Nineteenth Asia-Pacific Seminar on Climate Change
"Toward Low Carbon and Climate Change-resilient Asia-Pacific
– From Copenhagen to Cancun-"
20 July 2010

GREEN and J-MRV
~ Public Private Financial Partnership ~

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Japan Bank for International Cooperation

Copenhagen Accord

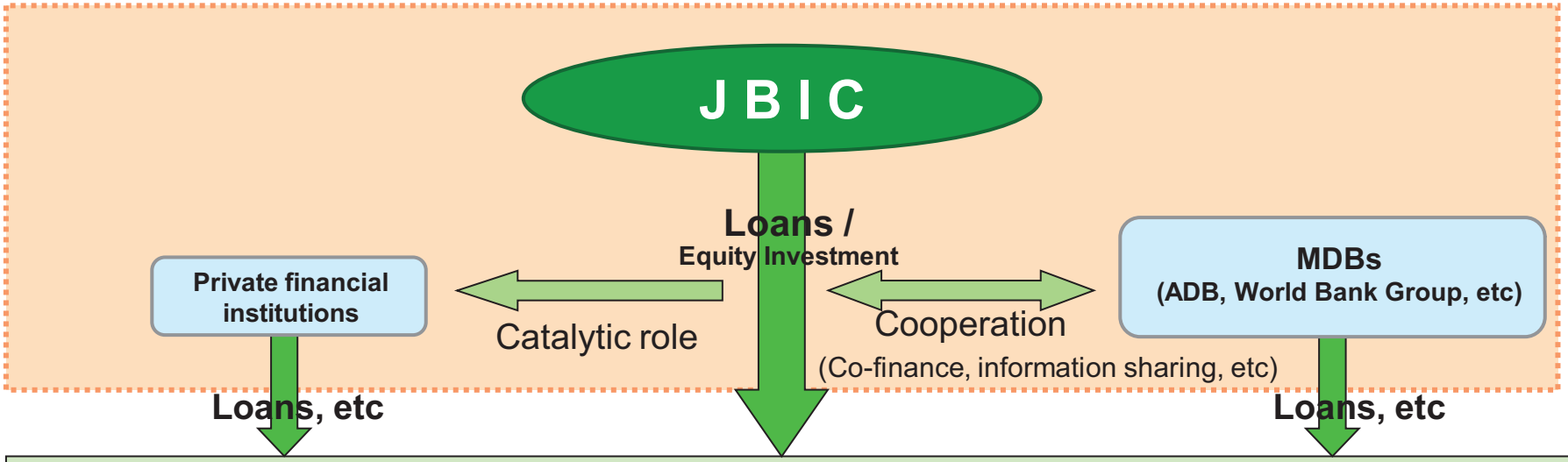
- Increase in global temperature below 2 degrees
- Emissions targets of Annex I Parties for 2020 are to be submitted by 31 January 2010.
- Nationally appropriate mitigation actions (NAMAs) by Non-Annex I Parties are to be communicated every two years. NAMAs seeking international support are to be recorded in a registry.
- Crucial role of REDD-plus
- Additional funding to developing countries:
  - USD 30 billion (2010-2012)
  - Mobilizing USD 100 billion a year by 2020 (public & private, bilateral & multilateral)
  - Copenhagen Green Climate Fund
- Technology Mechanism to accelerate technology development and transfer
- Assessment of the implementation of this Accord is to be completed by 2015.

Source: UNFCCC

"LIFE" (Leading Investment to Future Environment) Initiative by JBIC

●LIFE will …
- support both public and private sectors,
- cooperate with multilateral development banks (MDBs) and mobilize private financing.

●JBIC's financial support under the Initiative will be around **5 billion USD for the next 2 years.**



Four main targeted sectors of the Initiative are ...

·**Clean power generation**	- Solar, geothermal, wind power, clean coal power plant, etc
·**Energy efficiency improvement**	- Upgrading of existing transmissions and distributions, modernization and heat recovery of steel furnaces and cement kilns, ESCO (energy service companies), etc.
·**Water**	- Water purification and supply, sewage system, wastewater treatment, desalination and water processing, etc
·**Urban transportation**	- Modal shift in densely populated areas, etc

Projects Financed by LIFE

No.	Country/ Region	Project	Month/Year
1	India	High Energy-Efficient Boiler Manufacturing Project (for Coal-Fired Plant)	Jul. 2009
2	UAE	IWPP Project	Oct. 2009
3	India	High Energy-Efficient Boiler Manufacturing Project (for Coal-Fired Plant)	Oct. 2009
4	Asia	Fund Focusing on Efficient Energy and the Environment Sector	Oct. 2009
5	Asia	Infrastructure Fund Focusing on Emerging Asian Countries	Dec. 2009
6	Kazakhstan	Export Loan for Thermal Power Generation Equipment Utilizing Gas Generated by the Oil Field	Dec. 2009
7	Korea	Export Loan for By-product Gas-fired Combined Cycle Power Generation Equipment for Iron & Steel Plant	Jan. 2010
8	UAE	Fund Focusing on Climate Change Investment Universe	Jan. 2010
9	Indonesia	Thermal Power Plant Expansion Project	Mar. 2010
10	Indonesia	Thermal Power Plant Project	Mar. 2010
11	Mexico	Thermal Power Plant Project	Mar. 2010
12	Maldives	Water Supply and Sewerage System Operation Project	Mar. 2010

Total amount of financing by LIFE including private funding as co-financing is USD 5.4 billion as of 31 March, 2010.

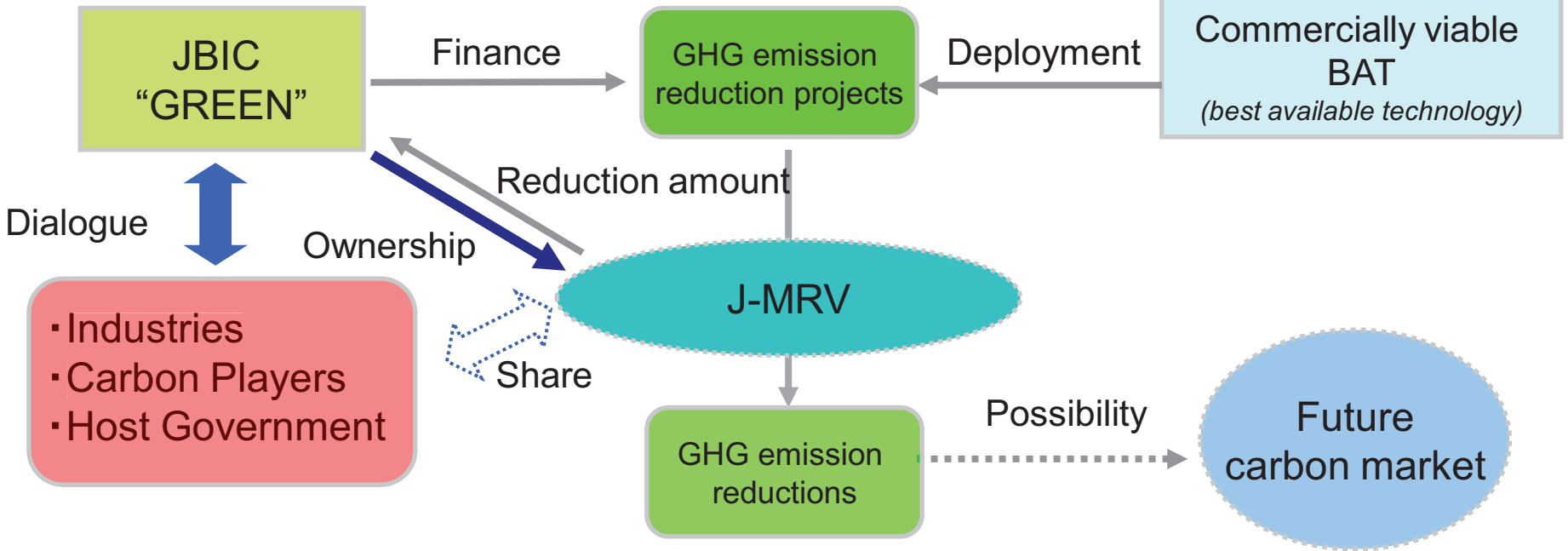
New Financial Program (GREEN) and J-MRV

(Global action for reconciling economic growth and environmental conservation)

JBIC will review the followings

1. Climate change policy of the host country
2. Technology to be used
3. Reduction amount by J-MRV

J-MRV
JBIC are going to establish a guideline for quantifying GHG emission reduction amounts.
It should be "simple, practical and internationally acceptable."



(MRV: Measurement, reporting and verification)

Committee for establishing J-MRV

1. Members :
<External Experts>
Ryuji Matsuhashi The University of Tokyo (Chairman)
Tsuyoshi Nakao Environmental Resources Management ERM Japan Ltd.
Tomohiko Ike E&E Solutions Inc.
Hiroki Kudo The Institute of Energy Economics, Japan
Kuniyuki Nishimura Mitsubishi Research Institute, Inc.
Kazuhito Yamada Pacific Consultants Co., Ltd.
<JBIC>
Environment Finance Engineering Department

2. Period
Feb. 2010 ~ May 2010

3. Consultation

Experts of CDM, ISO, Japanese experimental system and other related issues

Structure of J-MRV Guideline (draft)

0. Preface
   Background of J-MRV
   J-MRV shows principles and procedure
1. Purpose of J-MRV
   (1) Aims of J-MRV
   (2) Eligibility
   (3) Advisory Committee
2. Principle of J-MRV
   (1) Principle
   (2) Boundary of MRV
   (3) Baseline emissions
      <Options of baseline emissions method>
         (i) Rehabilitation project
         (ii) Greenfield project
   (4) Reduction amount
   (5) Minor effects
   (6) Leakage
   (7) Minor impact
   (8) Small installations

3. Procedure
   (1) Methodology setting
   (2) Planned reduction amount
   (3) Measurement and monitoring at and after project completion
   (4) Verification
4. Disclosure

Annex
- Methodology
- Good practice of measurement
- FAQ
- Reference data;
  carbon emission factor, etc

Goal of J-MRV

1. Goal

JBIC intends to:

- Establish simple, practical and internationally acceptable framework of MRV to promote international projects reconciling GHG reduction and economic development.
- accelerate low carbon investment through measurement of GHG reductions by the projects.
- implement necessary steps quickly to fit for actual investment.

2. Contents

- J-MRV will soon show a guiding principle including representative methodologies and its procedures.
- Methodologies will be attached as an annex and new methodologies will be successively added.

3. Advisory Committee

- Independent from JBIC.
- Experts on energy or methodology on CDM, ISO and others.
- Provide third party and professional opinions to JBIC.

Baseline Emission and Reduction amounts

Principle :
- **Simple, practical and internationally acceptable**
- **Based on the decision making process of the investment**

Baseline amounts = Emissions in the case without investment

Reduction amounts = Baseline emissions - Emissions from projects

Option
- **Actual emissions before investment, taking account of operation rate (Rehabilitation)**
- **Emissions from similar installations in operation in the country or in the region**
- **Emissions from similar installations recently invested in the country or in the region**

Taking account of
- **investment climate such as economy, energy, technology, regulation.**
- **availability and reliability of data**

Sampling and theoretical value may be applicable

Leakage and minor impact

1 Boundary

- Boundary of emission is project financed by JBIC's Green
- Boundary of project is defined depending on projects and the form of JBIC's participation
- 5% deduction from the reduction amount in the case of minor effect within the boundary, if there are no specific facts or problems.

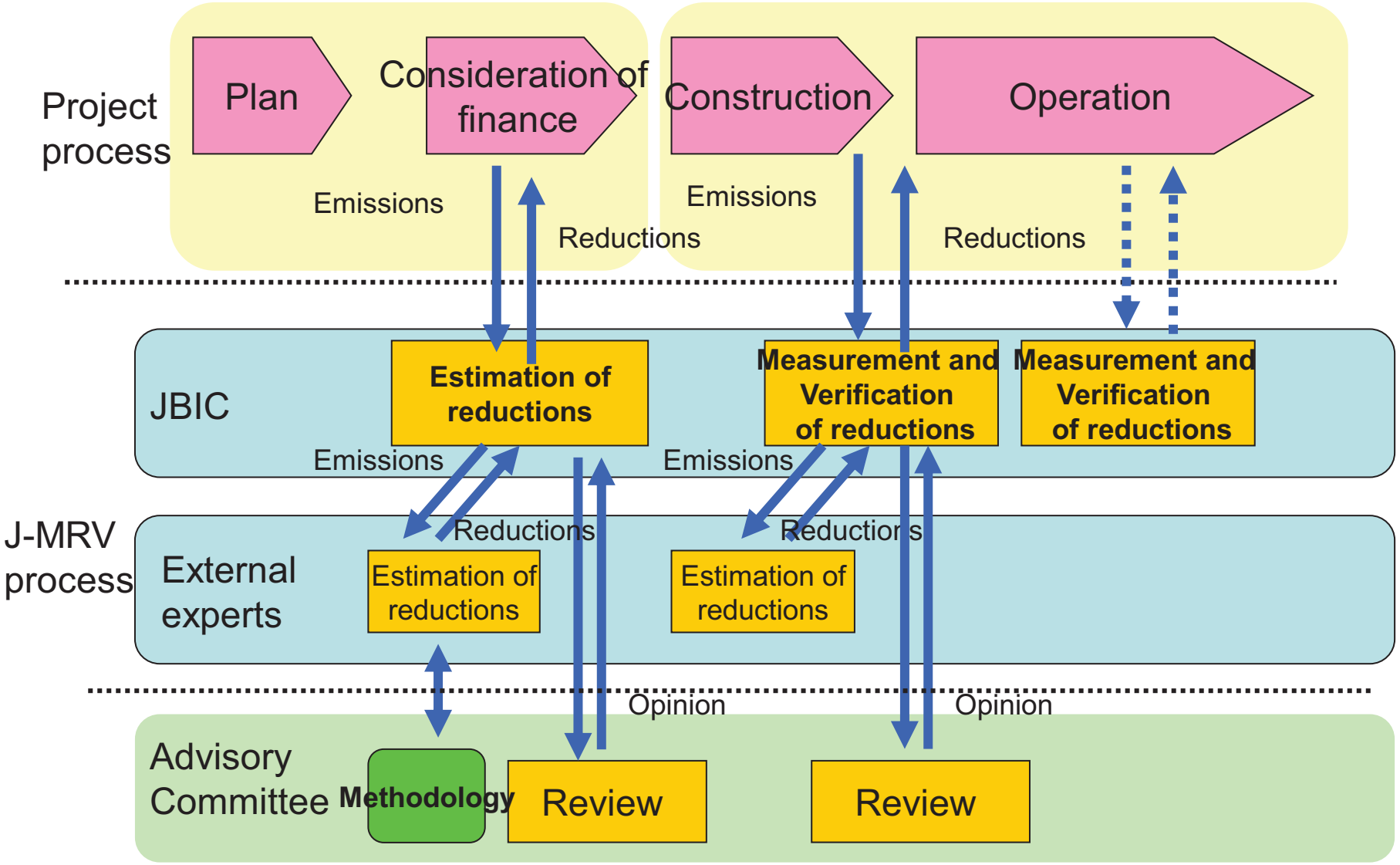
2 Leakage

- To be considered at each methodology

3 Small installations

- Sampling or theoretical value is possible.
- 5% deduction from the reduction amount, if there are no specific facts to be considered.

J-MRV Process



Template of Methodology

1 Description of methodology
- No.
- Name
- Applicable projects
- Short description of methodology

2 Applicability

3 Project boundary

4 Baseline emissions
- Principles and assumptions
- Baseline emissions

5 Leakage

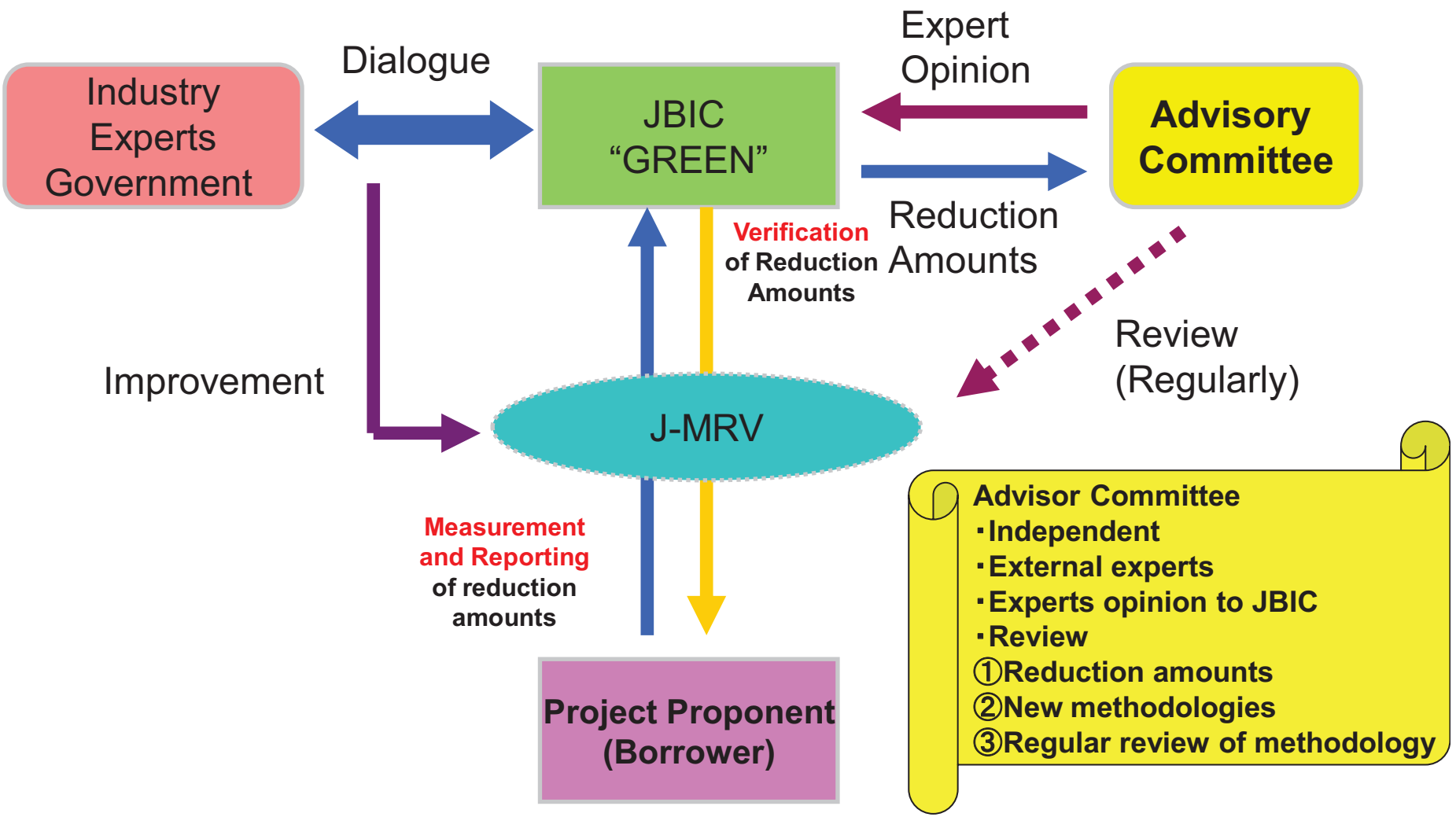
6 Project emissions

7 Emission reductions

8 Monitoring

9 Others
- Observations
- Referred existing methodologies and/or standards
- History of amendments

Advisory Committee for J-MRV



Commercially viable BAT
～ Steel industry ～

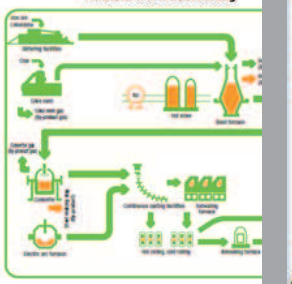
1. Iron and Steel Industry

Iron and steel industry is one of the energy intensive industries, the share of total green house gas is estimated 5 % (year2006, IEA data), which is top share of manufacturing sector.
According to IEA analysis, the process are complex structure, however, there are basic 2types of steel works:

1. **[Integrated steel works]** Integrated steel
major company for making pig iron.
process, which uses iron ore (and
2. **[Electric furnace process]** Scr
Electric Furnace for melting.

About 60% of product share is
comparing CO_2 emissions, one
defining the boundaries. Energy
steelworks or in electric furnace

Processflow of steel industry

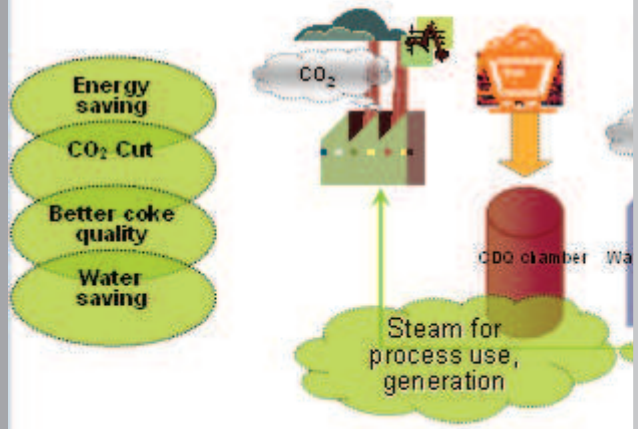


(Source)Nippon Steel 2008 -Sustaina

1-1 CDQ (Coke Dry Quenching)

Description
Coke dry quenching is equipment, recovering the waste heat of the cokin
the traditional quenching using water (wet quenching) of the coking proc
improves the working climate, and recovers the sensible heat of the coke
applied at new and retrofitted at existing plants.

Coke Dry Quenching process

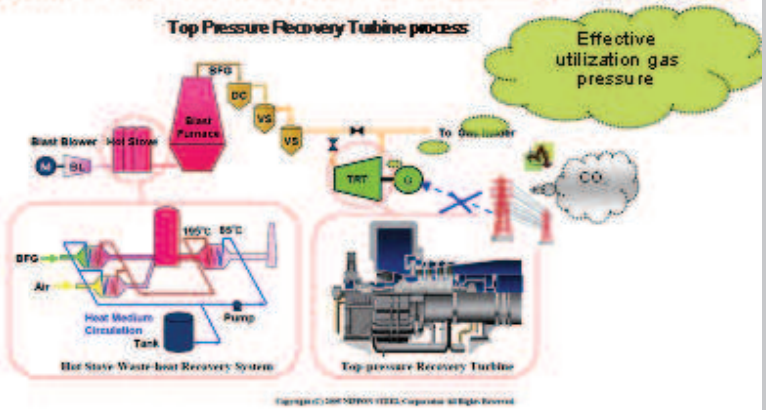


(Source) Drawn up by JBIC based on SOACT, Asia-Pacific Partnership on Cle
"State-of-the-Art Clean Technology Handbook" (SOACT).

1-2 TRT (Top Pressure Recovery Turbine)

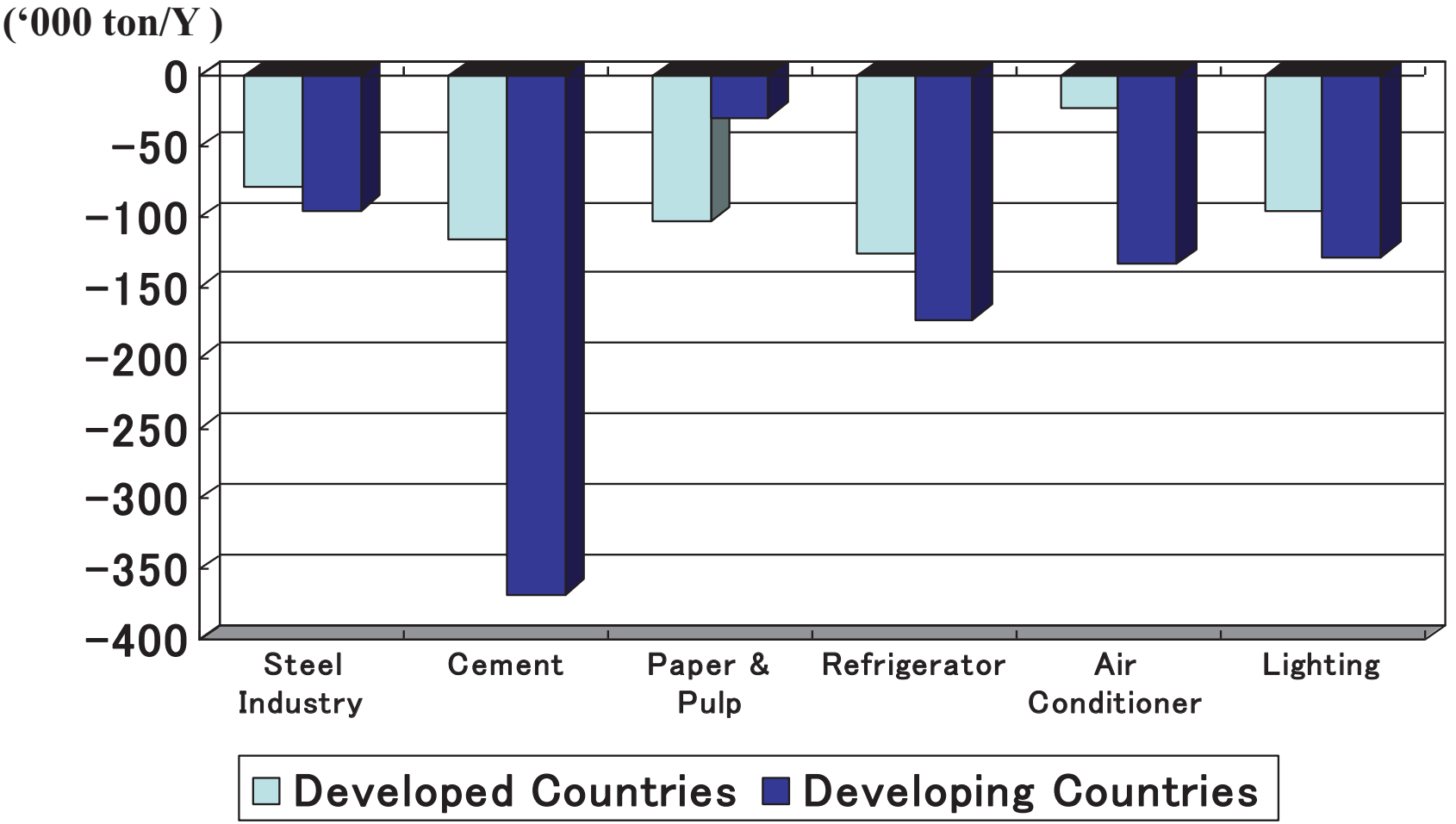
Description
Top Pressure Recovery Turbine (TRT) is a equipment for beneficial use of waste gas pressure generated from the steelworks' blast furnace top and converted into electricity using a turbine. Energy savings, noise is reduced when gas passes through the turbine.
Although the pressure difference is low, the large gas volumes make the recovery economically feasible.

Top Pressure Recovery Turbine process



(Source) Toru Ono (2007.Jan.)RITE International symposium "challenges for GHG Reduction in steel company"
(Partially modified by JBIC)

Potential of CO2 emission reduction by technologies

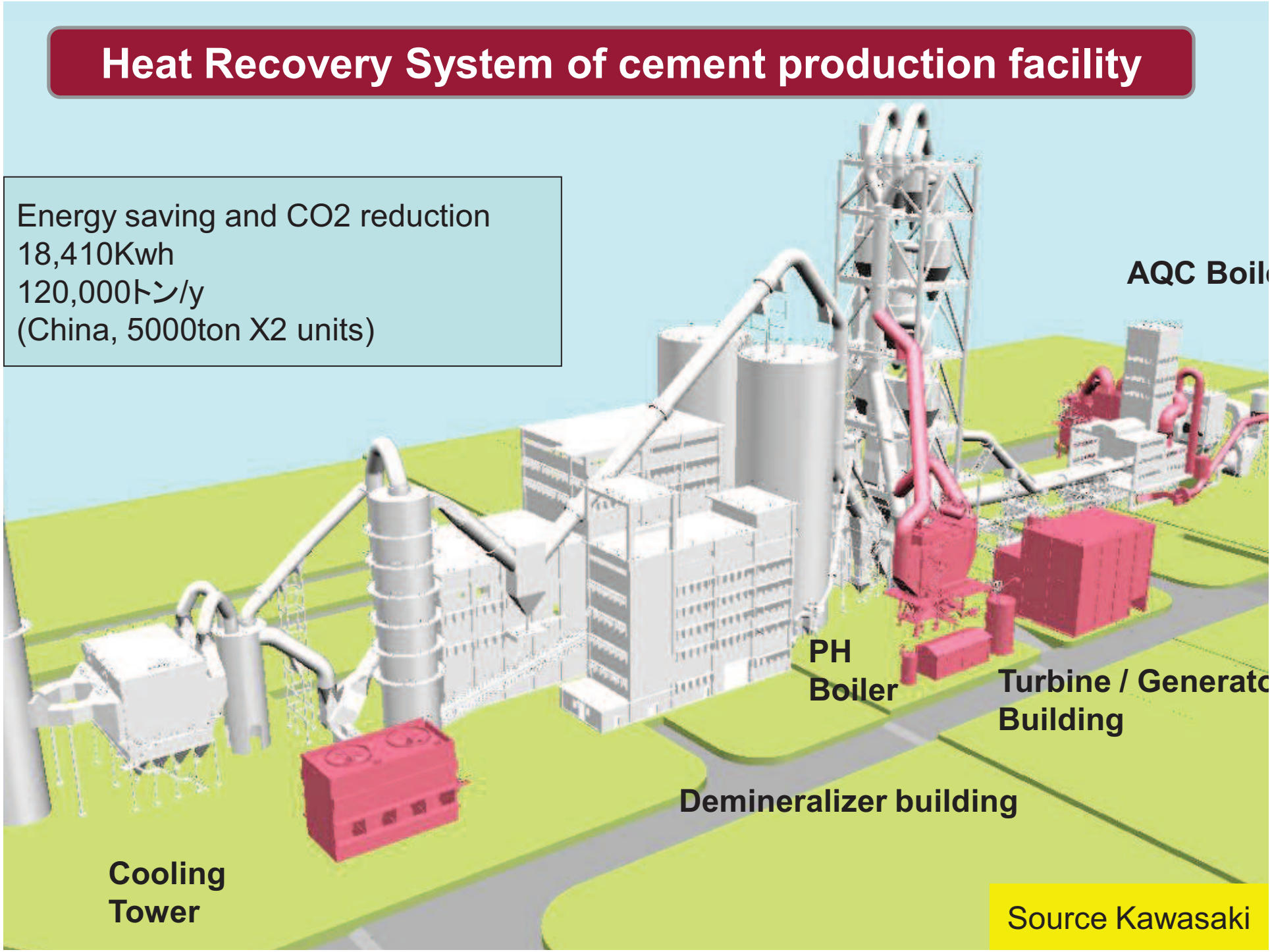


Source: IEEJ

CO_2 emission reduction potential by using Japanese BAT

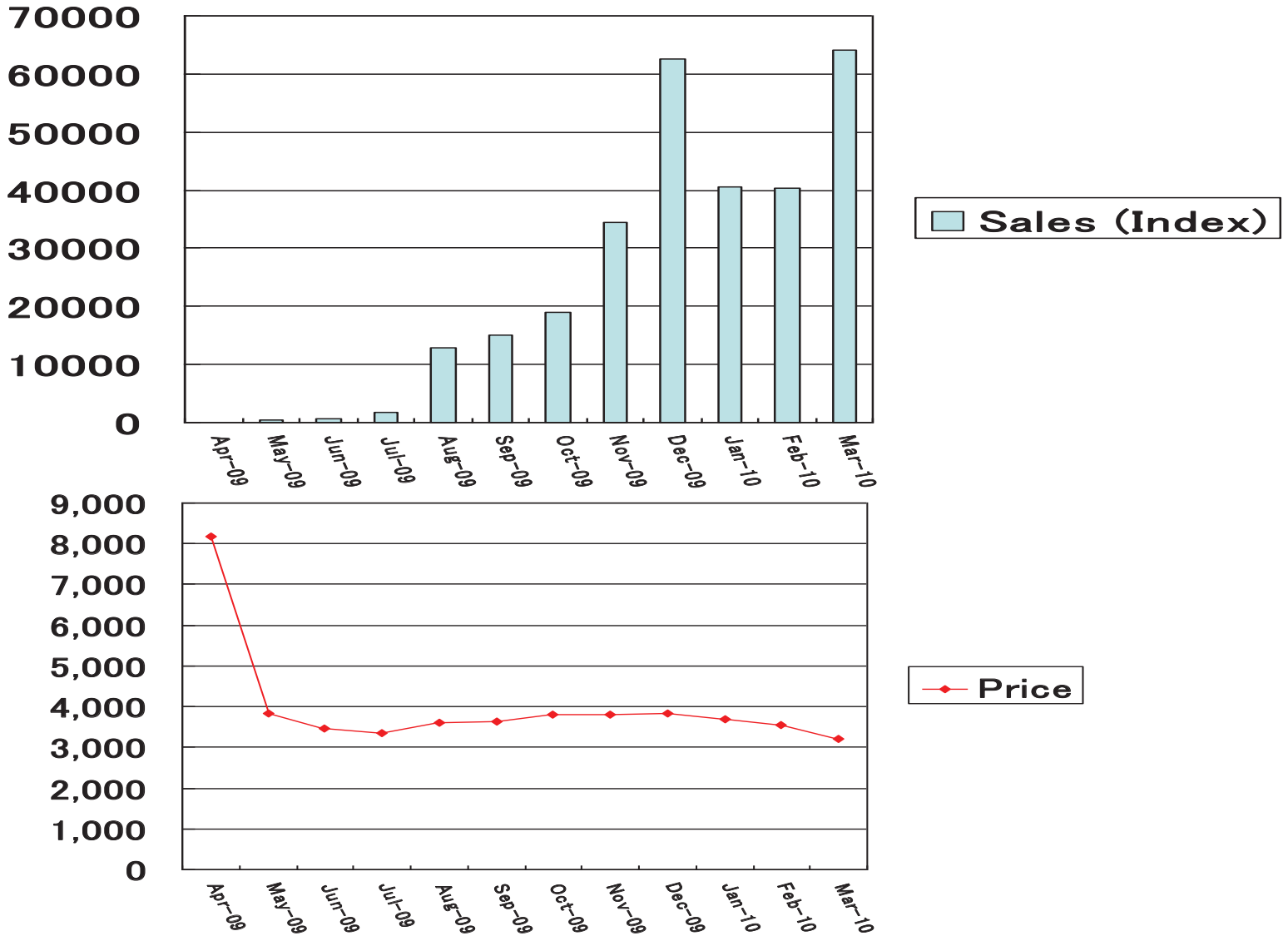
Heat Recovery System of cement production facility

Energy saving and CO2 reduction
18,410Kwh
120,000トン/y
(China, 5000ton X2 units)



Source Kawasaki

LED lighting market



Source GFK Marketing Japan

J-MRV as a Good Practice

A good practice for financial institutions

Contribution for future market mechanism

Global alliance with
market players, financial institutions and industries

Scale of low carbon investment

Public-Private Financial Partnership