INVESTING INTO SUSTAINABLE DEVELOPMENT: CREATING PROSPECTS FOR CLEAN DEVELOPMENT AND ENVIRONMENTALLY FRIENDLY INDUSTRIES IN NORTHEAST ASIA

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1. Introduction

Recognizing that human activity is a major source of environmental concerns, the vision of sustainable development was forged as a common international policy ideal at the 1992 UNCED[1] in Rio de Janeiro. Although the global community does not know what the acceptable concentration of CO_2 in the atmosphere may be, it is clear that a business-as-usual attitude will not be acceptable in the near future, regardless of what level concentration targets might be. Therefore, the promotion of synergies between different initiatives aimed at the mitigation of GHG[2] emissions and the promotion of investment in clean and best available technologies is expected to be the near-term challenge for both developed and developing countries. However, researchers suggest that short-term measures attempting to limit emissions alone will not stabilize global CO_2 concentrations. Accordingly, the long-term challenge is the development and diffusion of technologies for its stabilization (Lee, 2000). Moreover, recognition of the benefits of pollution control by developing countries is essential as emissions from these countries are expected to surpass those from developed countries in the next two decades.

Among the various measures and instruments that support the developing nations in catching up with developed countries, the Kyoto Protocol proposes an efficient tool for development cooperation aimed at the common goal of sustainable development through such mechanisms as the Clean Development Mechanism (CDM), Joint Implementation (JI) and emissions trading (ET) – known as the flexibility mechanisms. It is believed that both developed and developing countries would benefit from such mechanisms as they enable developed nations to mitigate the costs of compliance with their GHG reduction commitments under the Kyoto Protocol, and at the same time, allow developing countries to acquire funds for clean development projects. Moreover, these mechanisms will be a magnet attracting investment into environmentally sound projects through FDI and technology transfer.

Recent developments regarding the ratification process of the Kyoto Protocol (KP) have fuelled strong hopes that it will enter into force shortly after the WSSD in Johannesburg, held from August 26-September 4, 2002. As of September 5th, 2002, 93 countries had ratified or acceded to the Protocol, encompassing countries that were responsible for 37.1% of industrialized countries' emissions in 1990. Three countries in NEA, namely China (August 2002), Japan (June 2002) and Mongolia (1999) have ratified the Protocol so

[1] United Nations Conference on Environment and Development
[2] Green House Gas

far. At the Marrakesh Conference (COP7), the Executive Board of the Clean Development Mechanism (CDM) was formed and comprehensive progress is being made on work aimed at the prompt start of the mechanism. The draft decision on "Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol" was developed by the Board in cooperation with various stakeholders, and it will be submitted to the 8th session of the Conference of Parties (COP) to the UNFCCC to be held in New Delhi, 23 October – 1 November 2002.

It has become apparent that Japan, the leading industrialized nation in the world, faces immense challenges in meeting its Kyoto targets. At the same time, the industrial structure and technology in most Northeast Asian countries is still dominated by inefficient, wasteful and polluting technologies, and energy intensive machinery and equipment. Therefore, NEA has a tremendous opportunity to benefit from the CDM in the context of sustainable development.

Accordingly, this paper explores some opportunities to facilitate such cooperative action in the region and proposes the launch of projects on Capacity Building for CDM/JI and the Establishment of an Eco-Industry Network for Northeast Asia.

2. Background

Until recently, a trade-off between the environment and development prevailed in the relationship between economic development and environmental degradation. However, recent studies suggest that early action to mitigate the anthropogenic load on the environment can substantially reduce environmental degradation. Earlier action, though having a higher cost, would reduce the risk of rapid climate disturbances and increase demand for technological improvements. For example, policy analysis of low-pollution development using the long-term time-series analysis of SO_2 in China revealed that the introduction of the latest technology and improved public awareness enabled reductions in the "peak" levels of pollution up to 26% and 37% respectively (Irie et. al, 2001).

Furthermore, one of the key challenges facing the region is the volume of new investment anticipated over the coming years. As was pointed out in an ADB report (2001), *"if this new investment is based on technologies and economic practices that are less energy- and material-intensive and old resource-intensive industries are replaced, the environmental effects of new economic growth will be substantially reduced, …and the costs of switching to cleaner process technologies are typically lower under new investment conditions" (p.30).* The "win-win" effect of adopting cleaner production allows firms to (i) reduce operating costs and increase profit through greater production efficiency; (ii) improve their public images; (iii) have better opportunities to access certain types of financing; (iv) reduce business risks from regulatory enforcement; and (v) have strong and preferential competitive market positions, especially in international trade. At the same time, cleaner production also means that the government incurs fewer enforcement and monitoring costs. As a result, the ultimate winners are the people and future generations, who enjoy a cleaner environment, preserved natural capital and better health (ADB, 2001).

As the environmental goods and services industry develops, the industry tends to shift from conventional pollution management activities towards cleaner technologies and products, and resource management activities, rooted in structural and technological changes in all industrial activities in the long

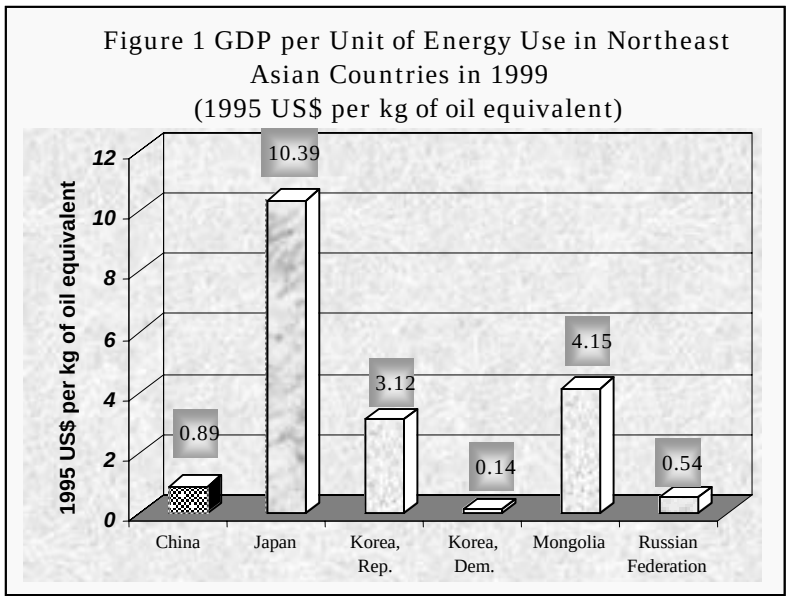
run. However, in the medium term, water and effluent treatment, waste management and recycling sectors will tend to grow globally.

Inefficiency in resource use and over-reliance on coal for power generation, and excessive agricultural development and forestry exploitation are considered to be the major causes of environmental degradation in the region. Consequently, food security and arable land per capita are decreasing, while the losses from natural disasters increase (ESCAP & ADB, 2000).

According to IEA data, the CO_2 emissions of Northeast Asian countries accounted for 27.5% of total world CO_2 emissions in 1999 (Table 1). This was an increase of 9.2% compared with 1990 levels. Energy-related emissions of major GHGs account for more than 70-90% of total emissions in these countries.

Table 1 CO_2 Emissions from Fuel Combustion, 1999

	Amount, Mt of CO_2	Share, %
World, total	**22955.9**	**100.0%**
Northeast Asia, total	**6320.63**	**27.5%**
China	**3051.1**	**13.3%**
Japan	**1158.5**	**5.0%**
Korea, Dem. Rep.	**214.3**	**0.9%**
Korea, Rep.	**410.4**	**1.8%**
Mongolia	**NA**	**NA**
Russian Federation	**1486.3**	**6.5%**
Source: IEA, 2001		



Moreover, the industrial structure and technology are still dominated by inefficient, wasteful and polluting technologies. For instance, GDP per unit of energy use, measured by 1995 US$ per kg of oil equivalent, in China and Russia were respectively 12 and 20 times lower than in Japan in 1999 (Figure 1[3]). Therefore, activities which are being carried out to meet immediate objectives, such as poverty alleviation, employment creation, energy and resource utilization and infrastructure planning and development, should include GHG emission reduction issues as an important part of output performance.

[3] Source: WB, 2001; NSO, 1999;

To this end, Northeast Asian countries must take more comprehensive and active measures to reduce their energy-related GHG emissions in order to protect the region's eco-system while ensuring energy security and economic prosperity. These measures could include drafting a joint strategy for conversion from oil-firing to new and renewable energies; energy efficiency and conservation; carrying out more research and development into eco-friendly energy technology; reducing the use of mineral oils for heating; establishing a framework for gas-fired power plants with CO_2 processing technology; and encouraging more extensive use of waste as an alternative energy source to fossil fuels. Such actions can be successfully implemented by means of the extensive utilization of CDM/JI project activities.

3. Capacity Building for the CDM/JI in NEA

It is becoming evident that climate change issues should not be approached as an isolated, stand-alone issue, but rather as part and parcel of overall sustainable development efforts. CDM has to be considered in the same context as climate change and must be integrated into national strategies, such as poverty eradication, through new and innovative approaches to policy formulation and implementation, and partnerships with diverse stakeholders. In this regard, capacity building in developing countries to make CDM projects operational is becoming indispensable (UNDP, 2002).

Nine months after governments met in Marrakesh to finalize the procedural rulebook for the Kyoto Protocol on climate change, the CDM accreditation process was launched on August 20th, 2002 and now companies and other organizations may start applying for accreditation as "operational entities" of the CDM. Such operational entities will be responsible for validating proposed CDM/JI projects before they are registered by the CDM Executive Board (UNFCCC, 2002).

The CDM Executive Board has drafted a decision on "Modalities and procedures for CDM as defined in Article 12 of the Kyoto Protocol", which will be submitted for discussion and approval to the upcoming COP8 to the UNFCCC in New Delhi. This draft decision sets several requirements and regulations incumbent upon a country in participating in the CDM under the Kyoto Protocol. These are:

1. Participation in a CDM project activity is voluntary.
2. Parties participating in the CDM shall designate a national authority for the CDM.
3. A Party not included in Annex I may participate in a CDM project activity if it is a Party to the Kyoto Protocol.
4. A Party included in Annex I with a commitment inscribed in Annex B is eligible to use CERs[4] to contribute to compliance with part of its commitment if it is in compliance with the following eligibility requirements:
    (a) It is a party to the Kyoto Protocol;
    (b) Its assigned amount has been calculated and recorded in accordance with the decision on Modalities for the accounting of assigned amounts[5];

[4] A "certified emission reduction" or "CER" is a unit issued pursuant to Article 12 and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.

[5] An "assigned amount unit" or "AAU" is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.

(c) It has in place a national system for the estimation of anthropogenic emissions by sources and anthropogenic removals by sinks of all greenhouse gases not controlled by the Montreal Protocol;

(d) It has in place a national registry in accordance with related provisions and decisions[6]

(e) It has submitted the most recent inventory in accordance with the related provisions and decisions[7].

For small-scale CDM project activities (SSC), project participants may use simplified modalities and procedures for small-scale projects. The following CDM projects are considered to be SSC:

(i) Renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts (or an appropriate equivalent);

(ii) Energy efficiency improvement project activities which reduce energy consumption by the equivalent of up to 15 gigawatt/hours per year;

(iii) Other project activities that both reduce anthropogenic emissions by sources and directly emit fewer than 15 kilotonnes of carbon dioxide equivalent annually.

Furthermore, it has been decided that a project activity starting in the year 2000, and prior to the adoption of the draft decision, shall be eligible for validation and registration as a CDM project activity if submitted for registration before 31 December 2005. If registered, the crediting period for such project activities may start prior to the date of its registration, but not earlier than 1 January 2000.

In addition, project documents for CDM project activities shall comply with the agreed CDM-PDD (CDM Project Design Document), which was drafted by the CDM Executive Board and is the focus of a consultation exercise with the public. Certain requirements also apply to CDM registry to ensure the accurate accounting of the issuance, holding, transfer and acquisition of CERs by Parties not included in Annex I. The CDM registry will be in the form of a standardized electronic database which contains common data elements relevant to the issuance, holding, transfer and acquisition of CERs. The structure and data formats of the CDM registry shall conform to technical standards to be adopted by the COP/MOP[8] to ensure the accuracy, transparency and efficient exchange of data between national registries, the CDM registry and the independent transaction log.

All these procedures and rules give rise to an immediate need to embark upon the construction of the necessary human, institutional and legal capacities in Northeast Asian countries in order to maximize the potential of the aforementioned opportunities and actively participate in and host CDM/JI projects in the region.

Therefore, it is desirable that NEA countries work together on capacity building for CDM/JI project activities to ensure that the technical capacities of the project participants, certifiers and certifying institutions in the countries are on a par with those of the leading international certification bodies and project developers in terms of technical skills and adherence to guidelines and standards.

[6] Article 7, paragraph 4, and the requirements in the guidelines decided thereunder;

[7] Article 5 paragraph 2 , Article 7, paragraph 1, and the requirements in the guidelines decided thereunder.

[8] Conference of Parties/Meeting of Parties

4. Proposal for the Configuration of the Northeast Asian Eco-Industry Network

Apparently, the "win-win" situation of clean and environmental technologies can both boost the economy and protect the environment; therefore, new innovative actions that break through tradeoffs between economic development and environmental conservation need to be nurtured and promoted in the region. Improved networking among different stakeholders in the region is one of the potential options to promote this cooperative move. Accordingly, it is desirable to launch a web-based operational network to facilitate such activities and promote effective regional cooperation towards sustainable development. Activities stipulated under this proposal are conceived as being implemented in two phases: (I) Research and Design Phase; and (II) Development Phase.

Activities in the 1st phase aim: (i) to develop an action plan to support the innovation, development and use of clean and environmentally friendly technologies; and (ii) to formulate policy recommendations to create potential markets for technology transfer and the widespread adoption of clean technologies and environmental goods and services in the region.

In the 2nd phase, it is expected that a web-based operational network will be launched. Along with partner organizations and participating countries, the network is expected to consist of a designated central body in Japan with local branches in participating countries in order to support an increased flow of information and communication that responds to a real-time market. The objective of this network is: (i) to facilitate project initiatives under the CDM/JI; (ii) to promote the expansion of the international market for environmental goods and services through enhanced trade in eco-products and services; (iii) to contribute to the nurturing of domestic environmental industries and the transfer of clean technologies and best available practices in different industrial sectors.

Proposed project activities include information gathering and dissemination, database creation, matchmaking, project identification and management, creating public awareness, and institutional and human capacity building. Moreover, it could be developed further as a sound basis for emissions trading in the region.

It is desirable that the establishment and operation of this network be designed extensively to utilize the capacity of existing facilities of national, regional and international institutions rather than to build up new ones. The participation and partnership of private and public organizations, and NGOs will be strongly encouraged.

5. Conclusion

The acuteness of the problem of climate change is becoming of increasing concern globally. The third Assessment Report of the IPCC made it clear that the threat of climate change is genuine and its impact will directly affect all of humankind, owing to eco-system vulnerability, and the fragility of economic and social systems[9]. Thus, cooperation between developed and developing counties with the aim of achieving clean and sustainable development is indispensable. To this end, Northeast Asian countries have tremendous opportunities to cooperate in and benefit from the "win-win" situation afforded by the clean development mechanism and joint implementation system set out in the Kyoto Protocol.

[9] A statement made at COP7 in Marrakesh.

One of the cooperative actions to achieve the common goal of sustainable development in the region could be the extensive utilization of Kyoto Protocol mechanisms in the region. However, most of the region still lacks sufficient capacity to respond and make use of such mechanisms. Accordingly, building the necessary capacity – human, institutional and legal – is becoming crucial. Therefore, as a response to such needs, it is desirable to start joint projects on (i) CDM/JI capacity building and (ii) launching a web-based operational eco-industry network in Northeast Asia. At the end of the projects, the governments and people of the countries of Northeast Asia will have enhanced capacity to:

Promote and expand regional and global cooperation in eco-businesses and clean development.

Respond effectively and efficiently in addressing global warming mitigation and GHG reduction strategies in the region, as well as globally.

Collaborate, communicate and build consensus within and between different sectors of government, civil society and the private sector.

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