

THE WORLD MARKET FOR CARBON TRADE

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1 General Outline

- In the last 20 years, it has become a big issue in international communities that the global climate change which was due to GHG emission produced by human activities.
- Reduction carbon emission will improve environment quality, furthermore it is the most important to reduce the use of fossil energy for the sustainable development of economy in the future.



- According to Kyoto Protocol and Marrakesh Accord, both reduction carbon emission and forest carbon sequestration could provide CERs, however the CERs cost of forest carbon sequestration is more cheap than them of industries.
- Therefore, the investment banks and corporations also have enough interest to initiate the projects of forest carbon sequestration.

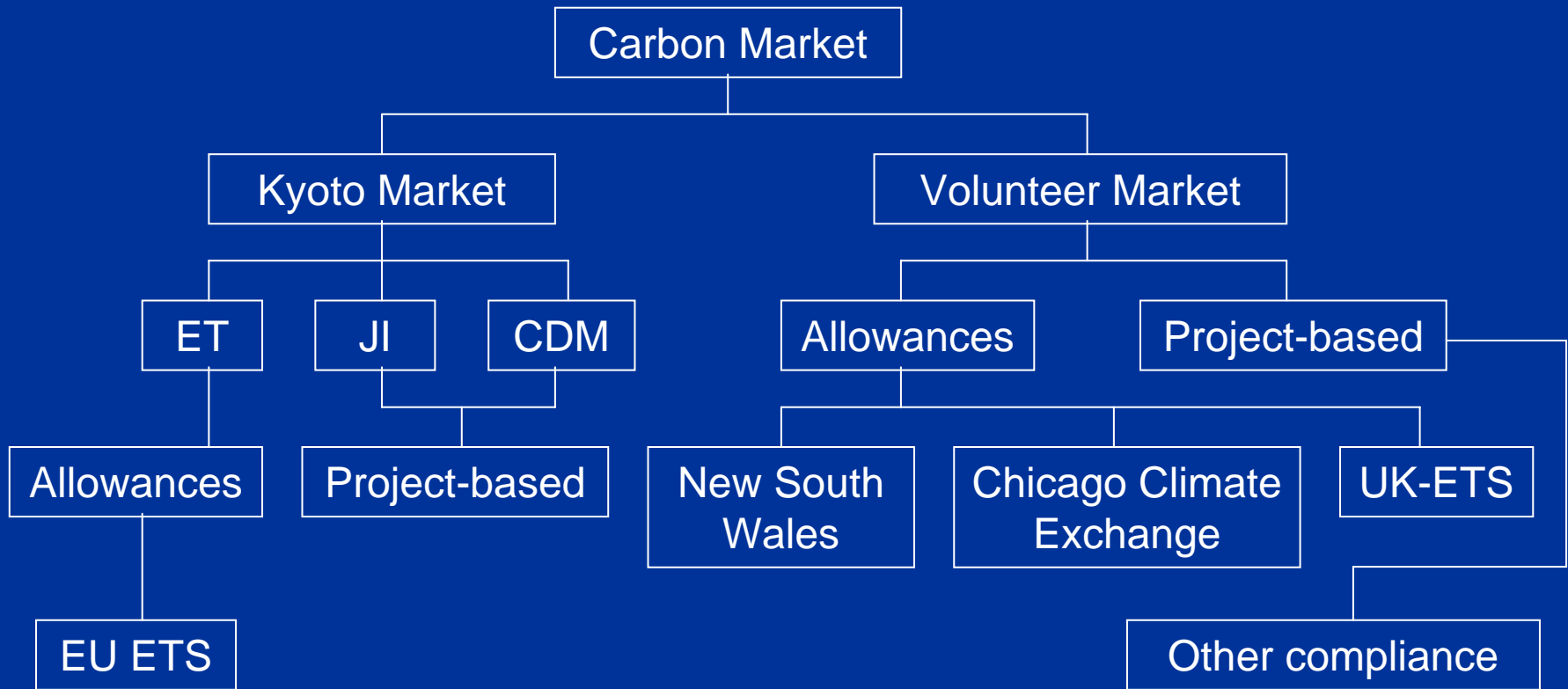


2 Market Structures

- Among the commitments of governments to reduce emissions through the 1992 UN Framework Convention on Climate Change and its 1997 Kyoto Protocol, and Europe's carbon constraint for industry under the European Union Emissions Trading Scheme (EU ETS), the carbon market is a part of the response to climate change and have an opportunity to demonstrate that they can be a credible and central tool for future climate mitigation.



Framework of Market Structures



Tab 1 Carbon Market in 2005-06

Unit: MtCO_{2e}, MUS\$

Items		2005		2006	
		Volume	Value	Volume	Value
Allowances	EU ETS	321	7,908	1,101	24,357
	New South Wales	6	59	20	225
	Chicago Climate Exchange	1	3	10	38
	UK-ETS	0	1	na	na
	Sub total	328	7,971	1,131	24,620
Project-based transactions	Primary CDM	341	2,417	450	4,813
	Secondary CDM	10	221	25	444
	JI	11	68	16	141
	Other compliance	20	187	17	79
	Sub total	382	2,894	508	5,477
Total		710	10,864	1,639	30,098



Explanation of Carbon Structure

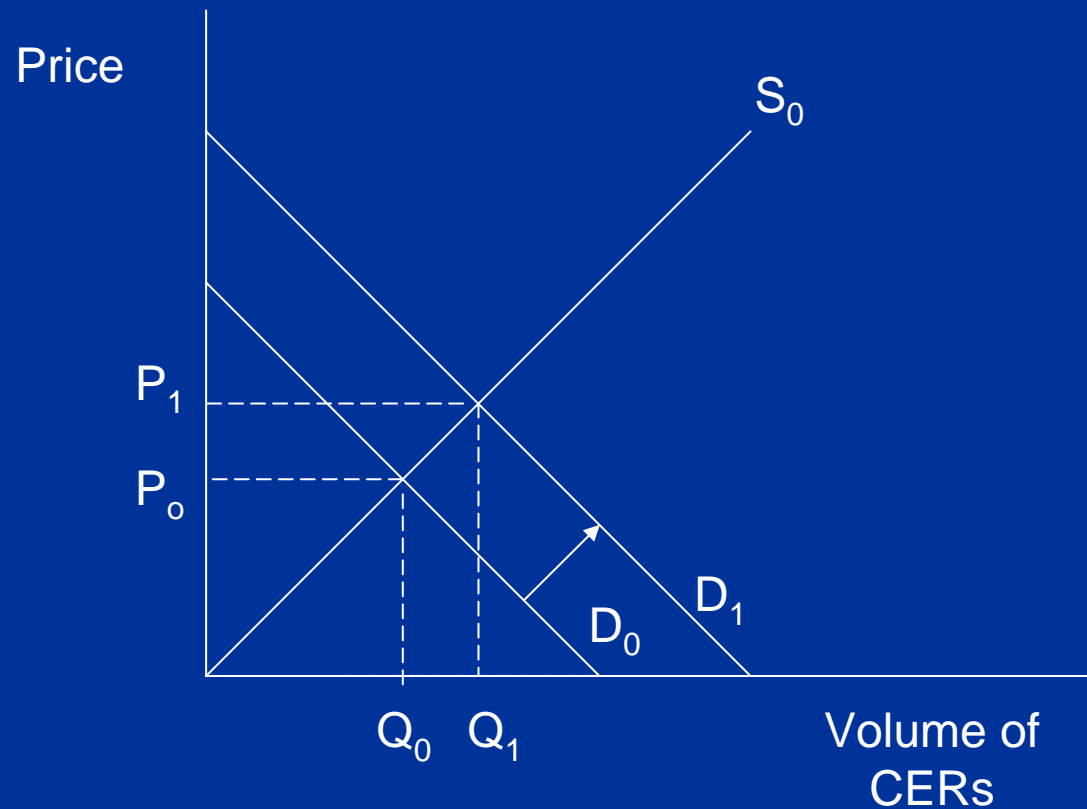
- The carbon market grew in value to an estimated US\$30 billion in 2006 , three times greater than the previous year .
- The market was dominated by the sale and re-sale of European Union Allowances (EUAs) at a value of nearly US\$25 billion under the EU ETS .
- Project-based activities primarily through the Clean Development Mechanism (CDM) and Joint Implementation (JI) grew quickly to a value of about US\$5 billion in 2006 .



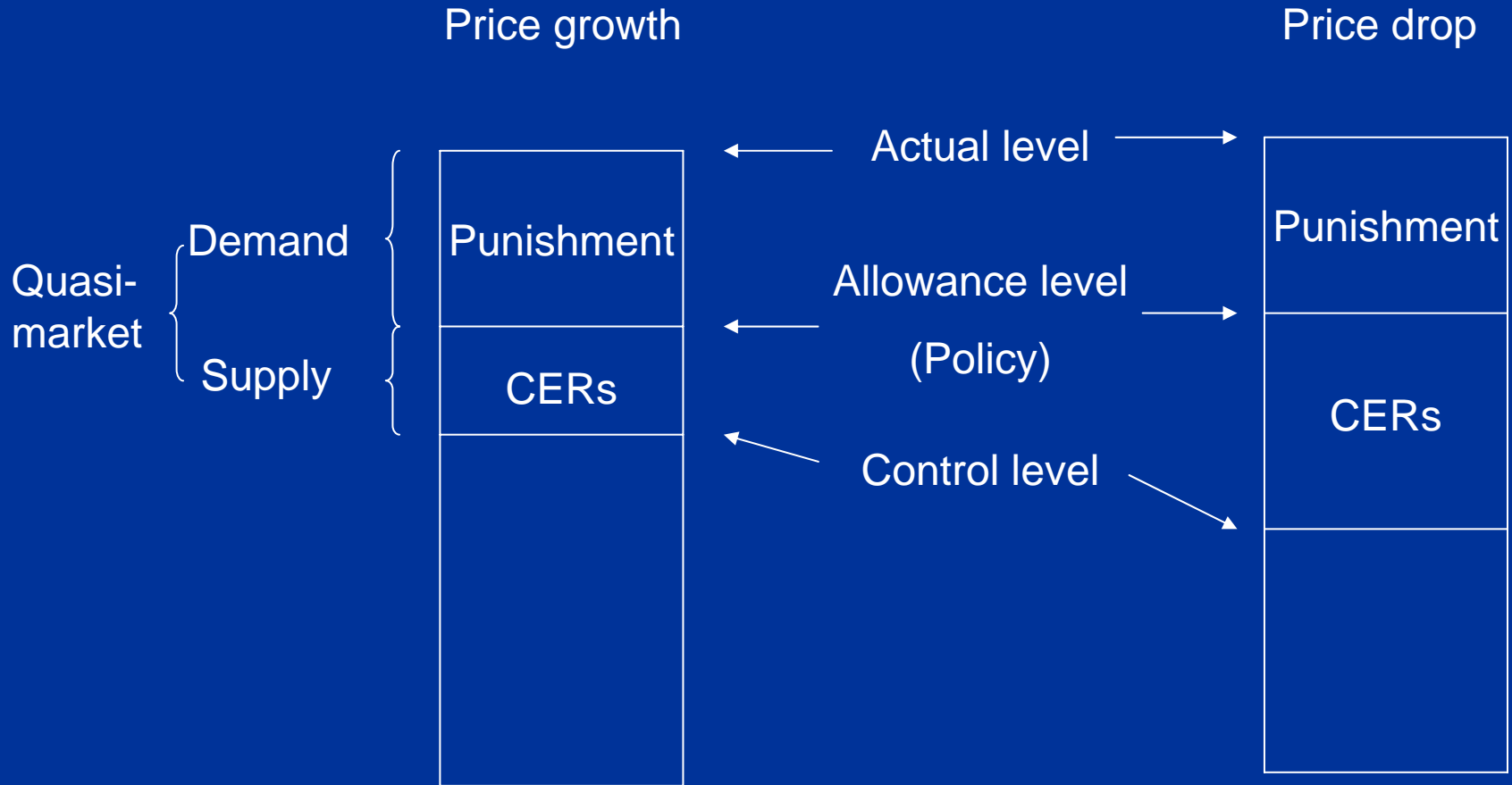
- However, the volume percentage of project-based activities decreased from 54 % to 31%.
- The CERs price of project-based transaction is US\$10.78, which is only half of allowance market price(US\$21.77).
- In project-based activities, the CERs price of primary CDM is US\$7.09, which means that secondary CDM price(US\$22.1) is three times as high as primary CDM .



3 Analysis of Demand factors



• 3.1 Government Policy



- policy makers have the responsibility of taking into account the risks of climate change and sustainable development of economy.
- Choice Model of Policies

$$E=cQ$$

$$E \downarrow = c \downarrow Q \uparrow \quad (1)$$

$$E \downarrow = c \downarrow Q \downarrow \quad (2)$$

E: carbon emission; c: per unit product emits carbon quantity; Q: product quantity (to consume fossil energy)



- 3.2 Expanding of high-carbon industries
- Under Kyoto Mechanism and volunteer carbon exchange mechanism, the high-carbon industries sharply increasing will cause the demand growth of CERs. It is a bad news for the situation of climate change, but it is a good news for carbon price.
- 3.3 Ecological willing of citizen
- 3.4 the limits of forest carbon sequestration



- According to the Marrakesh Accord, the total carbon sequestration from CDM afforestation and reforestation used by all countries will be not more than 1% of their base year' emission (UNFCCC, 2001a). This means the global potency of CDM afforestation project will only reach about 5.5 million hectares.
- EU ETS, the biggest carbon market in the world, does not include carbon sequestration projects.



4 Analysis of Supply factors

- 4.1 Development of low-carbon technique
- 4.2 Reputation of corporation
- 4.3 Cost of CERs
- The operation cost of a forest carbon sequestration project is more than €150,000.



- 4.4 Comparative interest

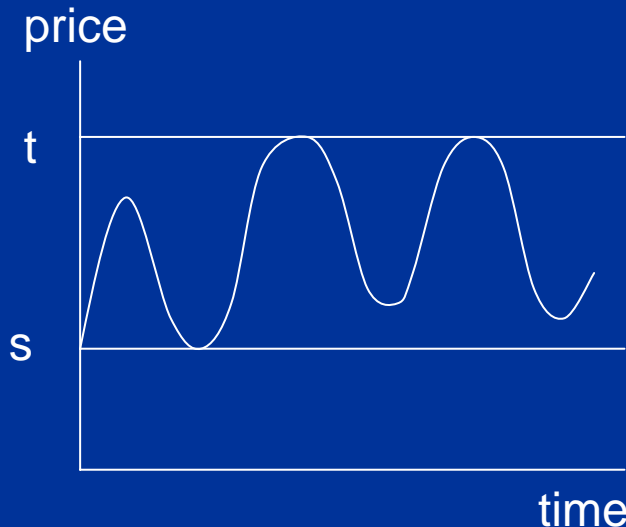
$$s \leq p \leq t$$

- s: carbon subsidy; p: price of carbon market; t: rate of carbon taxation
- If $s > p$, individual would rather obtain government subsidy than sell CERs in carbon market.
- If $p > t$, individual would rather be punished by government than buy CERs in carbon market. (In EU, $t = \text{€}40$, 2005-2007; $t = \text{€}100$, 2008-2012.)

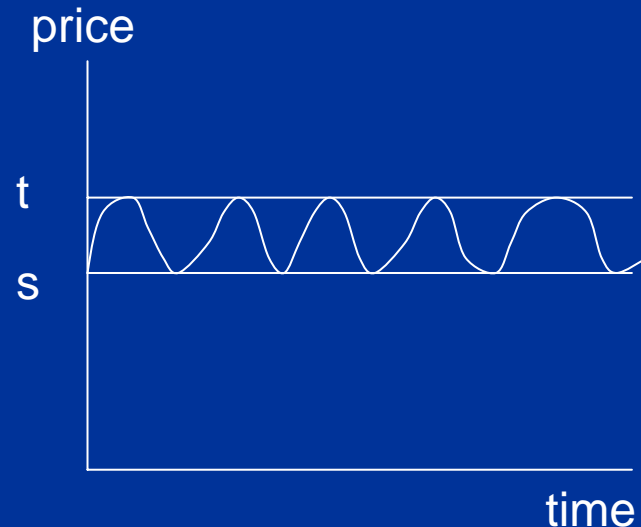


Mixed system of carbon market

Positive Market



Negative Market



Tax level will be depend on a profit capability of corporations;

Subsidy level will be depend on opportunity cost of CERs suppliers, which should be beyond basic human right of survival. Too high subsidy will sharply increase government cost, which will also cause a government failure.



5 Risk Analyses

- 5.1 Diplomatic intermediation
- The future of global carbon market will be impacted by several big countries.
- 5.2 The world economic crisis
- If the world economic crisis is coming, employment will be more important than environment.
- 5.3 Natural disaster



6 Potential carbon market in the near future

unit: MtCO_{2e}

Potential Demand 2008-12				Potential Supply 2008-12	
Country or Entity	ET	CDM & JI Contracted	Residual demand for KMs	Country or Entity	AAUs
EU	1,590	649	941	Russian & Ukraine	5,400
Japan	350	266	84	EU	1,100
Ro Europe & N. Zealand	60	2	58	Other EITs	200
Total	2,000	917	1,083	Total	6,700

Notes: AAUs=Assigned Amount Units; EITs=Economies in Transition

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7 Conclusion

- The carbon market demonstrates an important tool for future climate mitigation.
- The carbon market grew in value to an estimated US\$30 billion in 2006, three times greater than the previous year.
- The market was dominated by the sale and re-sale of European Union Allowances at a value of nearly US\$25 billion under the EU ETS.



- Policy is taking a significant role to impact on carbon market.
- Increasing the demand of carbon market is the most important task In the near future.
- In project-based carbon trade, face-to-face negotiation was main reason which cause low-price of CERs. We should establish the world carbon exchange net to return reasonable profit to CERs suppliers but international brokers.



Thank you
for your attention!

