

## Environmental Economics and Environmental Policy No. 7

### 1. VA: Voluntary Approach

Criteria: Institutional Design

Effectiveness

Efficiency; Cost, Environmental Premium

4 types of VA

(1) Public voluntary schemes

- Certification: ISO14000: 1996, Creation of EMS: Environmental Management System⇒CSR  
Japan 18,869, World 88,800 (2005)

### 業種別 ISO14001 審査登録状況

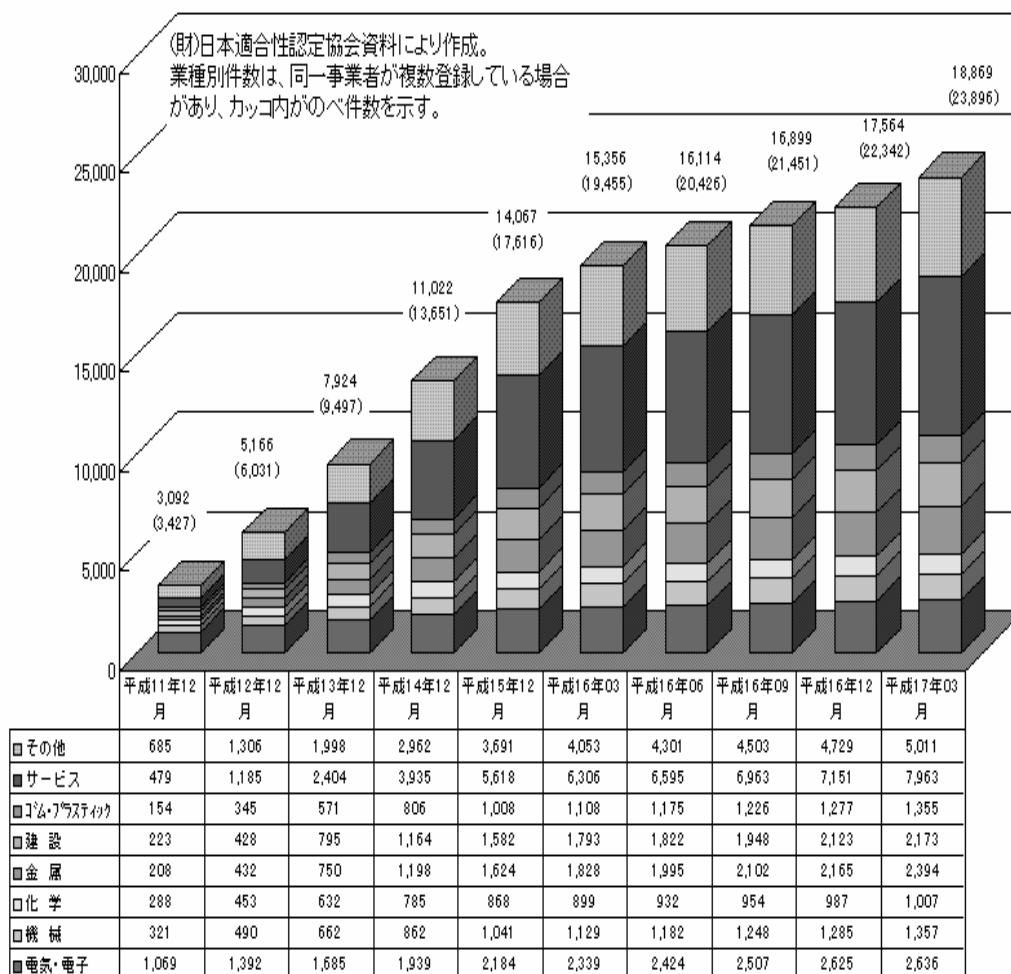


図1 世界のISO14001の認証件数の推移  
(ISOサーベイより作成)

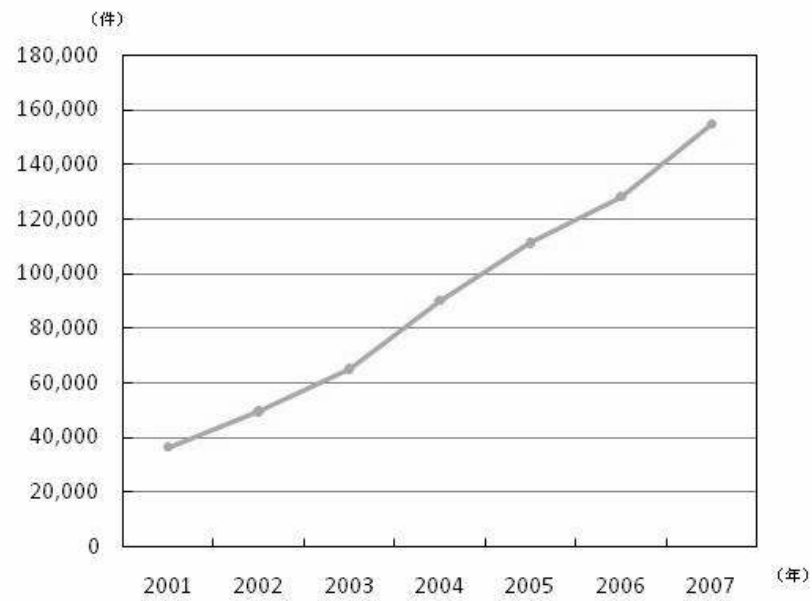
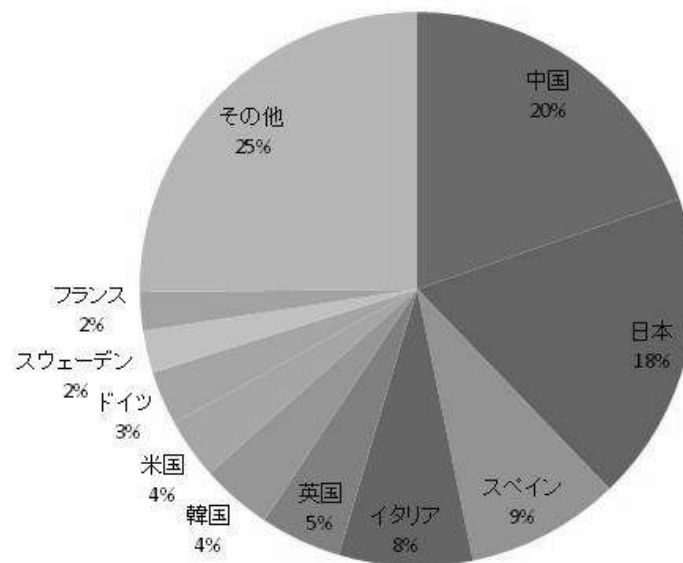


図2 世界のISO14001認証件数上位10ヵ国  
(2007年12月末現在、ISOサーベイより作成)



- **Eco-labeling; 1989 Eco-mark (ISO14020, ISO14024); 47 categories, 4,600 brands**

[illegible]

## World



ISO における名称及び該当規格	特徴	内容
タイプ I (ISO14024) “第三者認証”	第三者認証による環境ラベル	<ul style="list-style-type: none"> <li>・ 第三者実施機関によって運営</li> <li>・ 製品分類と判定基準を実施機関が決める</li> <li>・ 事業者の申請に応じて審査して、マーク使用を認可</li> </ul>
タイプ II (ISO14021) “自己宣言”	事業者の自己宣言による環境主張	<ul style="list-style-type: none"> <li>・ 製品における環境改善を市場に対して主張する</li> <li>・ 宣伝広告にも適用される</li> <li>・ 第三者による判断は入らない</li> </ul>
タイプ III (ISO14025) “環境情報表示”	製品の環境負荷の定量的データの表示	<ul style="list-style-type: none"> <li>・ 合格・不合格の判断はしない</li> <li>・ 定量的データのみ表示</li> <li>・ 判断は購買者に任される</li> </ul>

## Certification Cost

認定商品の 合計売上高区分	区間内 の 負担率	使用料(円／エコマーク使用 者 あたり1年間)の算定式	使用料金範囲
0～1,000 万円以下	—	一律 10,000 円	1 万円（下限）
1,000 万円超～ 1 億円以下	0.100%	$10,000 + 0.001 \times$ (売上高 $\chi$ - 10,000,000)	1 万円～10 万円
1 億円超～ 10 億円以下	0.065%	$100,000 + 0.00065 \times$ (売上高 $\chi$ - 100,000,000)	10 万円～68 万 5 千円
10 億円超～ 41 億 5 千万円以下	0.010%	$685,000 + 0.0001 \times$ (売上高 $\chi$ - 1,000,000,000)	68 万 5 千円～100 万 円
41 億 5 千万円超	—	一律 1,000,000 円	100 万円

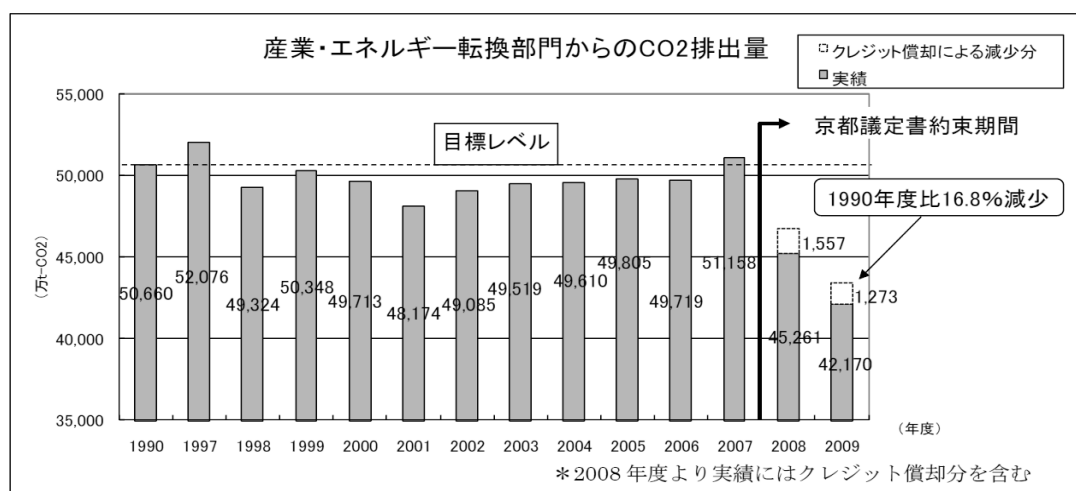
※領収書につきましては、振込依頼書控等をもって代えさせていただきます。

## ・ Environmental Technology Verification



## (2) Negotiated agreements

Keidanren Environmental Voluntary Action Program (CO2): 34 Industrial Communities



(3) Unilateral commitments

- Environment Audit/ Environmental Report
- CSR (corporate Social responsibility); SR (social Responsibility), ISO26000
  - Accountability for the Public
  - Information Disclosure for Stakeholders
  - Pledge and Review for Environmental Conservation Activities

(4) Private agreements

- Pollution control agreement: local governments and private company

1964 Yokohama , 1969 Tokyo. 32,177 agreements (2003)

Source: <http://www.env.go.jp/policy/hozen/green/ecolabel/world/poland.html>

### **Box 5 Pollution Control Agreements**

#### **The Yokohama Model**

In 1964, before legal pollution regulation was solidified as a system, the city of Yokohama conducted an independent environmental investigation on the occasion of the establishment of the Isogo thermal power plant of the Electric Power Development Company within Yokohama's seaside industrial zone. Based on the results of that investigation, it demanded as a condition for the sale of the development grounds the conclusion and observance of an agreement on air pollution concerning the area's development. This has come to be called the "Yokohama Model," and became a model for future pollution control agreements.

Many subsequent agreements on pollution control were "gentlemen's agreements" which stopped only at administrative guidance. But under the Yokohama model, in the event that business did not exercise measures to fulfill the city's specifications, the city assumed this role, carrying out appropriate measures and requiring industry to pay for it. Especially noteworthy is the fact that a security deposit towards the fulfillment of these measures was required.

#### **Character of Pollution Control Agreements**

Pollution control agreements represent a response to business, which local governments view as the source of pollution. They are documents of accord reflecting the mutual agreement of both parties following discussions of pollution control measures such as regulatory standards for pollution and compulsory talks prior to the addition of new production facilities. Legal interpretation of pollution control agreements covers both agreement theory and contract theory, and although there is debate regarding interpretation of the agreement's binding legal authority, the pollution control agreement has substantially arrived as a uniquely Japanese and effective means of supplementing existing restrictions by law and ordinance.

Even recently, this method has been employed in response to environmental pollution by advanced industries such as the semiconductor industry, to which prior legal ordinances are difficult to apply.

## **2. Policy Mix**

- Policy Mix or Mixed Regulatory Policy  
CAC + MBIs + VA

- EPI: Environmental Policy Integration

- 1) Communicative Instruments: Constitutional Definition
- 2) Organizational Reform: Ministry of Sustainable Development
- 3) Procedural Instruments: SEA

## **3. Climate Change Policy**

### ***Mitigation and International Development Cooperation***

First when regarding international development cooperation of Mitigation in a developing country, we assume that cooperation of funds, technology transfer, tropical forest protection in the forest field and international development cooperation for revival for lower carbon in the energy field are important (UNDP 2007, p.147).

It's necessary to confirm the following fact as the importance of mitigation in the energy field of the developing country. The average thermal efficiency for coal plants in developing countries is around 30 percent, compared with 36 percent in OECD countries. This means that one unit of electricity produced in a developing country emits 20 percent more CO<sub>2</sub> than an average unit in developed countries (UNDP 2007, p.150).

Furthermore, forest conservation and rehabilitation is important not only to preserve CO<sub>2</sub> sink in terms of mitigation, but also to supply basic goods to the poor people in terms of adaptation.

Since making negotiations of UNFCCC in 1992, much argument has been formed into the importance of the international development cooperation in such energy fields and forest fields.

"Under the terms of the UNFCCC, international cooperation was identified as a key element in climate change mitigation. Developed countries pledged to take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access". The importance of the technology transfer was also confirmed in Marrakesh Accords in 2001, but there was no positive behavior from developed nations. After that the importance of the shift and the role of the advanced countries to the low carbon type energy structure in a developing countries were discussed in the Kyoto Protocol, it was argued that an advanced country should invest in climate change as a duty, not as charity.

Under the UNFCCC, the Global Environment Facility (GEF) became a financial instrument to mobilize resources for climate change activities in mitigation and adaptation. Since its inception in 1991, the GEF has allocated US\$3 billion, with co-financing of US\$14 billion. Current resource mobilization by GEF is insufficient to finance low-carbon transition at the pace required. One ballpark estimate for the investment costs to facilitate access to low-carbon technology broadly consistent with sustainable emissions pathway suggests that an additional US\$25–50 billion per annum would be required for developing countries (UNDP 2007).

The CDM is another financing mechanism and has provided a mechanism linking the mitigation agenda to financing for sustainable development in developing countries. This is done through

greenhouse gas reducing projects that generate emission credits in developing countries which can be used by developed countries to offset their own domestic emissions. In 2006, CDM financing amounted to US\$5.2 billion.

These mechanisms and other multilateral/bilateral institutions still have limited roles. There are several options proposed by various institutions. UNDP proposed to create an integrated Climate Change Mitigation Facility (CCMF) (UNDP 2007, pp.156-157). The CCMF would play a wide-ranging role. Its overarching objective would be to facilitate the development of low-carbon energy systems in developing countries. To that end, the aim would be to provide through multilateral channels support in key areas, including financing, technology transfer and capacity-building. Operations would be geared towards the attainment of emission reduction targets agreed under the post-2012 framework, with dialogue based on nationally-owned energy strategies. Rules and governance mechanisms would have to be developed to ensure that all parties deliver on commitments, with CCMF support geared towards well-defined quantitative goals and delivered in a predictable fashion.

Next we look at adaptation and the relationship between development cooperation.

### ***Adaptation and International Development cooperation***

The creation of national adaptation policies under their own leadership is the basis for developing countries' adaptation. Because countries face different types and degrees of risk, start from different levels of human development and vary widely in their technological and financial capabilities.

So far adaptation planning has been a fringe activity in most developing countries. To the extent that strategies for adaptation are emerging, the focus is on climate-proofing infrastructure. This is a critical area. But adaptation is about far more than infrastructure. The starting point is to build climate change risk assessment into all aspects of policy planning. In turn, risk management requires that strategies for building resilience are embedded in public policies. For countries with limited government capacity this is an immense task.

Adaptation is partly about investment in the "climate-proofing" of basic infrastructure. But it is also about enabling people to manage climate-related risks without suffering reversals in human development.

Most advanced countries are eagerly working on creating national adaptation, but they are not so proactive when it comes to supporting developing countries that are trying to achieve the same goal. International cooperation on adaptation should be thought of as an insurance mechanism for the world's poor.

The starting point is that donors have to deliver on past commitments. Recent years have witnessed a remarkable change in the provision of aid. During the 1990s, development assistance flows went into steep decline, holding back global poverty reduction efforts. The 2000 UN Millennium Summit, then the largest gathering of world leaders in history, marked a turning point. It resulted in an unprecedented commitment to achieving shared goals - the MDGs - through a partnership between rich and poor countries. Commitments made at Monterrey in 2002, by the European Union in 2005 and by the G8 at Gleneagles backed that partnership with commitments on aid. The Monterrey Consensus reaffirmed a longstanding development assistance target of 0.7% of Gross National Income (GNI) for rich countries. Commitments made by the European Union and G8 in 2005 included a pledge to double aid flows by 2010 - a US\$50 billion increase, with around one-half earmarked for Africa. These are resources that could help countries meet the challenge of scaling up adaptation efforts.



Multilateral mechanisms for adaptation have been developed under a range of initiatives. Two UNFCCC funds - the Least Developed Country Fund (LDCF) and the Special Climate Change Fund (SCCF) - have been established under the auspices of the GEF. Both are financed through voluntary pledges by donors. In 2004, another mechanism, the Strategic Priority on Adaptation (SPA), was created to fund pilot projects from GEF's own resources over a 3-year period. The stated objective of the GEF funds is to reduce countries' vulnerability by supporting projects that enhance adaptive capacity. With the entry into force of the Kyoto Protocol in 2005, another potential source of financing was created in the form of the Adaptation Fund - a facility to be funded through Clean Development Mechanism (CDM) transactions.

By mid-2007, actual multilateral financing delivered under the broad umbrella of initiatives set up under the UNFCCC had reached a total of US\$26 million. This is equivalent to one week's worth of spending on flood defense in the United Kingdom. Looking to the future, total committed financing for adaptation through dedicated multilateral funds amounts to a total of US\$279 million.

Bilateral and multilateral donors are gradually increasing support for adaptation, from a low base. One Review of 10 bilateral agencies accounting for almost two-thirds of international development assistance attempted to identify projects in which climate change adaptation was an explicit consideration. It documented total commitments of US\$94 million over a 5-year period from 2001 to 2005—less than 0.2% of average development assistance flows.

Using the OECD/DAC's reporting system, UNDP has developed an "aid-sensitivity" analysis for donor portfolios averaged across the period 2001–2005. The results suggest that 17% of all development assistance falls into the narrow band of intensive risk, rising to 33% for the wider band. Expressed in financial terms, between US\$16 billion and US\$32 billion are at immediate risk. These figures suggest that "climate-proofing" aid should be viewed as an important part of the adaptation challenge. Approximate costs for such "climate-proofing" aid are around US\$4.5 billion, or 4% of 2005 aid flows (UNDP 2007, pp.190-191).

Key lessons emerge from the adaptation experience of developing countries are reforming dedicated multilateral funds, revising PRSPs, and putting adaptation at the centre of aid partnerships.

## 4. References

- Field, B. and M. K. Field (2009), *Environmental Economics: an Introduction*, 5<sup>th</sup> ed., McGraw-Hill
- Matsuoka, S. (2000), Implementation of environmental policy in the developing countries: Regulatory Instrument and their efficiency, *Journal of International Development Studies*, 9 (2), pp.11-36.  
<http://www.f.waseda.jp/smatsu/>

## 5. Schedule of Course Work

1. Introduction: Theory and practice of Environmental Economics and Environmental Policy (9/28)

### Part 1: Historical Development of Environmental Policies

We will review the history of pollution and combating against pollution in Japan.

2. Air Pollution and Policy (10/5), (10/12 will be closed)

3. Water Pollution and Policy (10/19)
4. \* Students have to make a short report and presentation about the situation of major pollution issues (air and water) and ambient standards in your home country. (10/26)

#### Part 2: Theory of Environmental Policies

We will see three basic types of environmental policies, Command and Control (CAC), Market Based Instruments (MBIs), and Voluntary Approach (VA) and their efficiency.

5. CAC and MBIs and the comparison of their efficiency (1) 11/2
6. CAC and MBIs and the comparison of their efficiency (2) 11/9
7. Voluntary Approaches and theory of Policy Mix 11/16
8. Climate Change Policy 11/30
9. \* Students have to a short report and presentation about the pollution control policy (air, water and climate) in your home country. 12/7

#### Part 3: Economic Evaluation on Environmental Policy and Project

In this part, we will discuss policy evaluation and economic evaluation of environmental policy, focusing on Cost of Illness (COI), Stated Preference (SP), and Revealed Preference (RP).

10. PDCA Cycle and Policy Evaluation 12/14
11. Cost Benefit analysis in Environmental Policy 12/21
12. Economic Valuation on Environmental Policy-COI, SP and RP 1/11
13. Contingent Valuation Method (CVM) and Travel Cost Method (TCM) 1/18
14. The Design of Environmental Policy 1/25
15. \* Students have to a short report and presentation about Policy Evaluation of the pollution control policy (air, water or climate) in your home country. Concluding remarks 1/25