

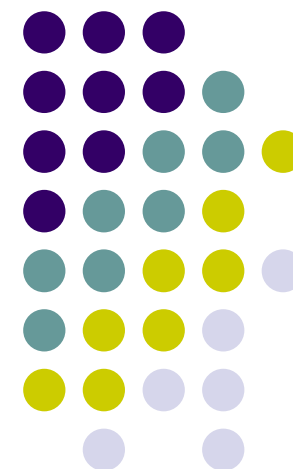


# JICA's Approach for Energy Efficiency Finance in India

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Representative  
Japan International Cooperation Agency (JICA)

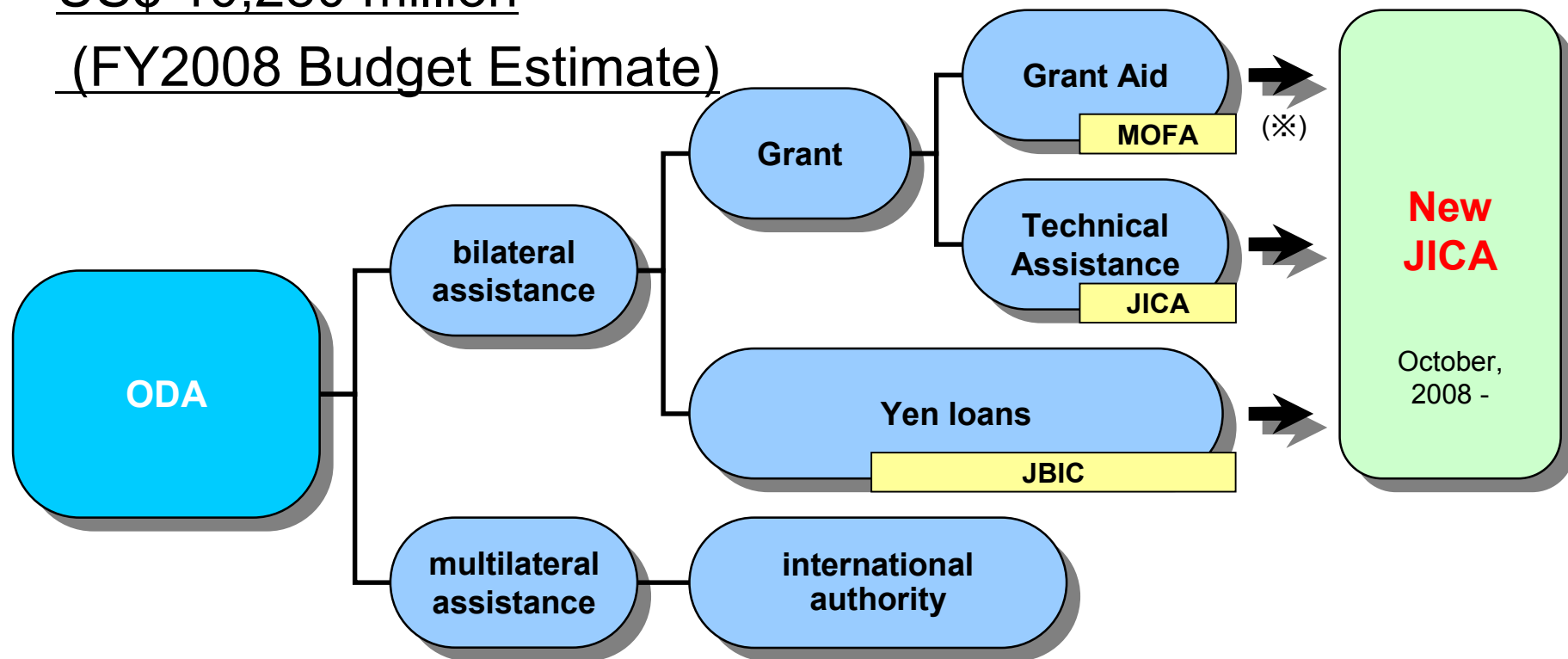
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# 1. “JICA”: The World’s Largest Bilateral Aid Agency



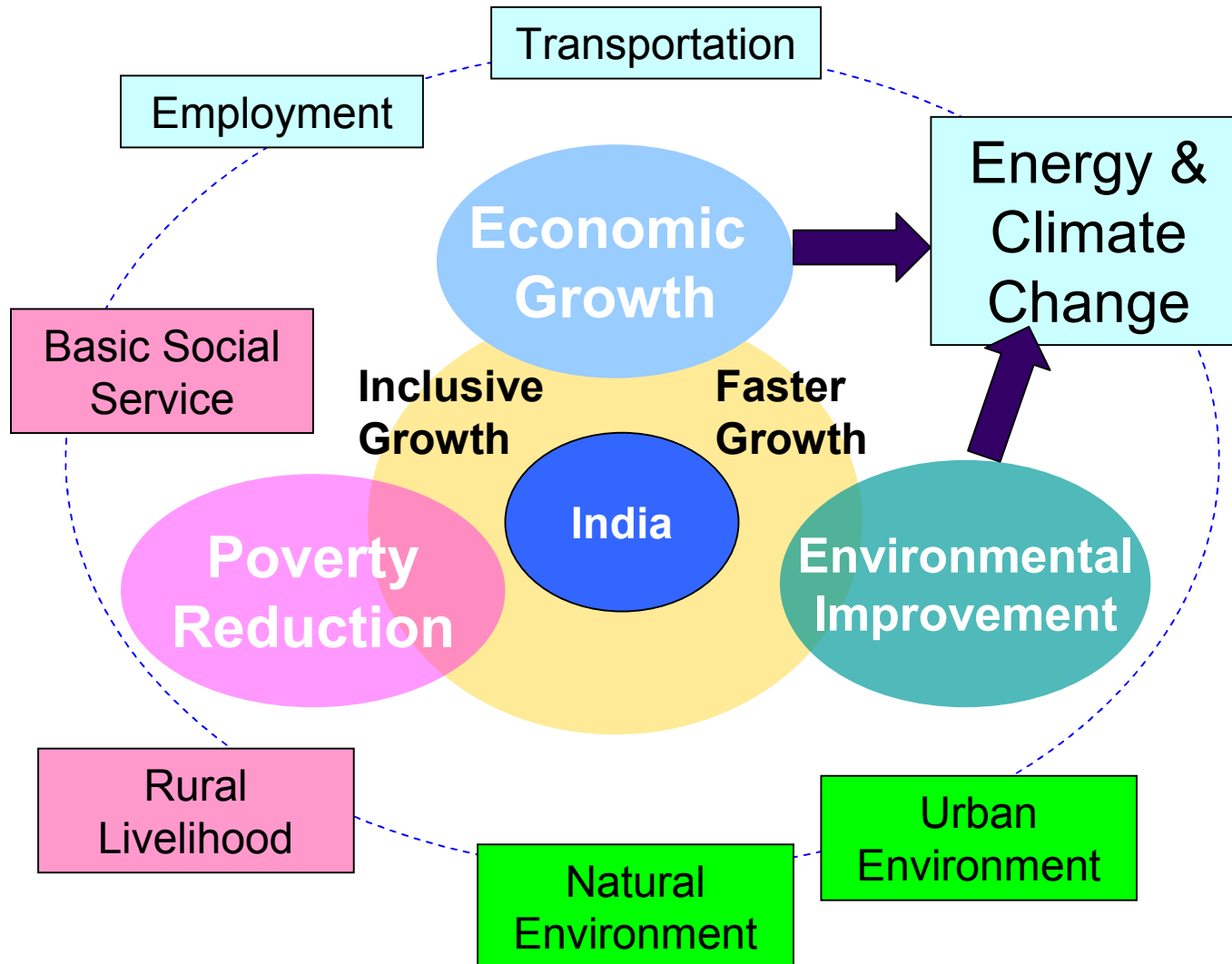
US\$ 10,280 million  
(FY2008 Budget Estimate)



(※) A part of grant assistances will be provided by MOFA and the rest of the financial assistances will be shifted to JICA.



# “JICA”: Focus in India



## 2. Energy Efficiency Finance in Indian Context



- Vast Potential for Energy Efficiency Improvement (15%±)
- Interest by Industry for EE Improvement to cut cost (Grid Electricity & Diesel Generator)

But....

- Very Slow Replication, especially in MSMEs (Micro, Small and Medium Enterprises)

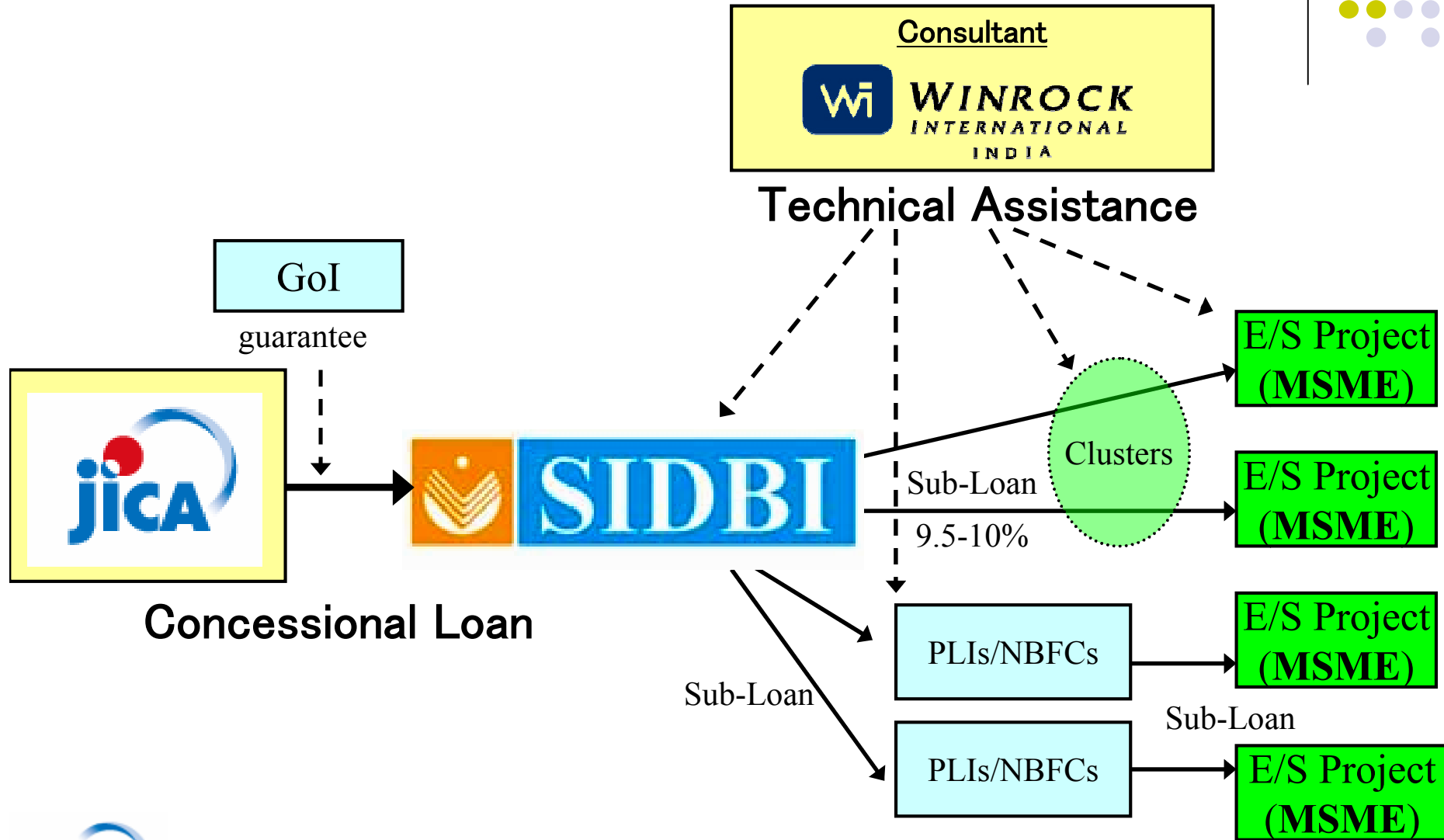
## 2. Major obstacle

### – Procedure for Loan Sanction



- Financial Institutes (Branch Officers)
  - Technically not equipped with reviewing individual energy saving investment
  - Time consuming process is not preferred
- Enterprises (especially MSMEs)
  - Busy with day-to-day operation
  - Not aware of detailed energy saving potential
  - Difficult to prepare Project Report for energy saving investment from “technical” and “time” constraints
  - Selection of Technology by copying nearby examples
  - Detailed Information sharing with other Units is not easy - competition

# 3. JICA's "MSME Energy Saving Project" for investment finance



(SIDBI = Small Industries Development Bank of India)

# Outline



- JPY 30 billion / Approximately USD 300 mil or INR 1500 Cr
- Financial Parameter
  - Interest Rate: 9.5 – 10.0% p.a. to end user
  - Minimum Borrower Contribution:  
25%(Existing) / 33% (New Company)
- Eligible Borrower: Small & Medium Enterprise  
in any industry at anywhere in India

# JICA's approach

## “Energy Saving Equipment List”

JPN's Experience

- Eligible Investment: Those items in the Energy Saving Equipment List  
(Dynamic List reflecting field realities)
- EASY & QUICK reference  
for Lender, Borrower & Equipment Supplier  
to achieve “Replication”
- Listed investment can achieve 15% Energy Saving

Please visit website: <http://jica.org.in>  
→ Energy Saving Equipment List



# Energy Saving List



## 1. Common Equipment

- Electrical Equipment,
- Thermal Equipment,
- Insulation,
- Commercial Buildings,
- Heat Insulating
- Building Material,
- Incineration & Generation from Solid Waste,
- Industrial Furnace,
- Dryers etc...

## 3. Renewable

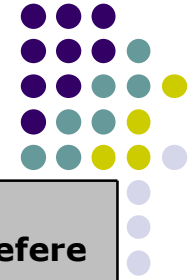
- Wind, Solar, Small Hydro, Biomass, Solid Waste, etc

## ● 2. Industry Specific

- Glass, Ceramics
- Pulp & Paper Industry
- Foundry, Textile
- Engineering Industry
- Food Processing
- Brick, Dyes, Cement
- Auto Component
- Casting & Forging
- Tanning & Leather Processing
- Pharma, Fertilizer
- Steel, Chemical, Plastics, Polymer etc...

# (Sample Equipment List)

## Common Equipment



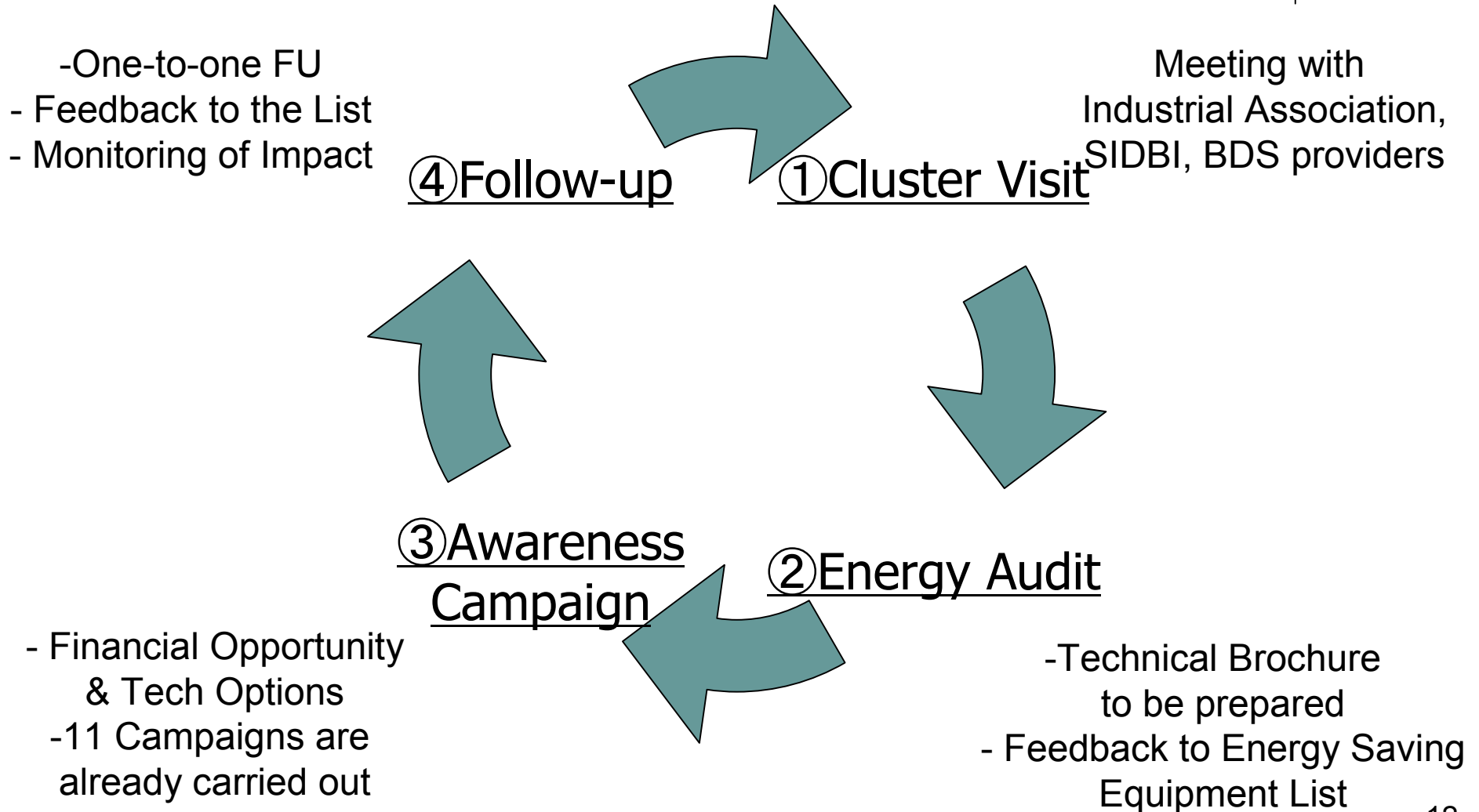
S I. N O	Eligible Equipment/Technology	Advantages	Expected Effects	Specifications	Reference
1	<b>Electrical Equipment</b>				JCI
	# Variable Frequency Drives (VFD)	Energy Saving; Extended equipment life; reduced maintenance		JEM201,225, 226,227	JCI
	# Energy Efficient Motors	Reduction 20~30% Loss by adopting of High level material Efficiency 3-5% up		JISC4212 Over 98% High Voltage	JCI
	# Energy Efficient Transformers	Improvement no load loss		Total Load Loss less than 0.3%	JCI
1. 1	<b>Lighting</b>				JCI
	# Energy efficient fluorescent lamps (e.g. T5)		EC25% Cut		BEE
	# Compact Fluorescent Lamps (CFL)		EC25% Cut	Luminous efficiency over 80lm/w	BEE
	# Metal Halides Lamps		EC25% Cut	Luminous efficiency over 60lm/w	BEE
	# High Pressure Sodium Vapor lamps		EC25% Cut	Luminous efficiency over 110lm/w	BEE

# Sample of Industry Specific Equipment



13	<b>Foundry</b>				
	# kWh Indicator for Induction Furnace	Reduction in Electrical Energy Consumption			CII
	# Medium Frequency Induction Furnace (by replacing Arc Furnace or Main Frequency Furnace)	Waste Heat Recovery leadign to reduction of Thermal Energy Consumption	Cost Saving by elimination electrodes		CII
	# Heat Recovery System for Stress Relieving Furnaces	Reduction of Fuel consumption			CII
	# VFDs for Screw Compressors				CII
	# Oil fired Core Drying Oven	Reduction in Electrical Energy Consumption	Reduction of operating condition by 50%		CII
	# Gas fired Aluminium Melting Furnace (replace Oil fired Furnace)	Reduction in Thermal Energy consumption.	Reduction fuel cost by 20%		CII
	# Divided Blast Cupola (DBC)	Replace conventional cupola	Coke saving 25~65%		TERI
	# Gas fired Cupola	Eco friendly, Higher tapping temperature, Better melt quality and Reduction in Thermal Energy consumption.			<b>CLCSS List</b>

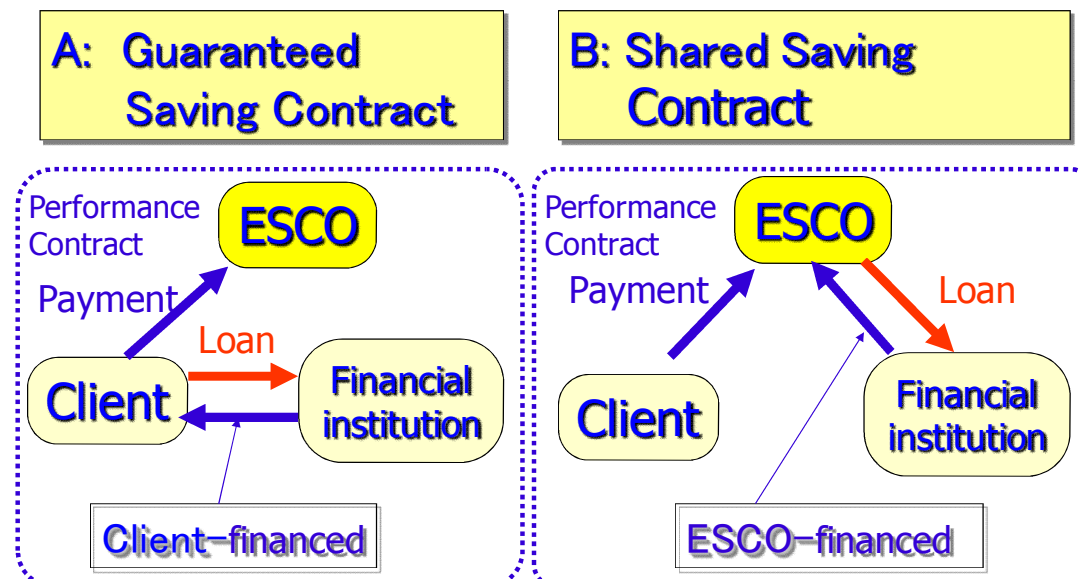
# Activities Cycle



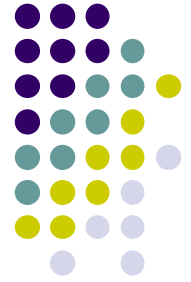
# Collaboration with ESCO?



- “Guaranteed Saving” mode is more suitable than “Shared Saving” mode for this scheme
- ESCO can be a promoter of Energy Saving Investment. Let’s work together at “Clusters”
- Equipment Manufacturer can play good catalytic role



# JICA's Pipeline Idea: RE/EE/EC/ESCO Finance

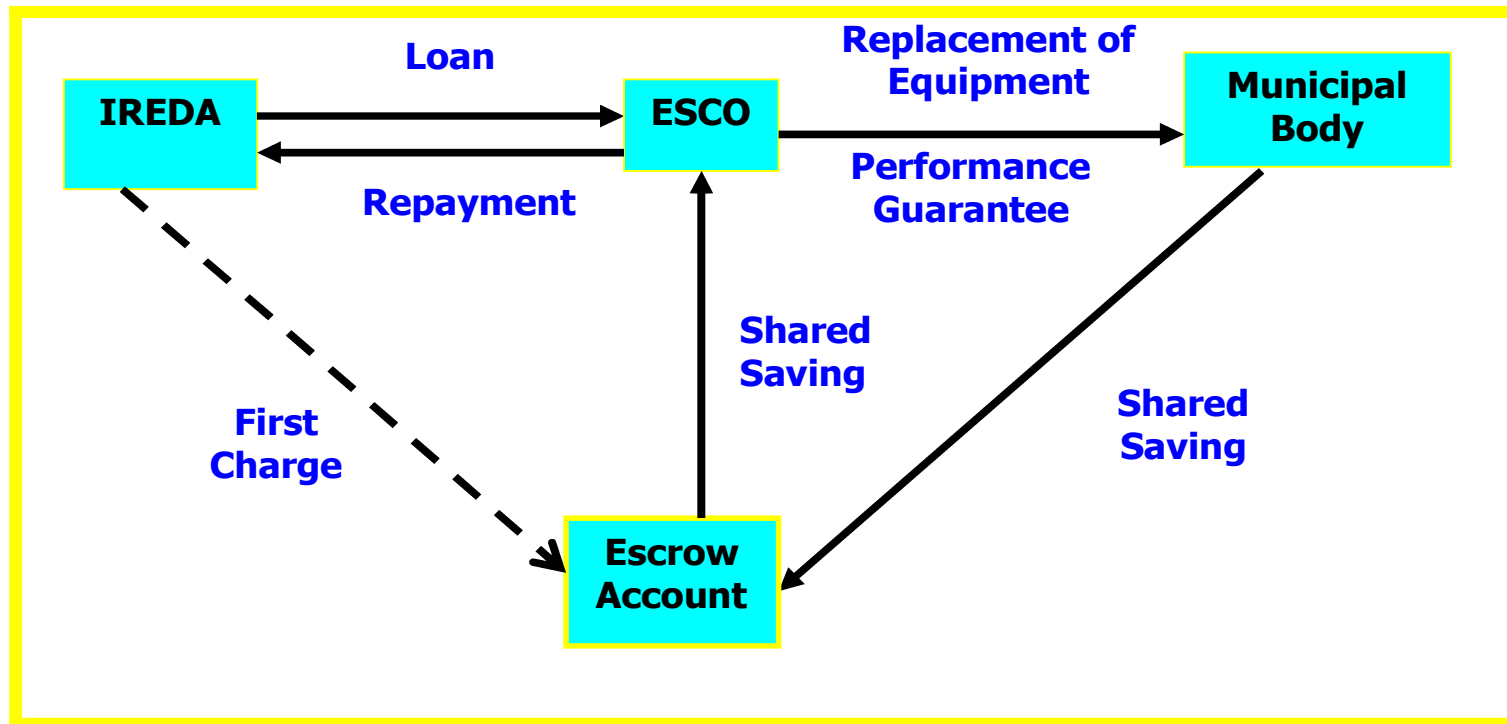


- Providing Credit Line to IREDA (Indian Renewable Energy Development Agency) for the purpose of RE/EE/EC/ESCO finance
  - IREDA: A Public limited Government Company which promotes, develops and extends financial assistance for Renewable Energy (RE) and Energy Efficiency (EE)/Conservation (EC) Projects

# On-going IREDA Scheme -1 :



## ESCO Financing (with Performance Guarantee/ Shared Saving)

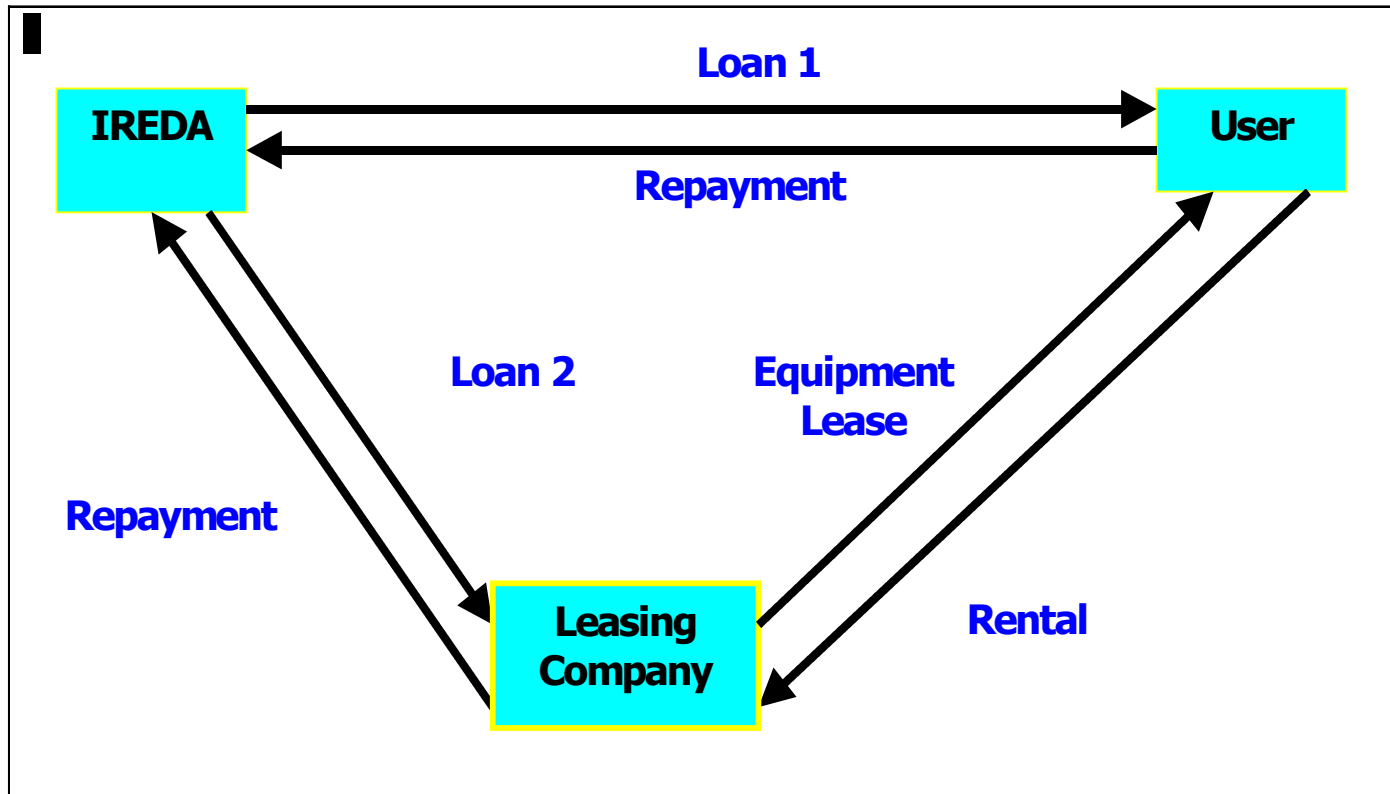


Source: Presentation by IREDA

# On-going IREDA Scheme - 2 : Finance to both Leasing Co. & User

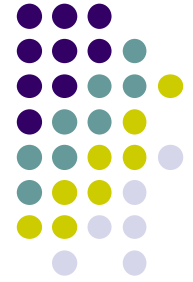


## Energy Efficiency in Sugar Plants



Source: Presentation by IREDA





**Thank You**