

International Cooperation in East Asia to Address Climate Change

## Possible future linkage among emissions trading systems in East Asia

Hyungna Oh\* and Il-Young Oh\*\*  
(\*h.oh@khu.ac.kr; \*\* oiyoiy@hanmail.net)

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# 1. ETSs in Asia

## < Existing and Emerging Emissions Trading Systems in Asia >

Existing ETS			
National level	Province	Prefecture/ Municipality/City	ETS under development
Kazakhstan	Guangdong (PRC)	Beijing (PRC)	PRC (national system)
Republic of Korea	Hubei (PRC)	Chongqing (PRC)	India
New Zealand		Shanghai (PRC)	Indonesia
(Australia: now repealed)		Shenzhen (PRC)	Thailand
		Tianjin (PRC)	Viet Nam
		Saitama (Japan)	
		Tokyo (Japan)	

### Kazakhstan

- Operation: 2013
- Cap: 147Mt (59%)

### Republic of Korea

- Operation: 2015
- Cap: 562Mt (60%)

### New Zealand

- Operation: 2008
- Cap: 562Mt (50%)

### PRC 7 pilot

- Operation: 2013
- Cap: 1200Mt (20% national)

### Tokyo

- Operation: 2010
- Cap: 13Mt (20%)

### Saitama

- Operation: 2011
- Cap: 11Mt (26%)

### PRC (national system)

- Operation: 2018

Source: ADB (2016)

# 1. ETSs in Asia

## ■ NDCs and ETSs in East Asia

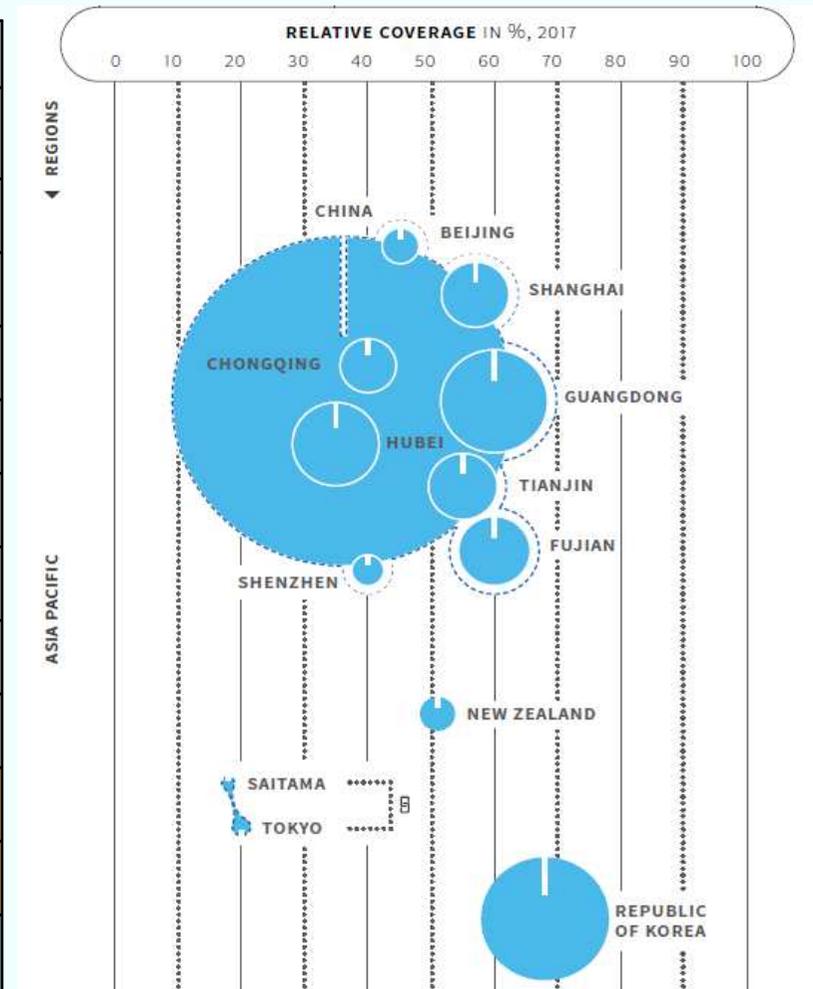
	China	Japan	Korea
Target (%; MtCO <sub>2</sub> eq)	•Intensity target: △60-65% from the 2005 level (depending on GDP)	△26% compared to FY2013 emissions(i.e., △25.4% ct FY2005) (△1042)	BAU target: △37.0%(BAU) (△314.7)
- International  (Policies)	NA  (South-South coop.)	△50~△100 (by JCM), at least △1000(by private sector coop.) (JCM and others)	△11.3%(△96.1)*  (no specific policies)
GHG Coverage	Not mentioned	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, PFCs, SF <sub>6</sub> , NF <sub>3</sub> , NFCs	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, PFCs, SF <sub>6</sub> , HFCs
LULUCF	○	Base calculation(x), Mitigation(○)	○
ETS	Key policy (7 pilots→ nationwide ETS in 2018)	Not mentioned (3 subnational ETSs)	Key policy (since 2015)

Source: UNFCCC

# 1. ETSs in Asia

## ■ Different Coverage

	<i>Indus</i>	<i>Power</i>	<i>Buils</i>	<i>Tranp</i>	<i>Waste</i>	<i>Aviat</i>
<b>China</b>	○	○				○
<b>Beijing</b>	○	○	○	○		
<b>Chongqing</b>	○	○				
<b>Fujian</b>	○	○				○
<b>Guangdong</b>	○	○				○
<b>Hubei</b>	○	○				
<b>Shanghai</b>	○	○	○			○
<b>Shenzhen</b>	○	○	○	○		
<b>Tianjin</b>	○	○				
<b>Saitama</b>	○		○			
<b>Tokyo</b>	○		○			
<b>South Korea</b>	○	○	○	○	○	○



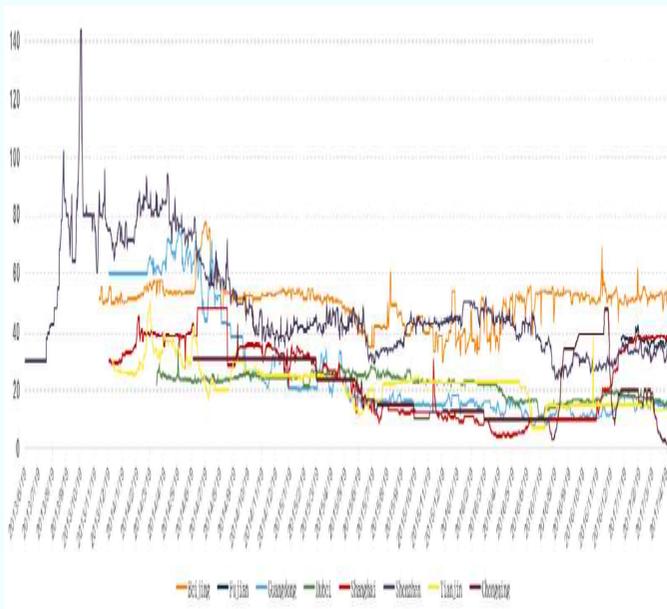
Source: ICAP 2017 Report

# 1. ETSs in Asia

## ■ Different carbon price behavior

< China: 7 Pilots >

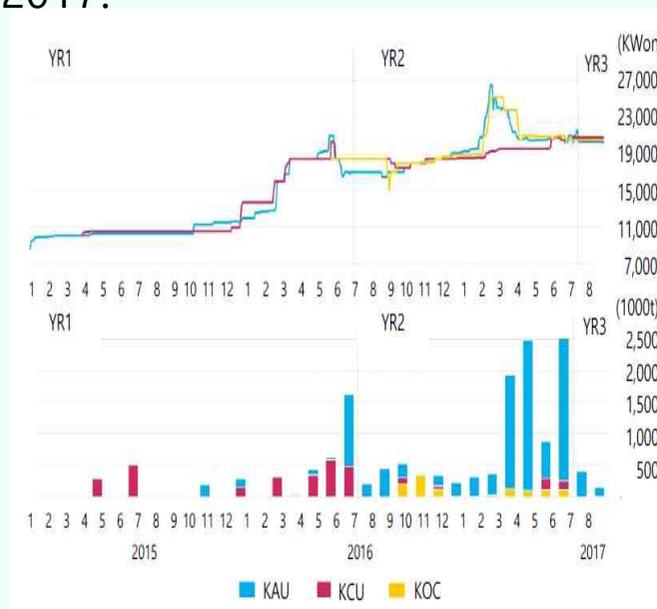
Average CO2 price in 2016 was 23 CNY or **\$US 3.48**.



Source: Chai Qimin, National ETS Policy Study and Market Outlook in the Post-PA Era (2017)

< S.Korea: KETS >

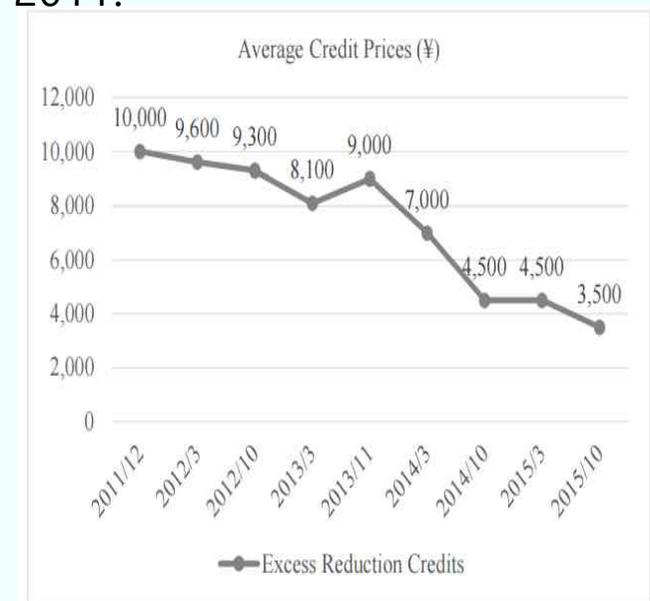
CO2 price was 26,500 KRW or **\$US 24** in 2016 and has declined to **\$US 18** in August 2017.



Source: Sangseon Ha, Ecoeye (2017)

< Japan: TMG ETS >

CO2 prices were 3,500 Yen or **\$US 31.5** for ERC in 2015 after an almost steady decline since 2011.



Source: Rudolph and Morotomi (2016); <http://www.econ.kyoto-u.ac.jp/dp/papers/e-16-002.pdf>

## 2. Checking: Linkage among ETSs in East Asia?

### ■ ETSs in East Asia as a Potential linkage partner

- Possible to harmonize?
  - \* Reference to 2 ETS = EU-ETS; Different features in details
- Price range [\$US 3 ~ \$US 30] → Linkage may reduce abatement costs
- Thin markets → Linkage may reduce liquidity concerns
- Competition in international markets → Linkage may reduce carbon leakage concerns
- Considerations of international actions in NDC, although details are different
  - \* China: South-South cooperation
  - \* Japan: JCM and other cooperation
  - \* S.Korea: (partly) Use carbon credits from international market mechanisms

### ■ Challenges

- Fairness in gains and losses?
  - : Abatement costs(firms' burden) vs Financial transfer (outflow)
- Possible to have a race to increase the national Cap and to cause a price crash
  - Need to watch local ETS to achieve the domestic target (i.e. Limits on int'l offsets)
- Transparency and accountability? → Building trust in linking partners
- A certain degree of harmonization (Cap, offset, MRV, banking/borrowing, regulation)
  - Efforts to align
- Political domain: willingness to link?

## 2. Checking: Linkage among ETSs in East Asia?

### ■ Gains and Risks

Advantages and Risks	China	Japan	Korea
▽ Mitigation costs [ $P_i/P_{-i} > 1$ ]		√	√
↑ Liquidity [ $Q_i/Q_{-i}$ is small]		√	√
▽ Carbon leakage [the D of global market competition is large]	√	√	√
↑ Enforcing Climate policy [locking is preferred]			
▽ Autonomy	√	√	√
↑ Burdens of harmonization	√	√	√
↑ Financial transfer (outflow) [ $P_i/P_{-i} > 1$ ]		√	√
↑ Carbon price crashes [ $P_i/P_{-i} > 1$ ]		√	√
↑ Uncertainty [Either $ETS_{-i}$ or linkage is likely to change]		√	√
↑ Distributional issues	√	√	√
↑ Price volatility [ $Q_i/Q_{-i}$ is small]		√	√

\* Korea and Japan: High allowance prices (current and future); Thin market  
Cost burdens @ international markets

\* China: Interested in linkages with ETSs in EU and North America

\* All : Strong desires of keeping autonomy

\* All : Low trust in integrity of other ETSs

\* All : Uncertainty associated with political cooperations including carbon policies

## 2. Checking: Linkage among ETSs in East Asia?

■ Complicated governance in China's ETS (the largest market) increases uncertainty.

Key Factors	Main Supervisors	Regulatory Borders	Supervisory Measures
<b>Carbon Market System Design</b>	Central Government (NDRC)	Set reasonable carbon trading system arrangements to ensure the smooth operation of the market and manage of third-party institutions to ensure the market fair and transparent	Establish different Institutional adjustment mechanism for different phases
<b>Quota total and allocation</b>	Central Government (NDRC) & Local Government	NDRC determines the total quota, distribution rules, regional benchmark quotas and high concentration of key industry quotas. The local government is responsible for the specific implementation	Establish quota adjustment mechanism and carbon price fluctuations prevention mechanism
<b>Carbon Finance</b>	Central financial sector	Protect the orderly and healthy development of carbon finance Prevent and respond to possible systemic financial risks	Establish data monitoring and analysis mechanism for transaction activities of financial institutions; and establish foreign institutions carbon trading funds entry and exit monitoring mechanism
<b>Transactions and performance</b>	Local Government	Reasonable setting of carbon trading compliance process and specification The use of comprehensive penalties to strengthen law enforcement supervision, improve the cost of default	Establish compliance supervision and early warning mechanism

### 3. Type and Scope

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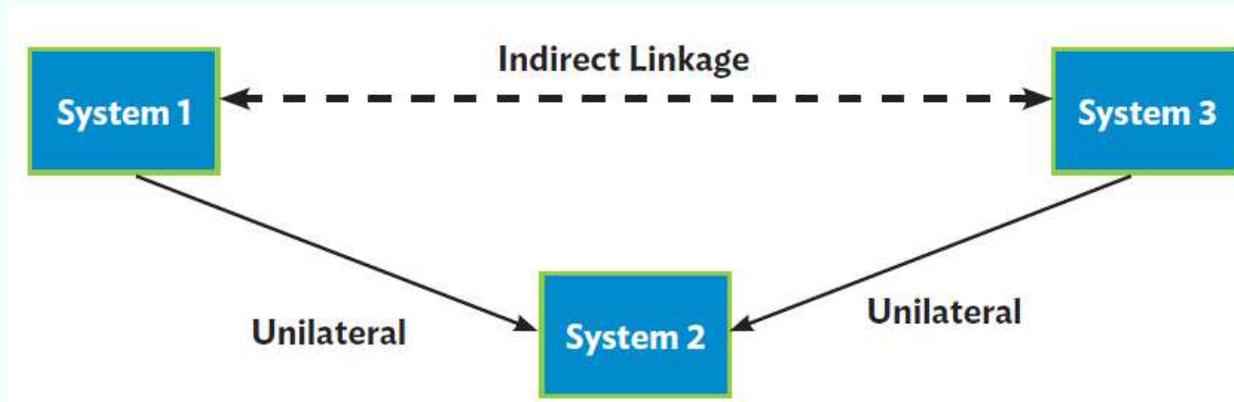
#### ■ Priority

- Carbon pricing mechanism in Asian countries is still at a very early stage.
  - \* Korea is still adjusting and improving KETS system even though it started ETS since 2015.
  - \* China is supposed to start nation-wide ETS in 2018.
  - \* Japan is still in debate on adopting nation-wide ETS, after it introduced carbon tax in 2012.
  - \* Thailand is implementing voluntary ETS and T-voluntary emissions reduction.
  - \* Singapore plans to develop carbon tax.
  - \* Indonesia, Vietnam, India, Sri Lanka are interested in developing domestic carbon market.
- Asian countries are focused on building market readiness and developing domestic market.
- Under this circumstance, building the Asian carbon market takes time and steady efforts.
- Linking: Efforts to explore options for linking with other markets will be made in the Stability Phase (PRC) and Phase III (Korea) ~ post-2020.

### 3. Type and Scope

#### ■ From Indirect to Direct

- Indirect linkage via internationally or mutually acceptable offset credits at early stage
  - \* System 2 can be other ETS (i.e., the EU ETS), a global centralized market (under the UNFCCC or GCF) or regional carbon clubs linked to MDBs (WB, ADB)



- Low level of direct linkage featured as direct but conditional aspects (in terms of quota limits and exchange rate on foreign credits, selective harmonization of standards, accounting and trading principles)
  - : Limited linking until the stringency of cap is guaranteed
- Then, a high level of linking may be feasible
  - \* High level of linking: featured as mutual legally binding, highest degree of market integration, fully harmonized accounting standards, credits and compliance rules.

### 3. Type and Scope

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#### ■ Steps to a high level of linking

- After robust simulations and discussions on types and levels of linkages at policy and technical level, some aspirant countries bilaterally or multilaterally could take incremental steps from operating pilot market linking to more formalized market linkage through mutual MoUs and/or legally binding treaties.

Thank you!

Comments and Questions: Hyungna Oh ([h.oh@khu.ac.kr](mailto:h.oh@khu.ac.kr))