



**Destination Green**

ICAO Symposium on Aviation and Climate Change, "Destination Green", 14 – 16 May 2013

# **Flexible and Effective measures - Market Base Approach -**

**Takashi Hongo**

**Senior Fellow**

**Mitsui Global Strategic Studies Institute**

**MGSSI**



# Modality of Measures

	Reduction effect	Pros/Cons
<b>Tax</b>	△ (Indirect)	<ul style="list-style-type: none"> <li>✓ Tax revenue shall be allocated to the incentives for reduction at aviation sector</li> <li>✓ Carbon cost is fixed.</li> </ul>
<b>Renewal of aircraft</b>	◎	<ul style="list-style-type: none"> <li>✓ Reduction effect is continued. The best and principle solution.</li> <li>✓ It takes time for delivery</li> <li>✓ Initial cost is high</li> </ul>
<b>Route optimization</b>	○	<ul style="list-style-type: none"> <li>✓ Low cost option for airlines</li> <li>✓ Inter-government coordination is needed.</li> </ul>
<b>Bio Fuel</b>	◎	<ul style="list-style-type: none"> <li>✓ Technology innovation is needed. (cost reduction and quality control)</li> <li>✓ Pay attention on Sustainability. (food and water shortage)</li> </ul>
<b>Offset Credit</b>	◎ (Indirect)	<ul style="list-style-type: none"> <li>✓ Generally low cost option</li> <li>✓ Pay attention on the volatility of the market</li> </ul>



# Carbon Pricing

## - Carbon Tax / Mission Trading -



	Outline	Price	CO2 emission
EU	ETS (from 2005)	EURO 3.78/ton(03/May)	3,609
Japan	Carbon tax (from October 2012)	JPY 289/ton(after April 2016)	1,138
US	<ul style="list-style-type: none"> <li>➤ California : ETS from 2013. Link with Quebec</li> <li>➤ New York : ETS (RGGI) from 2009</li> </ul>	USD 10/ton or over USD 1.93/ton	393 224
Canada	<ul style="list-style-type: none"> <li>➤ Quebec and Alberta : ETS</li> <li>➤ British Columbia; Carbon tax</li> </ul>	- CAD 30/ton	318 63
Australia	<ul style="list-style-type: none"> <li>➤ Carbon tax form Oct.2012</li> <li>➤ ETS from July 2015. Link with EU ETS</li> </ul>	AUD 23/ton - (Early shift is lobbied)	546
Korea	ETS from 2015	-	495
China	<ul style="list-style-type: none"> <li>➤ 7 sub-national ETSs(experimental )</li> <li>➤ Plan to national scheme after 2016</li> </ul>	-	1,443
India	Energy Efficiency Certificate trading(PAT)	-	1,635

**CO2 mission : million ton. Total of the above jurisdiction is 9,864 million ton and 33% equivalent of global CO2 emission**

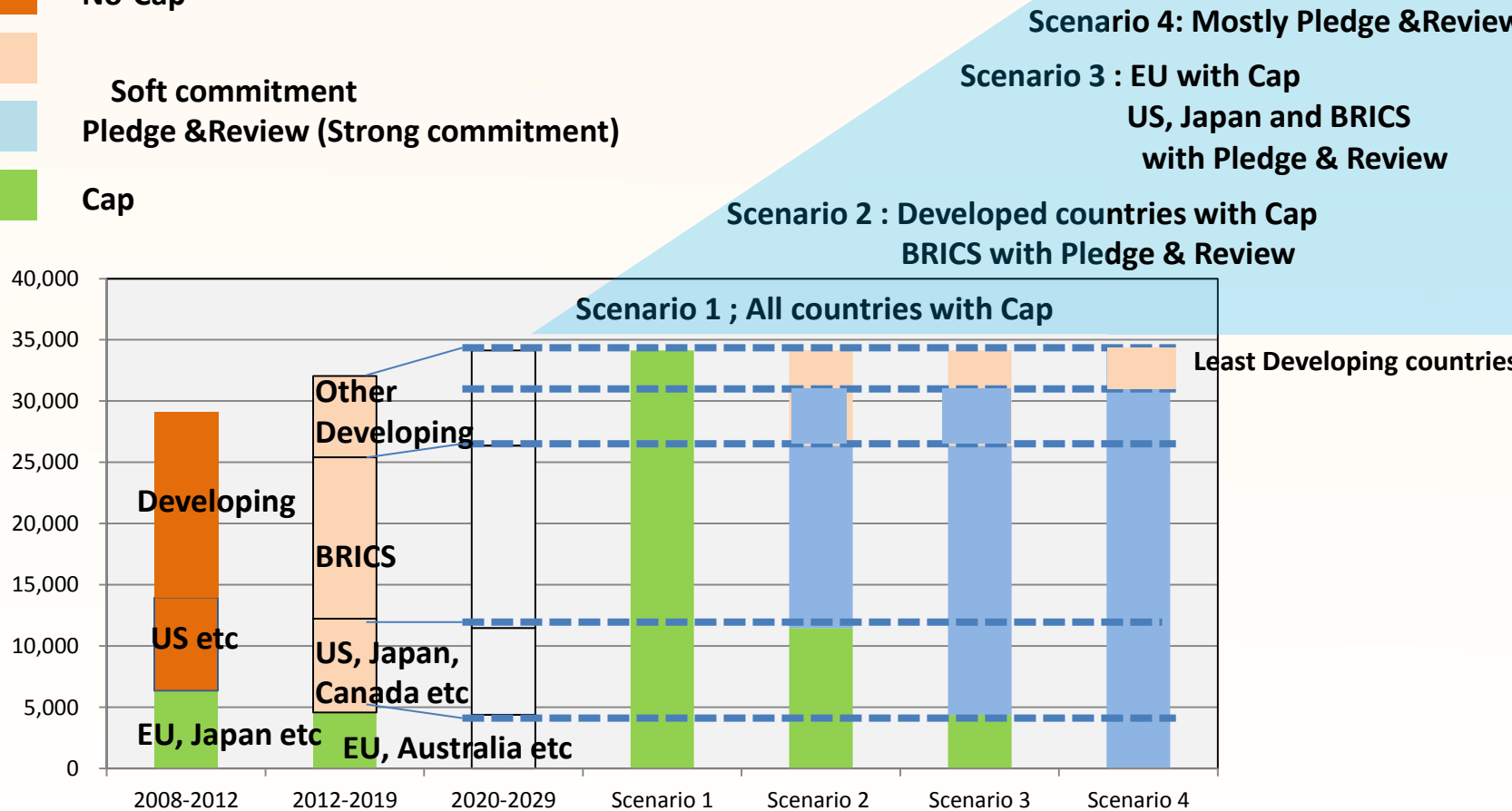
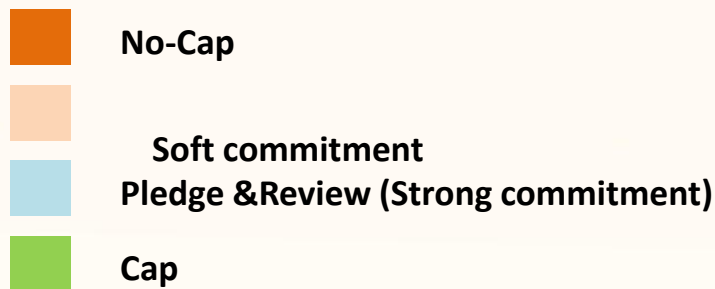


# Lessons from Carbon Market



- Volatility of carbon price
- Fundamentals : Long term carbon price signal is crucial
- However, market is often short sighted
- Measurement should be simple and practical.  
(both ETS and project base approach)  
⇒“Benchmarking” is a practical and fair.
- Still Learning by Doing stage

# Scenario of International Framework - Pre and Post 2020 -





# International Framework

## - Pre and Post 2020 -



Types of Offset Credit		Pros and Cons
Conventional Credits ➤ Under UNFCCC ➤ Allowance under national or sub-national scheme	<ul style="list-style-type: none"> <li>• CER, ERU, AAU</li> <li>• EUA under EU ETS, other national, sub-national</li> </ul>	<ul style="list-style-type: none"> <li>✓ Access is easy</li> <li>✓ Affected by national environment policy</li> <li>✓ Less space for CDM when coverage of ETS is enlarged.</li> </ul>
New Credits		<ul style="list-style-type: none"> <li>✓ Flexible and preference of ICAO may reflected</li> <li>✓ Big burden for implementing and managing own system</li> </ul>

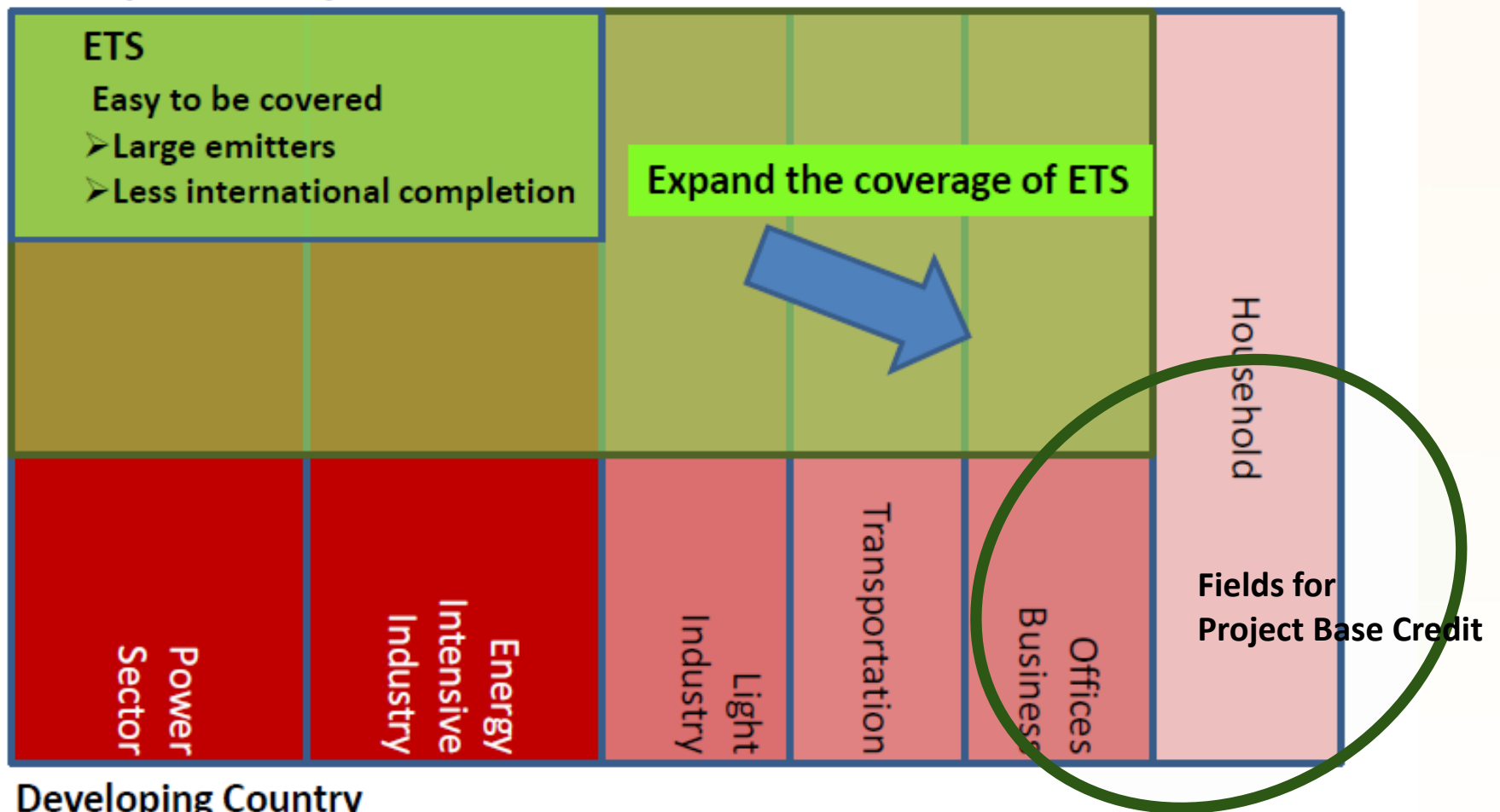
### Ideas of New Credits

New credits	Outline
REDD+	<ul style="list-style-type: none"> <li>✓ Forest conservation or restoration.</li> <li>✓ Good public acceptance and contribution for bio diversity</li> </ul>
CCS	<ul style="list-style-type: none"> <li>✓ Carbon Captured and sequestered to underground.</li> <li>✓ "Carbon free jet fuel.</li> </ul>
Program Approach for offices or household	<ul style="list-style-type: none"> <li>✓ Like program CDM for energy saving</li> <li>✓ Big reduction space and good public acceptance.</li> </ul>

# Enlargement of ETS

## - Squeezing the project base credits

### Developed Country





# Japanese Measures

## - National, Sub-national Voluntary Actions -



Emission Reduction/ Carbon Pricing scheme	Outline
Regulation (national scheme) <ul style="list-style-type: none"> <li>➤ Measurement and reporting of CO2 emission</li> <li>➤ Carbon Tax</li> </ul>	<ul style="list-style-type: none"> <li>✓ “Act on the Promotion of Global Warming Countermeasures”. Emissions of installations are disclosed JAL: 3.8 million ton , ANA : 3.5 million ton (FY2009)</li> <li>✓ Global Warming Tax from October 2012. Fossil fuel wholesalers pay tax and airlines pay carbon cost indirectly.</li> <li>✓ Tax will be increased to JPY289/ton on April 2016</li> </ul>
Regulation (sub-national scheme) <ul style="list-style-type: none"> <li>➤ Tokyo Emission Trading Scheme (Tokyo ETS)</li> </ul>	<ul style="list-style-type: none"> <li>✓ 1<sup>st</sup> Phase (2010-2014):6-8%reduction</li> <li>✓ 2<sup>nd</sup> Phase(2015-2019):15-17%</li> </ul>
Voluntary Action <ul style="list-style-type: none"> <li>➤ Keidanren Action Plan</li> </ul>	<ul style="list-style-type: none"> <li>✓ Voluntary reduction target. Electricity sector bough credits to meet the target. Use of offset credits has not been decided.</li> <li>✓ The Scheduled Flight Association of Japan set the action program.</li> </ul>



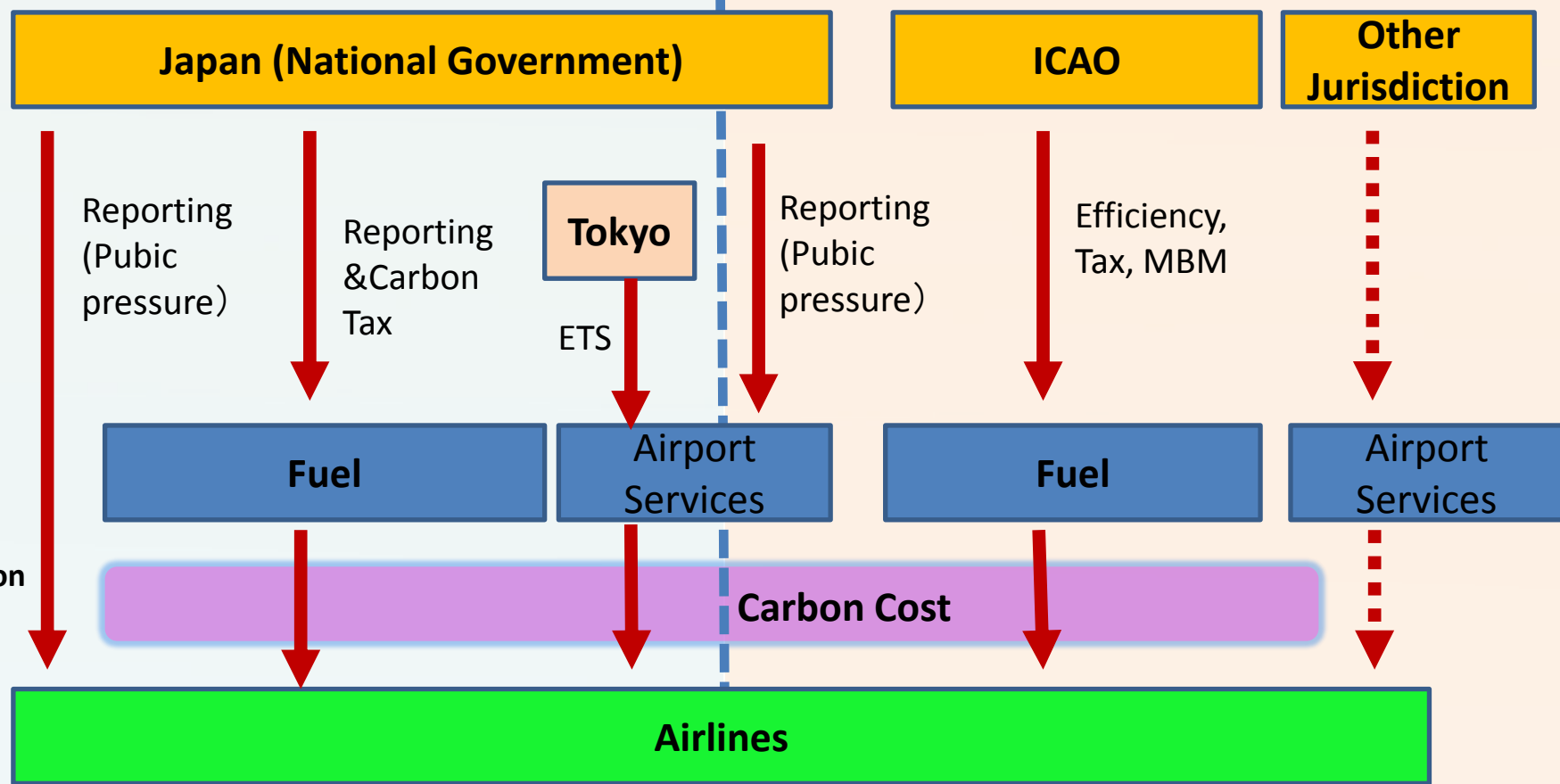


# Airline under different regulations

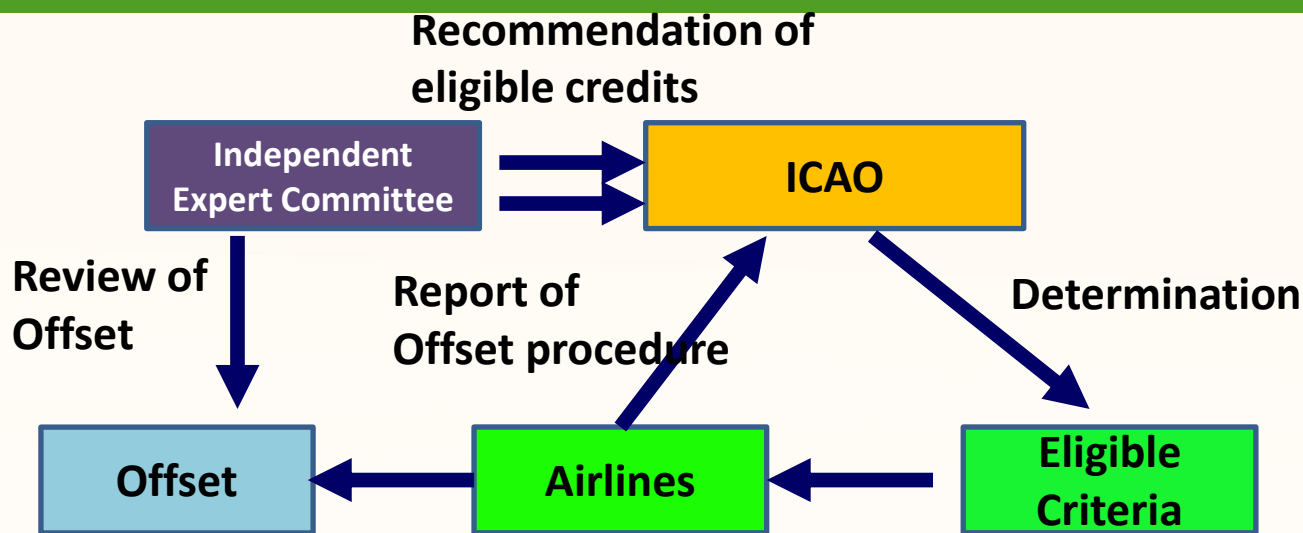
## - Case of Japan -

### Domestic Operation

### International Operation



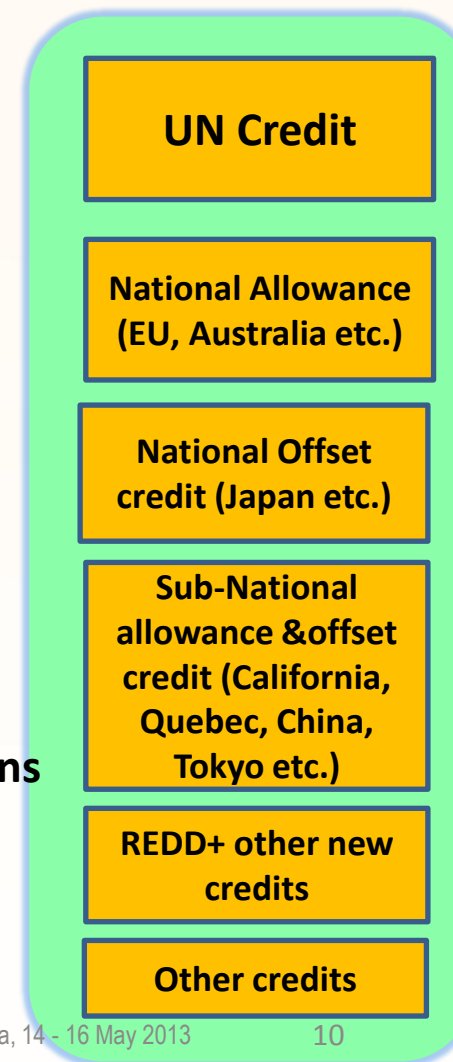
# Offset Credits for ICAO



## Conditions of Eligible credits

- ✓ Reliability – commercially and environmentally (avoid double counting)
- ✓ Liquidity/Access to credits
- ✓ Credits by regulations affects airlines

Options





# Conclusion - Recommendations



- Varieties of options are better for sustainable growth of aviation sector.
- Offset credit may be reasonable price option.
- Own credit system for ICAO is an option for keeping flexibility.
- Carbon cost should be transferred to passengers through “Carbon Surcharge”.
- Voluntary actions leads to good public reputation.
- Dialogue with market is recommended