32. Comparison of domestic emissions trading scheme of UK practice and Japanese proposal

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ABSTRACT; After the adoption of Kyoto Protocol, Emissions Trading (ET) has attracted the attention of many Annex I countries. In response to it, the Domestic Emissions Trading (DET) scheme for greenhouse gas began to work in UK on April 2, 2002. It aims at a broad subject, and is well combined with existing climate policies such as Climate Change Levy (CCL) and Climate Change Levy Agreement (CCLA).

This paper aims to extract the important elements from the introductory background and the argument on design process of the DET in UK. Comparing the elements of UK practice and Japanese proposal, issued by Ministry of the Environment in July 2002, the latter lacks environmental integrity. It is recommended to abolish the energy scheme gradually in order to make the scheme work properly in Japan.

KEYWORDS; emissions trading, climate change levy, climate change levy agreement

1. Introduction

After the adoption of Kyoto Protocol in 1997, ET has attracted the attention of many Annex I countries as a flexible mechanism for the mitigation of global warming. There is a pressing need to introduce DET as soon as possible in order to gain experiences of trading before 2008, when the first commitment period will begin. Denmark and UK have already launched DET respectively. The scheme in UK is wider than that of Denmark which is aimed at only electricity generators. Moreover, UK scheme is well combined with existing climate policies such as CCL and CCLA, and strongly conscious of consistency with International Emissions Trading (IET) scheme. Thus it gives important implications when we consider the introduction of DET to Japan.

In this paper, we extract important elements from the introductory background and the argument on scheme design of DET in UK Emissions Trading Group (ETG) and suggest a direction of DET scheme design in Japan based on the comparison of those elements with the current situation of Japan.

2. Introductory background of DET in UK

First of all, Marshall Report, published in 1998, stresses the effectiveness of ET and tax, alongside existing regulation, voluntary and negotiated agreements[1)], and has formed the foundation of UK climate policies. Then, the industry strongly opposed to the introduction of CCL, which had been proposed in 1999. This situation encouraged the argument on introduction of DET. It should be noted that the industry accepted the introduction of DET, and performed the scheme design in collaboration with the government. In UK, fuel conversion from coal to natural gas has been

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greatly progressing and it is likely that she will be able to meet her Kyoto target without any major efforts. These facts contribute to the positive attitude of the industry and government. That is to say, there is high possibility of UK becoming a seller of permits. Moreover, the fact that UK designed the scheme based on the long-term vision from the intention to obtain an initiative in international negotiation of IET scheme design also deserves attention. Based on these backgrounds, we consider the following four aspects as important elements:

- Recognition of necessity of ET
- High possibility of becoming a seller of permits
- Collaboration between the government and the industry
- Scheme design based on long-term vision

3. Argument on DET scheme design in UK

3.1 Golden rules for DET scheme design

The government and the industry established UK Emissions Trading Group in June 1998, and encouraged the argument on introduction of DET. ETG has played a central role in designing the DET scheme in UK. It suggests following golden rules for DET scheme design[2], namely (1) Environmental rationale, (2) Economic rationale, (3) Credible, (4) Simplicity, (5) Equity, (6) Transparency, (7) Credit for past action, (8) Certainty, and (9) Inclusive. The following discussions are based on these golden rules.

3.2 Energy efficiency and trading

First of all, ETG discussed whether Energy Efficiency Trading (EET), which is based on energy efficiency improvements not on carbon emissions reduction, was acceptable or not[3]. CCLA accepts four kinds of targets, carbon efficiency, absolute carbon, energy efficiency and absolute energy targets. The industry associations seems to be in favor of energy efficiency targets, it could be verified by the fact that as much as 33 out of 44 participating sectors chose energy efficiency targets (There is no sector using absolute carbon targets so far)[4]. Moreover, improvements of energy efficiency contribute to CO2 reduction in almost all sectors[5]. For these reasons, ETG had to consider EET in addition to carbon trading scheme.

However, adoption of EET requires to convert energy units into carbon units. That may cause discrepancy through using fixed energy to carbon conversion factor. For example, carbon intensity of electricity generated by hydraulic power and the one by thermal power are quietly different. Even if both reduce the same amount of electricity, it will not mean they reduce the same amount of carbon. Thus, low-qualified permits will be inevitably generated from energy-related targets holders, and it will lower the credibility of the scheme. What is worse, EET cannot cap the amount of emissions. Additionally, EET is not compatible with IET, which assumes absolute carbon scheme. For these reasons, special handling was required to adopt EET.

3.3 Linking energy efficiency agreements with absolute carbon in a carbon cap and trade system

Due to the negative effects of adopting EET, there was a need to restrict on trades between unit and absolute sectors. The following linking options were discussed[3]:

1. Turning the energy efficiency agreements into carbon agreements
2. Transforming the credits into permits
3. Introducing *gateway* (a mechanism to ensure that permits sold from the unit sector do not swamp the absolute sector)

The pros and cons of each option are listed in Table 1. Option 1 and 2 were rejected for low feasibility and permit value risks respectively. Finally, option 3 was adopted. It suggests that ETG placed importance on evasion of permit value risks in spite of the increased complexity due to the introduction of *gateway*.

Table 1. Pros and cons of linking options

	Turning the energy efficiency agreements into carbon agreements	Transforming the credits into permits	Introducing *gateway*
Pros	·Simple	· Can cap the amount of emissions	·Do not increase uncertainties on the future value of permits ·Can cap the amount of emissions
Cons	·Not practical because almost all sectors adopt energy efficiency agreements instead of carbon agreements	·Increase uncertainties on the future value of permits ·Need to balance the flow of permits at the interface	·Need to balance the flows of permits across the interface ·Prevent free trading between unit and absolute sector ·Makee the scheme complex

3.4 Permit quality

ETG said "Within the UK, so long as the government is prepared to accept permits from both unit and absolute sectors against targets, the primary concern would be fairness, but the system could operate anyway. Internationally however, UK permits may not be acceptable for export to other countries if the carbon reductions associated with them cannot be effectively verified[6]." That is, permit quality is a primary concern especially in IET. EET scheme will inevitably generate such low-qualified permits. *Gateway* can ease this problem, but cannot remove. Two options were discussed to ensure permit quality.

1. Prohibiting international trading by unit sector
2. Requiring unit sector to provide a verifiable, firm specific, baseline conversion factor between its energy use and carbon emissions in order to trade domestically.

ETG adopted option 2 because it could kill two birds with one stone (confidence in the domestic scheme and wider international trading). In spite of increased complexity and additional costs to provide such reliable conversion factor, they emphasized permit quality.

3.5 Incentives for taking on absolute targets

Considering the consistency with future IET scheme, incentives for shifting from unit targets to absolute targets, and for entering the scheme with absolute targets were required. There were some existing incentives for taking on absolute targets (listed in table 2).

Table 2. Existing incentives for taking on absolute targets

Categories	Incentives by categories	Common incentives
CCL payers	·Release from restriction of *gateway* ·Participation in project-based trading	·Permit generation through reduction of output
Organizations within IPPC but not subject to CCL	·Being deemed to fulfill IPPC energy efficiency requirements ·Flexibility of trading	
Organizations outside of IPPC and not subject to CCL	·CCL reduction ·Flexibility of trading	

However, ETG considered these were not enough and they should introduce further incentives. Further incentives were divided roughly into administrative and financial incentives.

As administrative incentives, they discussed three options below[3]:

1. Prohibiting *banking* by organizations in unit sector
2. Closing *gateway* in 2008
3. Prohibiting the project-based credits for compliance by organizations in unit sector

Option 1 was rejected because the industry strongly opposed to it. Option 2 was adopted because it did not entail immediate restrictions and could give a strong incentive to shift into absolute targets in the future. Option 3 was also adopted because details of baseline setting rules of project had not been decided yet and allowing this option would

lower the credibility of the scheme and the UK's ability to reach her Kyoto target. Through this argument, it can be seen that ETG emphasized the importance of banking, a mechanism to shift into absolute targets without major restrictions in the initial stage, and permit quality over equity between unit and absolute sectors.

On the other hand, ETG recognized the necessity of financial incentives for new entrants. It adopted performance credit as an equitable and cost-effective mechanism which was clearly associated with emissions reduction[7)]

3.6 Liability

The following two options were discussed about liability towards permits[8)].

1. Seller liability
2. Buyer liability

Seller liability was preferred in the initial stage which aims at activation of trading. However, because it does not ensure compliance, strict penalty was essential to introduce in it in order to ensure credibility of the scheme. Additionally, it is necessary for an administration side to set up the mechanisms to comply with the rules of Kyoto Protocol such as monitoring, reporting, and so on.

3.7 Liquidity of market

ETG stated, "Liquidity should be the measure of the success of the UK market. Achieving an effective liquid market implies that most of the other characteristics of a good market are in place[9)]." An effective liquid market will ensure credibility of the market. Consequently, new entrants will increase in such a market. This shows that liquidity is a key element of the scheme.

3.8 Key elements of DET scheme in UK

The key elements of DET scheme in UK are arranged in figure 2. According to the argument above and figure 1, the key elements are:

- Permit quality
- Risk aversion of permit value
- Incentives for voluntary entry into the scheme
- Compatibility with IET

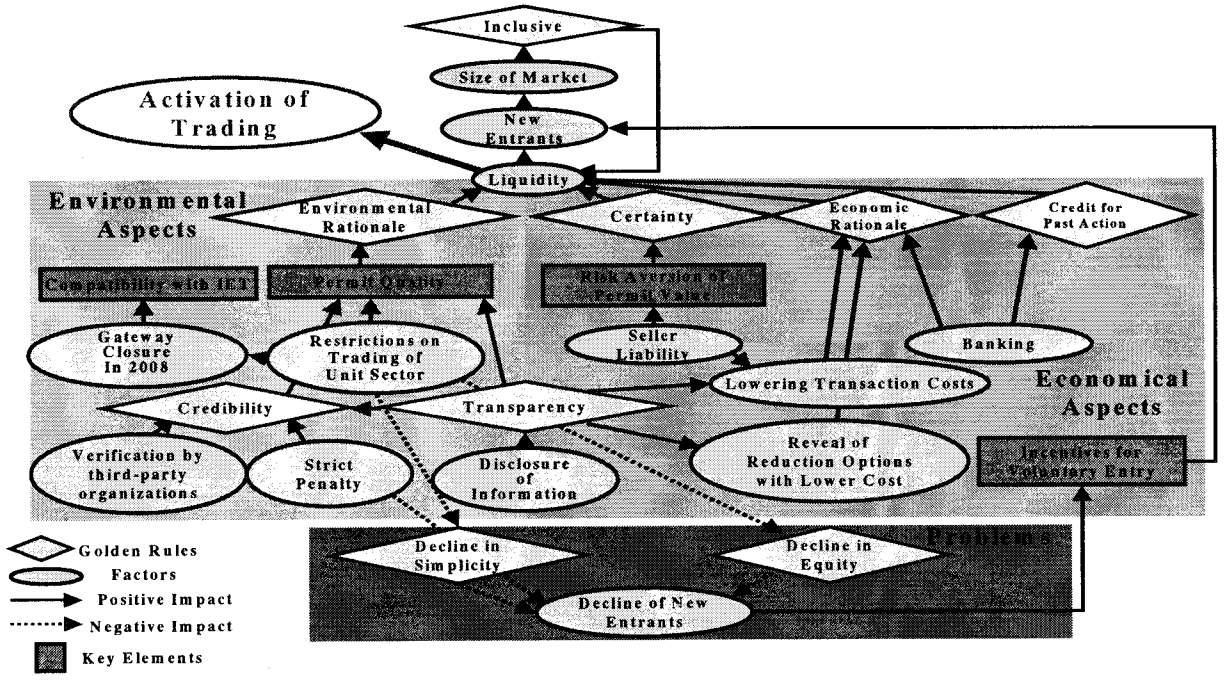

Figure 1. Key elements of DET scheme in UK

4. Introductory possibility of DET in Japan

4.1 Comparison of introductory backgrounds

The key elements of introductory backgrounds of UK and Japan are arranged in table 3. Compared with UK,Japan has fewer margins in achievement of Kyoto target, and recognition of the necessity of ET is not enough. The strong opposition from the industry is also the major obstacle. For these obstacles, Japanese proposal ended up with the scheme based on short-term vision.

Table 3. Comparison of introductory backgrounds between UK and Japan

Key elements	UK	Japan
Recognition of necessity of ET	・Both the industry and the government recognize its importance	・The government recognizes its importance, but the industry is against it
High possibility of becoming a seller of permits	・High possibility of becoming a seller due to the recent fuel conversion	・Very low possibility of becoming a seller. Even the compliance of her Kyoto target is suspected
Collaboration between the government and the industry	・The industry and the government collaborated to design the scheme	・Only the government side performed the scheme design
Scheme design based on long-term vision	・The scheme was designed based on long-term vision in order to take the initiative in the future negotiation of IET scheme design	・The argument of DET scheme design has not been developed yet, and the proposal is based on short-term vision which aims at interim introduction

4.2 Comparison of key elements of DET scheme

Next, a comparison of the key elements of DET scheme in UK with Japanese proposal is presented. According to the figure 3, we can find that Japanese proposal lacks the elements related to environmental aspects though satisfy the economical aspects. Moreover, there is a possibility that a system may not begin to move even in its initial stage because of the lack of incentives for voluntary entry into the scheme, which is important especially in the initial stage. Even in UK, where the industry is in favor of introduction of DET and the government budgets for financial incentives, the number of new entrants was only 34 organizations except for those via CCLA. It shows that incentives for voluntary entry into the scheme are indispensable in such country where the recognition of necessity of ET is not sufficient as Japan. In sum, the major problems of Japanese proposal are as follows:

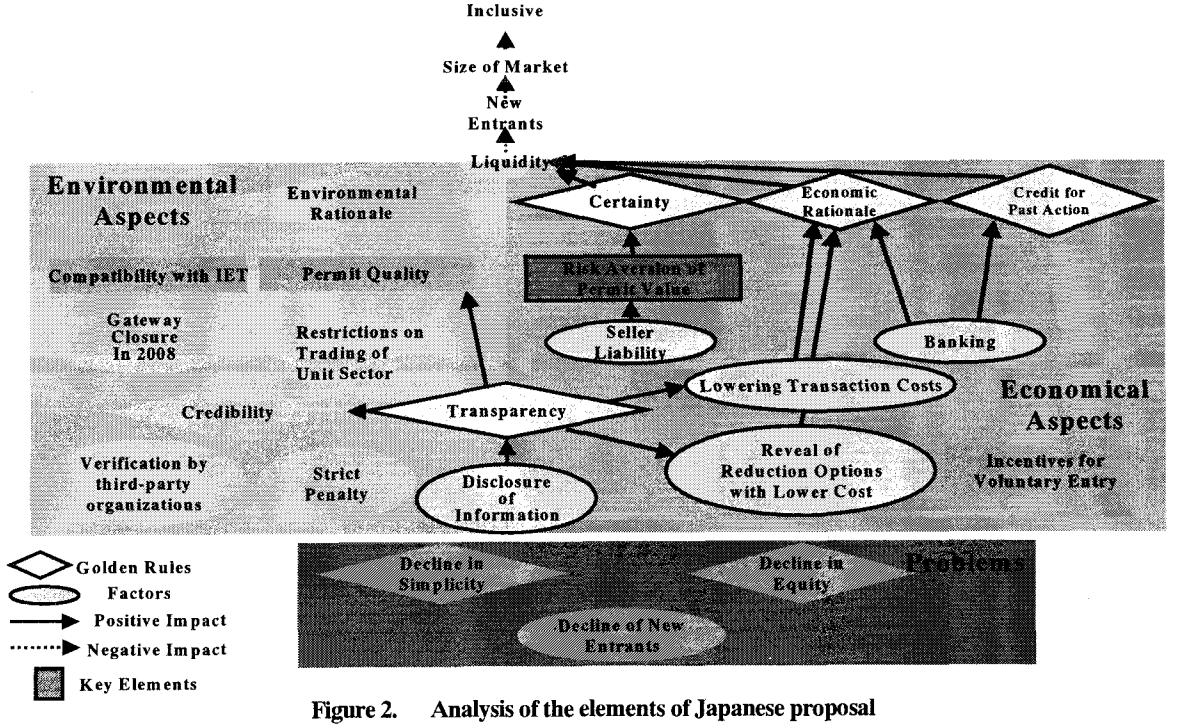

Figure 2. Analysis of the elements of Japanese proposal

1. Inability to ensure permit quality
2. Incompatibility with IET
3. Lack of incentives for voluntary entry into the scheme

4.3 Direction of DET scheme design in Japan

It is clear that Japan will be a buyer of permits. On the other hand, credibility of the scheme is important in international trading. As is mentioned in above, Japanese proposal lacks of credibility and this may be an obstacle in international trading. In order to ensure credibility, we recommend the gradual abolishment of energy scheme, which is the main cause of low-qualified permits. On the other hand, ETG admitted that mechanisms like Gateway are not recommended because they make the system extremely complex Thus, we propose the gradual abolishment of unit carbon scheme to simplify the scheme and to make it compatible with IET. The main reason why UK had to introduce *gateway* was that low-qualified permits from unit energy sector would harm credibility and the abilty to reach her Kyoto target. Abolishment of energy scheme can ease the problem of low-qualified permit. Moreover, negative impacts of low-qualified permits from unit sector will be relatively small because organizations in Japan cannot generate as many permits as in UK. It is also important that we should provide sufficient incentives for voluntary entry into the scheme at least in the initial stage.

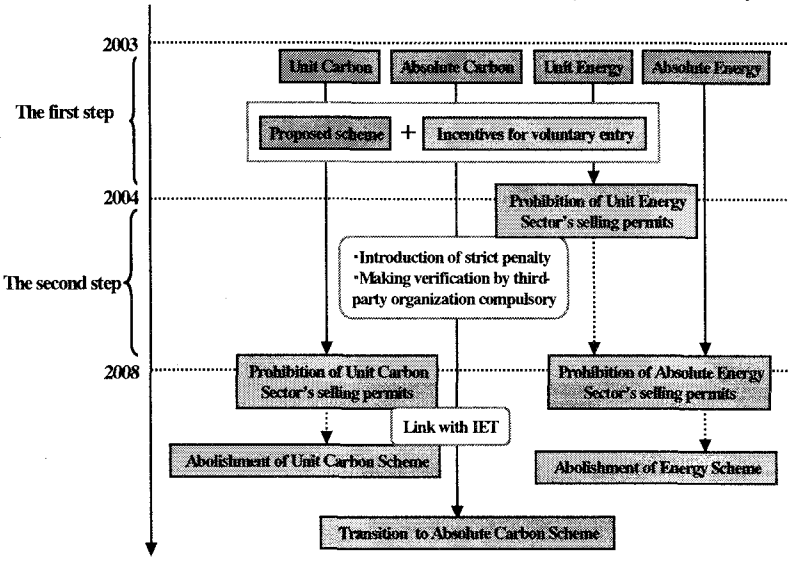

Figure 3. Suggested direction of DET scheme design

5. Conclusion

The key elements of introductory background of DET are, (1) Recognition of necessity of ET, (2) High possibility of becoming a seller of permits, (3) Collaboration between the government and the industry, and (4) Scheme design based on long-term vision. On the other hand, key elements of DET scheme in UK are (1) Permit quality, (2) Risk aversion of permit value, (3) Incentives for voluntary entry into the scheme, and (4) Compatibility with IET. Comparing these elements with Japanese current situation and proposal of DET, it is recommended to abolish energy scheme and unit carbon scheme gradually.

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