first railway project in the world to be registered at the UN under the Clean Development Mechanism (CDM) scheme.
- Delhi Metro earns Certified Emission Reductions (CER) for use of regenerative braking system of Mitsubishi Electric in its rolling stock.
- On an average 35% of electricity is regenerated. On a per kilometer basis 5.26kWh/km of energy is regenerated.
- The annual CER generation is expected to be 39,000~43,000 ton of CO₂.

Regenerative Braking System



- When train A brake is applied, the motor of train A works as a generator.
- By supplying electricity from Train A to overhead wire, the electricity generated by Train A can be used by Train B for powering.
- Thus, electricity generated by fossil fuel power plant can be saved and, in turn, GHG emission will be reduced.

Financing to IREDA*

*Indian Renewable Energy Development Agency Ltd

60 Billion Yen was committed since 2011

21 sub-projects in wind, solar, and small hydro



Financing to SIDBI*

*Small Industries Development Bank of India

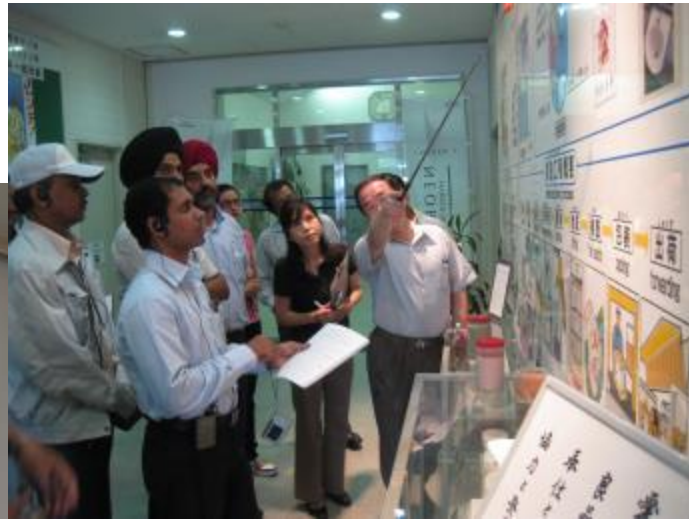
90 Billion Yen was committed since 2008

Covering **about 4,000** sub-projects
in industries, commercial buildings, etc.



Training Program in Japan

211 Indian experts were invited to Japan since 2008 in cooperation with BEE



September 1, 2014

Signing of Japanese ODA Loan Agreements with the Government of India

Promoting renewable energy development and supporting energy savings at MSMEs

On September 1, the Japan International Cooperation Agency (JICA) signed Japanese ODA loan agreements with Indian Renewable Energy Development Agency Limited and Small Industries Development Bank of India, respectively, to provide up to 60 billion yen.

Along with rapid economic growth, energy consumption is increasing rapidly in India. With demand growing at an annual rate exceeding 7 percent since 2001, the power supply cannot keep pace, leading to a chronic power insufficiency of about 10 percent that entails frequent urban power outages. Compensating for this shortage, fossil fuel imports have greatly increased in recent years which have been a serious concern for India in terms of financial strain and energy security. To increase the supply of domestically produced power and reduce the dependency on fossil fuel imports, the Government of India is promoting the use of new and renewable energy and taking measures to make energy use more efficient by enacting the Energy Conservation Act and the Integrated Energy Policy.

Through the India-Japan Energy Forum and the Japan-India Energy Dialogue, the Government of Japan announced that it would continue to proactively support India's environmental and energy policies. In addition, at the Japan-India Summit Meeting held in New Delhi in January 2014, Japan and India agreed to continue working together to further strengthen cooperation in the energy sector, and these loan agreements build on that understanding. The signed Japanese ODA loans have the following characteristics:



Signing ceremony for the New and Renewable Energy Development Project (Phase 2)



Signing ceremony for the Micro, Small and Medium Enterprises Energy Saving Project (Phase 3)

Micro, Small and Medium Enterprises Energy Saving Project (Phase I ~ III)

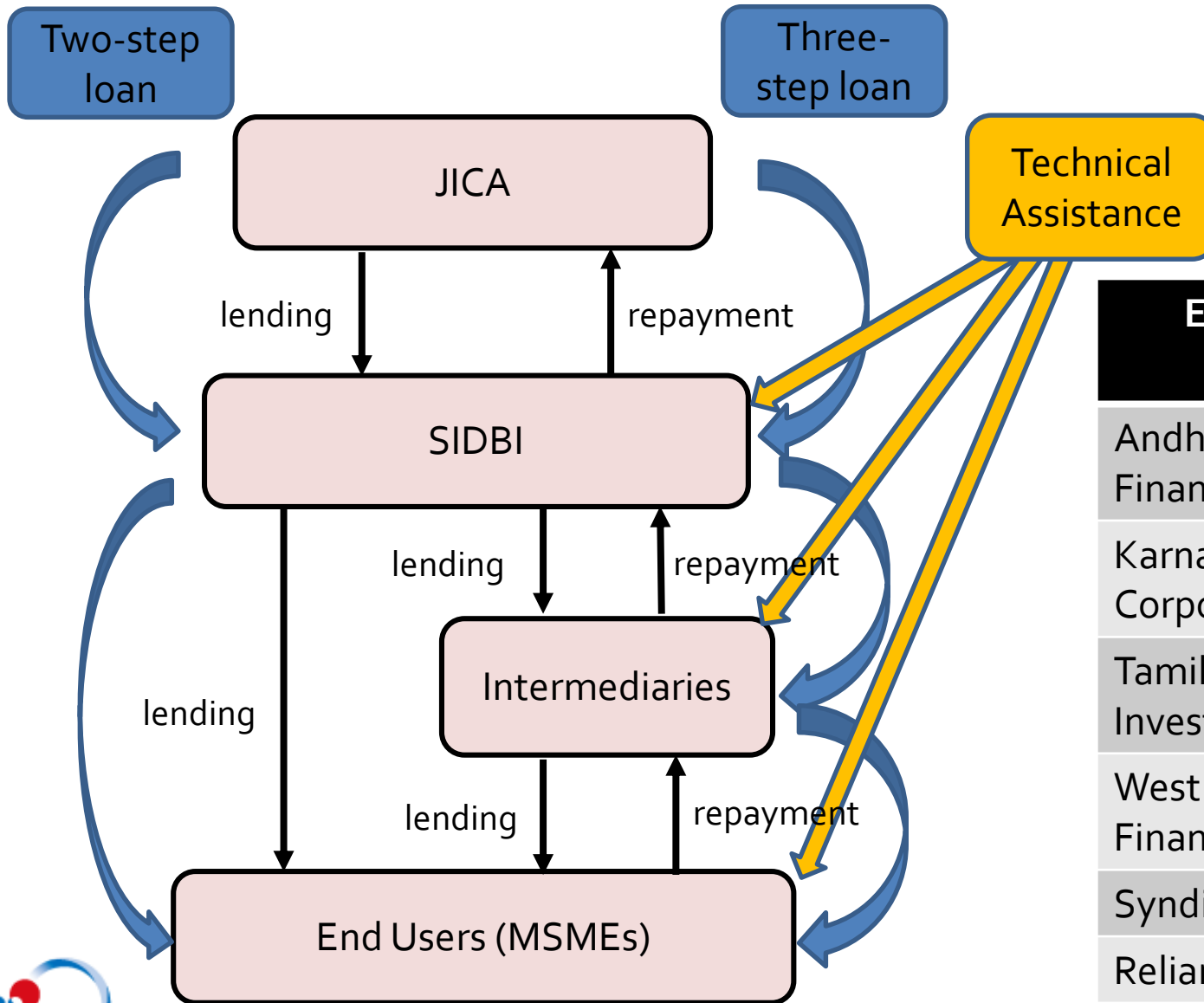
Project Objective

Financing for energy efficiency (EE) of MSMEs

Project Description

- JICA extends concessional loans to **Small Industries Development Bank of India (SIDBI)**
- SIDBI provides on-lending loans either **directly or through local financial intermediaries** to finance investments in EE improvements by MSMEs
- JICA provides technical assistance (grant) for capacity development and facilitating the process

Conceptual diagram of the project



Examples of local Intermediaries

- Andhra Pradesh State Financial Corporation
- Karnataka State Financial Corporation
- Tamil Nadu Industrial Investment Corporation
- West Bengal State Financial Corporation
- Syndicate Bank
- Reliance Capital Ltd
- Intech Capital Ltd

Some financial parameters

Loans from JICA to SIDBI

Project Phase	Project period	Loan amount (million yen)	Interest rate	Repayment/ Grace period
Phase I	2008 - 2010	30,000	0.30%	15/5 years
Phase II	2011 - 2015	30,000	0.40%	15/5 years
Phase III	2014 - 2019	30,000	0.15%	15/5 years

On-lending loans to end users (MSMEs)

Project Phase	Interest rate (indicative)	compared with interest rate of normal loans	minimum contributions of end users	Repayment period
Phase I	10~12%	1~2% lower	33% (new borrower)	3~7 years
Phase II	9.0~10.5 %	1~2% lower	25% (existing borrower)	
Phase III	11~13%	0.75% lower		

Eligibility for end user loans

Definition of MSMEs in India

(Investment in plant, machinery and equipment)

	Micro	Small	Medium
Manufacturing Sector	~ 2.5 million rupees	2.5~50 million rupees	50~100 million rupees
Service Sector	~ 1.0 million rupees	1.0~20 million rupees	20~50 million rupees

Eligible equipment and technologies for investment are listed in the "Energy Saving Equipment List".

Energy Saving Equipment List

- ❑ Gives clear indication for potential borrowers on what investments are eligible.
 - available at <http://jica.org.in/index.aspx>
- ❑ Makes loan appraisal easier and quicker.
- ❑ Steadily updated reflecting ground realities.

Sl. No.	Eligible Equipment/ Technology	Energy saving potential (%)	Other advantages	Specifications	Financial/ Fiscal Incentives	Name of Equipment Supplier(s)
5.1	Common Effluent Treatment Plant	40%	Reduce capital cost & operating cost, less space requirement, proper disposal of treated waste, improve recycling and reuse possibilities	BS EN 12255-14:2003, BS EN 12255-16:2005	State Subsidy - 25% of total project cost, Central Subsidy (MoEF) - 25% of total project cost	* Advent Envirocare Technology Pvt. Ltd. * SSP Private Limited * The Green Environment Services Co-op. Soc. Ltd.
5.2	Vehicle using CNG / LPG as Fuel	Replace diesel fossil fuel	Lower operational cost, no spill or evaporation loss, replacement of diesel fuel	ISO 11439 CNG-3, 4, IS 15716:2006, ANSI	100% income tax depreciation on CNG kit	* Force Motors Ltd. * Swaraj Mazda Ltd. * Tata Motors Limited
5.3	Bioreactor with PLC	20~25%	Automatic pH Control, Automatic Temperature Control, Automatic Vessel Sterilization	ISO, ASME		* Andel Equipment Pvt. Ltd * Akar Impex Private Limited * Western Enviro Solutions
5.4	Batching Plant with Microprocessor Control	15~30%	Smooth Operation with highest reliability	ISO 9001:2008 : OHSAS 18001: 2007: ISO 14001:2004		* Schwing Stetter India Pvt. Ltd. * Feaster India * Parv Engineers

- ❑ Awareness raising activities for MSMEs about EE
- ❑ Update of Energy Saving Equipment List
- ❑ Support to capacity development of appraising EE investments for SIDBI and intermediaries
- ❑ Support to monitoring environmental and social impacts of investments
- ❑ Assistance to estimation of energy saving (ES) effects and GHG emission reduction of investments and the project

Performance data

Summary of results (data from project completion report)

Indicators	Phase I	Phase II
Number of loans extended for MSMEs	3,539	1,839 (tentative)
Amount of loans extended for MSMEs (billion rupees)	17	19
Estimated annual GHG emission reduction (kt CO ₂ eq/year)	313.6	241.01
Estimated annual electricity saving (M kWh/year)	335.4	280.43
Estimated annual thermal ES (M kcal/year)	347,968	218,680
Average ES effect by investment (%)	35.67	No data

Other benefits

(from ex-post evaluation report of Phase I project)

- Business performance: Questionnaire survey revealed that 42 out of 45 MSME respondents indicated that their business performance had been improved by the investments, and 33 expanded their business.
- Employment: About 2/3 of the 45 MSME respondents indicated that they increased employees after the investments.
- Environmental quality: 800 gasoline/diesel taxis replaced by CNG* taxis, and 500 diesel rickshaws replaced by LPG ones.

 Project may have produced significant co-benefits.

*CNG: compressed natural gas

Thank you