

Appendix: Current Status of Countries

When considering the design of a climate regime beyond 2012, it is important to know and understand the stance of countries, and to seek arrangements that enable all countries to participate, and ensure effectiveness and efficiency. This section provides a summary of the status and efforts in selected countries.

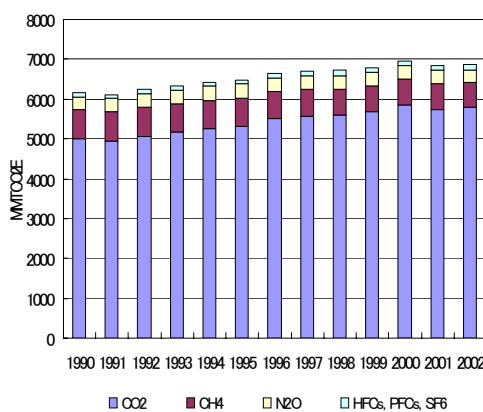
(1) United States

<World's Top Emitter of GHG>

- The United States is the world's top emitter of CO₂, accounting for about one-quarter of the global emissions (see Figure A-1). The national emissions continue to rise year-on-year, and in 2000 were about 11.5 percent above 1990 levels. One driving factor here is population growth. The U.S. population growth rate is considerably higher than in countries such as Japan and the European Union. The emissions increase from this factor is known as "social increase." Examining the details of emissions, one key feature is that the share of emissions from the U.S. transport sector is larger than in countries like Japan.

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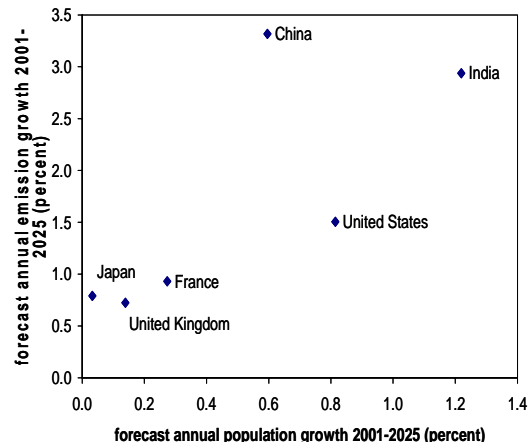
Figure A-1 U.S. GHG Emissions (1990-2002)



Source:

Energy Information Administration (2004) "Emissions of Greenhouse Gases in the United States 2002" Washington DC., available at <http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html>

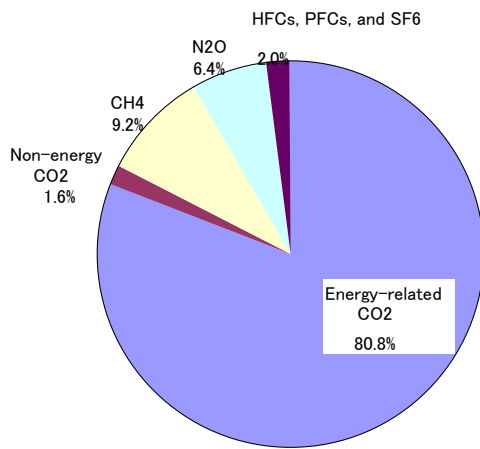
Figure A-2 Emissions and Population Growth in Selected Countries (annual rate, 2001-2025)



Source:

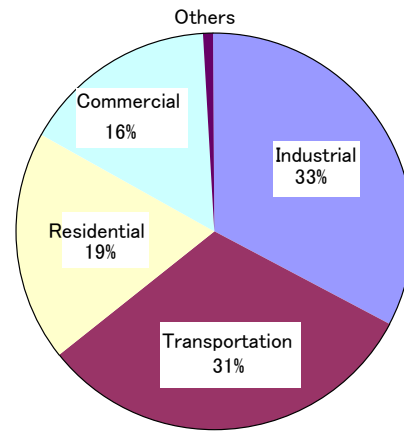
William Pizer, "U.S. Perspectives on Beyond-2012", presented at Open Symposium *International Climate Regime beyond 2012: Issues and Challenges*, Tokyo, October 7, 2003, hosted by Institute for Global Environmental Strategies and National Institute for Environmental Studies.

Figure A-3 Analysis of U.S. GHG Emissions, by Gas (1999)



Total emissions: 6.746 billion

Figure A-4 Analysis of Energy-Related CO₂ Emissions in the U.S., by Sector (1999)



Note: Emissions from electricity generation are allocated

Source: Both graphs from 3rd U.S. National Communication (2002).

<Climate Change Policy of the U.S. Government>

- The United States signed the UNFCCC in October 1992 and is undertaking initiatives based on that framework. With regard to the Kyoto Protocol, however, in March 2001, the Bush Administration announced that it would not participate in the protocol process. Reasons cited were that it would impose serious impacts on the U.S. economy and employment, and that the protocol did not obligate developing countries, including China and India, to make emissions reductions. For the United States to ratify the Kyoto Protocol, it must be approved by a two-thirds majority in the Senate.

- The Bush Administration has created its own climate change policies. These include a target of reducing GHG emissions per unit of GDP to 18 percent below the 2002 level by 2012; voluntary initiatives by industry; and the development of innovative technologies.

Some of the major initiatives are described below.

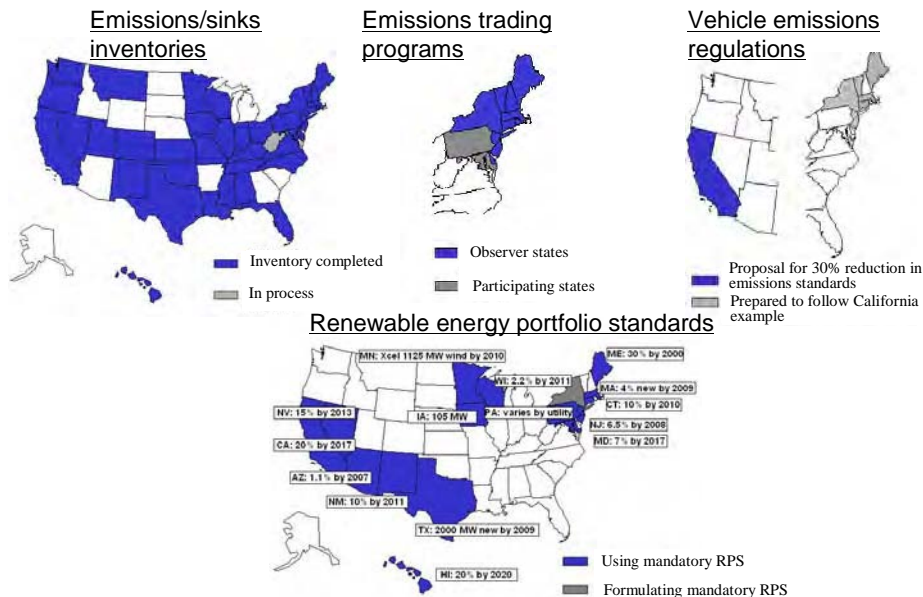
- ① Climate Vision (February 2003): This coordinates the voluntary targets of the Business Roundtable and 12 major industrial sectors (including electric utilities, iron and steel, semiconductors, etc.).
- ② Revisions to 1605(b) Registry (starting 2002): Revised guidelines are being prepared for the Voluntary Reporting of Greenhouse Gas Emissions based on Section 1605(b) of the Energy Policy Act.

- ③ Support for development of innovative technologies; financial assistance for research and development of hydrogen energy (fuel cells); and support of technological development for carbon separation and sequestration.
- Even if the United States achieves the stated target of its own policies, however, an average GDP growth of about 3 percent would still mean that emissions in 2012 will be 30 percent above the 1990 level.
- The U.S. efforts in the international arena are focused on technological development and promotion of activities such as those shown below:
 - Carbon Sequestration Leadership Forum (June 2003),
 - Hosting of Earth Observation Summit (July 2003),
 - International Partnership for the Hydrogen Economy (November 2003),
 - Methane-to-Markets Partnership (July 2004)

<Initiatives by Congress, States, and the Private Sector>

- A variety of initiatives are evident at different levels, including Congress, state governments, and the private sector. At the level of Congress, the McCain -Lieberman Climate Stewardship Act, aiming to introduce a mandatory national cap-and-trade emissions trading system, was voted down 55 to 43 in October 2003, but since then activities towards strengthening national policies have continued, including similar bills being proposed to Congress.
- At the state level, a variety of measures are being taken, including the setting of GHG emissions reduction targets, emissions trading, and measures dealing with GHG emissions from automobiles.

Figure A-5 State-Level Initiatives



Source: Pew Center (2004)

- At the private sector level, progress is being made with climate change initiatives such as the establishment of voluntary emissions reductions targets, and implementation of voluntary emissions trading, etc. Some of these initiatives are described below.

Leading activities by some corporations

Examples: - American Electric Power Co. invests 3.5 billion dollars in emissions reduction technologies, and published a report (August 2004) stating that it would not have been seriously affected even if the McCain –Lieberman Bill had passed.

- DuPont will reduce GHG emissions 65 percent below 1990 levels, and supports implementation of domestic emissions trading.

Emissions trading at the Chicago Climate Exchange

Implementing voluntary GHG emissions trading based on the cap-and-trade approach. At present, 56 entities (including electrical utilities, iron and steel, automobile and chemical industries) are participating, including DuPont and Ford. The market price is at about 90 cents per metric ton of CO₂.

Investors demanding industry to take action

- At shareholders' meetings of electrical utilities and oil companies, shareholders are demanding that measures be taken to address climate change.
- Pensions and other funds are considering climate change initiatives when deciding on investments.

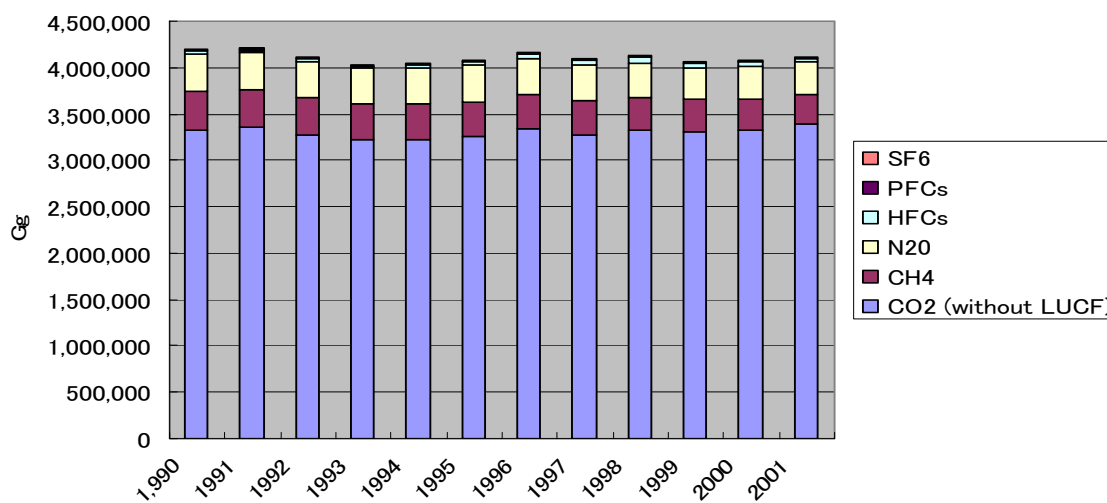
- In some cases, the development and diffusion of these kinds of domestic policies tend to become a precondition domestically for the U.S. government to participate in international framework. Hence, the bottom-up development of these measures might be essential for the active participation of the U.S. to international efforts.

(2) European Union

<Status of the European Union>

- Ten more countries joined the European Union in May 2004, bringing the total to 25 countries. The expanded European Union is roughly equal in economic size to the United States, and it now represents a huge economic zone.
- Regarding GHG emissions, the European Union had already reduced emissions to about 2 percent below 1990 levels by 2001. Major factors in here were the effective emissions reductions by the top emitting countries, including Germany and the United Kingdom.

Figure A-6 European Community GHG Emissions(Gg)(1990-2001,without LCF)



Source: Based on Annual European Community greenhouse gas inventory 1990-2001 and inventory report 2003, EEA

<Climate Change Policies of the European Union>

- The 15 country-European Union ratified the Kyoto Protocol in May 2002. These countries bear the commitment of the overall European Union under the Kyoto Protocol, and they are promoting initiatives in order to meet their commitments through cooperation within the region. As long as the total emissions of the region do not exceed the sum of each country’s allocated emissions, the EU will achieve its commitments jointly, based on Article 4 of the Protocol.

- The European Union is introducing a variety of policies and measures across the entire region for achievement of the targets under the Kyoto Protocol. Particularly mention, a European Union-wide emissions trading system will be launched in January 2005, and its development attracts much attention.

Table A-1 Policies and Measures in European Union to Achieve Kyoto Protocol Targets

2000 (Mar.)	Adopted the European Climate Change Programme
2003 (Oct.)	Adopted the EU Emissions Trading Directive
(Oct.)	Adopted the EU Directive on the Community Framework for the Taxation of Energy Products and Electricity Establishes the minimum rates of taxation applicable to energy products when used as motor or heating fuels and to electricity. However, exceptions will be permitted on an interim basis, considering circumstances in each country.
2004 (Feb.)	Adopted the Commission Decision for Monitoring Mechanism of Community Greenhouse Gas Emissions
(Feb.)	Adopted the Directive to promote combined heat and power(CHP)
(Sept.)	Amended Directive Establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community, in respect of the Kyoto Protocol's Project Mechanisms is in process

Table A-2. Overview of the EU Emissions Trading Scheme

Item	Details
Trading period	1st period: 1 Jan. 2005 through 31 Dec. 2007 2nd period: 1 Jan. 2008 through 31 Dec. 2012 Thereafter, will be operated in 5-year periods.
Target facilities/ gases	During 1st period, CO2 emissions from facilities involved in energy activities (petroleum refineries, coke furnaces, and combustion facilities over 200 MW other than those that incinerate hazardous waste and urban garbage incinerators), steel production and processing, manufacturing, and other activities (pulp and paper, etc.).
Domestic allocation plans and methods	During each period, each country is to formulate a domestic allocation plan describing total quota amount and allocation method, and publish it to the European Commission and other members. Countries are to allocate 95% of quotas at no charge during the 1st period, and 90% at no charge during the 2nd.
In event of exceeding quota	Pay a penalty of 40 euros per tonne of carbon dioxide equivalent during 1st period, and 100 euros from 2nd period onwards, and must submit the unsubscribed quota during the next period.
Linkage with domestic trading systems outside the EU	Permitted to trade quotas through treaty arrangements.
Linkage with JI/CDM	Permitted to utilize JI/CDM credits.

<Establishment of Medium and Long-Term Targets>

- The European Union is not limiting its efforts simply at participation in the Kyoto Protocol, but also looking further ahead through various initiatives. More specifically, it has agreed to a goal of limiting the global temperature increase to less than 2.0 degrees Celsius compared to before the Industrial Revolution. In addition, some countries (United Kingdom, Germany, France, etc.) have announced medium and long-term targets for CO2 emissions reductions of 45 to 75 percent by the year 2050. (See Table 3.1)

- Especially the United Kingdom, which will host the G8 Summit in 2005, is proposing climate change as one of the key topics for discussion and showing other proactive developments in terms of promoting international efforts.

- British Prime Minister Tony Blair presented a speech on the importance of climate change on 14 September 2004. Selected points from his speech are provided below.
 - Continuing increases in GHG emissions are unsustainable in the long term.
 - The difficulty of dealing with the climate change problem has two aspects: (1) the fact that it is necessary to make political decisions *before* the effect is felt to its full extent, and (2) no one nation alone can resolve it.
 - Prompt responses to the climate change problem are necessary. Now is the time to act.
 - Scientific agreements about climate change already exists.
 - The United Kingdom is on track to meet its Kyoto target. It is also taking on the challenge of reducing CO₂ emissions by 60 percent by 2050.
 - There are immense business opportunities in moving to a low carbon economy.
 - It is necessary to invest on a large scale in existing technologies, and to stimulate innovation in the longer term.
 - Nuclear power will not be excluded in order to meet GHG reduction targets.
 - Efforts will be made to promote new schools, new housing and re-invigorating "Local Agenda 21."

(3) Russia and Other Economies in Transition

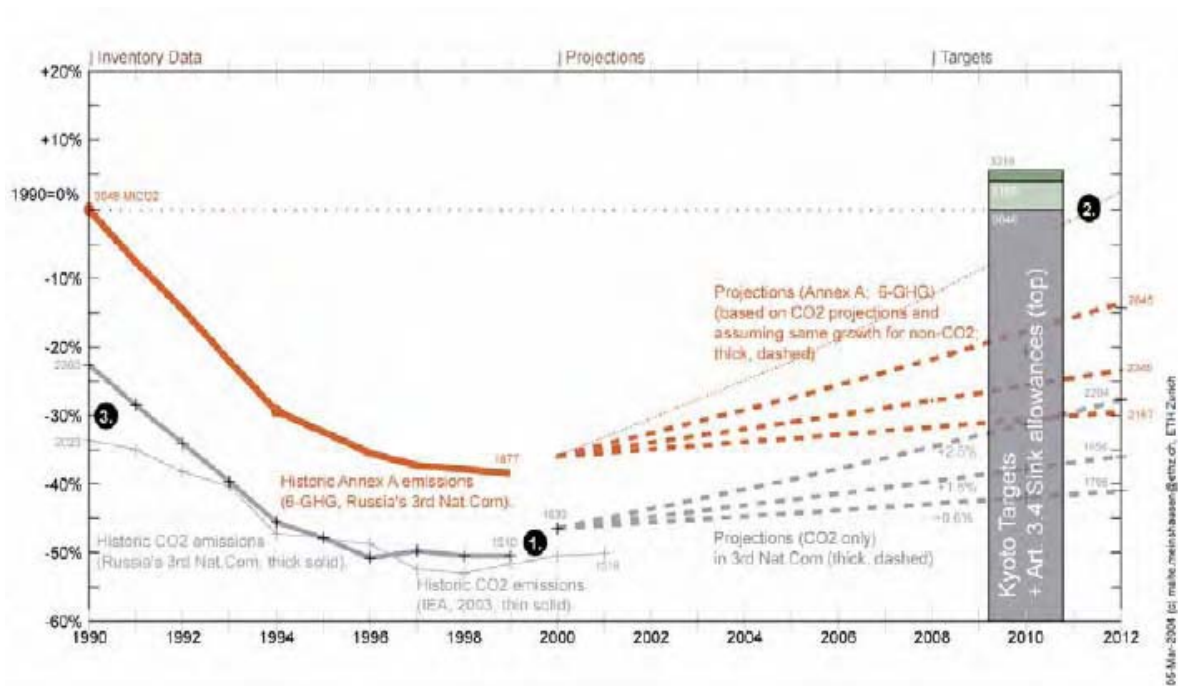
<Russia's Steps Towards Ratification of the Kyoto Protocol>

- On 18 November 2004, Russia deposited an instrument of ratification for the Kyoto Protocol, completing its domestic procedures for ratification. As a result the Protocol will enter into force on 16 February 2005

<The Potential for Surplus Emissions>

- Many emissions prediction models indicate that Russia and many Central and Eastern European economies in transition hold surplus emissions that could be supplied to a carbon credit market (see Figure A-7). They also predict that the amount they could potentially supply is large.

Figure A-7. GHG Prediction Forecasts for Russia



Source: Berk, M.M. and den Elzen, M.G.J. (2004) "What if the Russians don't ratify?", RIVM report 728001028/2004, p.16.

Table A-3. Prediction of GHG Surplus Emissions (5 Years)
in Central and Eastern Europe

Country	Gap Between Business-As-Usual Scenario and Base Year (2008-2012) Mt-CO ₂ e
New EU Members	
Czech Republic	-9.1
Estonia	-76.0
Hungary	-85.0
Latvia	-43.6
Lithuania	-58.2
Poland	-742.8
Slovakia	-8.6
Slovenia	7.0
Total	-1,016.2
EU Member Candidates	
Bulgaria	-335.5
Romania	-476.8
Total	-812.3

Sources: Langrock, T.; W. Sterk and M. Bunse (2004). "Linking CDM and JI with EU Emission Allowance Trading," Institute for European Environmental Policy, p.2.

- A number of concerns existed about carbon credit trading in Russia and other Central and Eastern European countries: (1) the risk that the Kyoto Protocol would not enter into force, and (2) the lack of transparency in the relationship between governments and corporations (provinces) that would be sellers, etc. But even under those circumstances, corporations in Russia for example, were preparing for entry into the carbon business, with the formation of corporate associations such as the Russian Industrialist Corporation Federation, the National Carbon Union (NCU), and the Energy Carbon Fund (ECF). In fact, companies in the western Russian province of Arkhangelsk (population about 1.5 million) based on guidance from the provincial government, placed a bid for JI credits through ERUPT, an international competitive bidding system in the Netherlands. Because the Kyoto Protocol is sure to enter into force, in the

future more of these proactive efforts are likely to appear in Russia and other Central and Eastern European countries.

- On the other hand, however, there are also predictions that the potential supply from Russia and other Central and Eastern European economies in transition may exceed global demand, due to the U.S. rejection of the Kyoto Protocol. For this reason, some have expressed the view that some countries may take strategic action such as supply restrictions and banking into the next period.

<Promotion of Joint Implementation (JI) Projects>

- With the entry into force of the Kyoto Protocol, it is expected that there will be a big jump in project investment based on Kyoto Mechanisms such as joint implementation (JI) and the Clean Development Mechanism (CDM). These initiatives lead to a reduction of GHG emissions, of course, but they are also supposed to contribute to the sustainable development of host countries. For this, developed countries must, at the governmental and other levels, proactively support the formation and implementation of JI projects conducted among the economies in transition in Central and Eastern Europe. As one precondition for this, improvements in host-countries' national institutional capacity such as GHG emissions and sinks inventories are urgently needed. International cooperation is important to achieve those improvements. At present, some countries still do not have adequate inventories of their GHG emissions. It could be expected that, based on experience and success with such JI projects, solid achievements in reduction commitments by these countries will have a positive impact on the design of a climate regime beyond 2012.
- However, because many of the new members of the European Union are the economies in transition in Central and Eastern Europe, as the European Union environmental standards will be taken as the baseline, some people have predicted that the potential for JI is not as big as originally expected. In addition to such circumstances, under the European Union's regional emissions trading market (EU ETS) which is planned to be introduced in 2005, a proposal has been made to prevent double-counting, by canceling EAUs (EU Allowance Units) in the event that a participating company conducts a JI project (although at the moment the methodology has not yet been fully established). Accordingly, the potential for JI may shrink even more with the introduction of EU ETS.

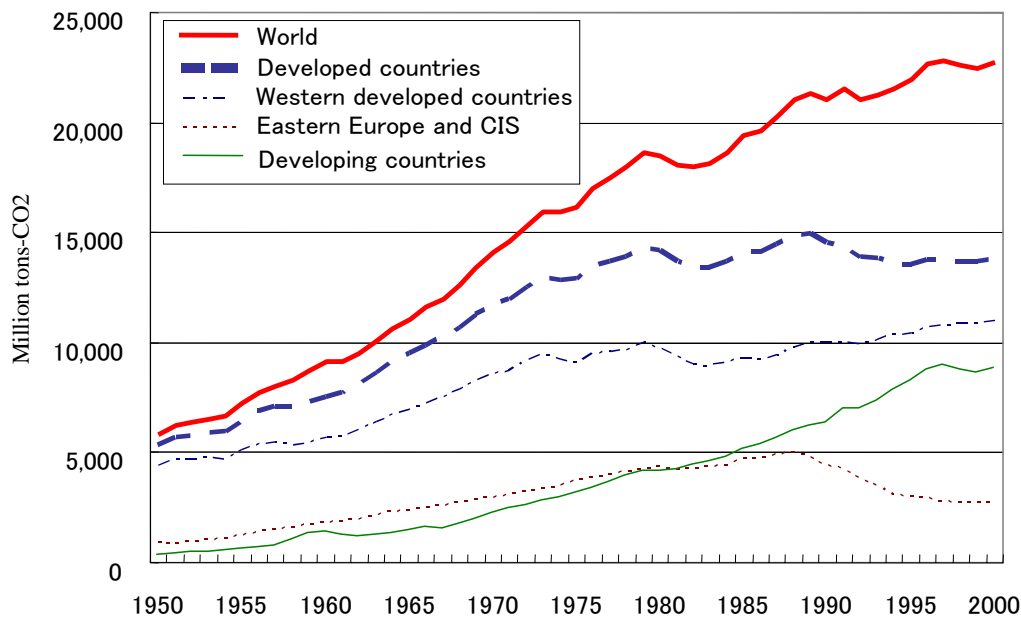
- Meanwhile, over concerns such as about (1) risks and transaction costs of JI projects, and (2) the lack of transparency involved in routine emissions trading, there has been some consideration of arrangements to ensure environmental integrity by making it mandatory to reinvest the proceeds from the sale of emissions allowances into GHG emission reductions projects. One example of such a scheme is the Green Investment Scheme (GIS, also known as Green AAU).

(4) Developing Countries

<Emissions Trends in Developing Countries>

- The emissions per capita in developing countries is still only a fraction of what it is in developed countries, However, almost 2 billion people, most of them are in developing countries, still live in the areas that do not have electricity.
- However, due to increasing emissions associated with the economic growth and growing populations, GHG emissions from developing countries have steadily increased over the past few decades. Indeed, since the growth rate of the emissions from developed countries peaked in the 1980s, most of the recent increases of GHG emissions have attributed to developing countries.

Figure A-8. Emissions Trends Since 1950



Source: Oak Ridge Institute

- Meanwhile, for the future, many emissions prediction models indicate that total developing (non-Annex I) country emissions will surpass developed (Annex I) country emissions some time between 2030 and 2050. (see Figure 1.3). For example, even counting China alone, the future emissions are predicted to increase considerably (Table A-4).

Table A-4. Predicted CO₂ Emissions from China under Various Economic Models

Units: Mt-C

Source	1990	2000	2010	2020
ADB (1998)	567	915	1320	1695
CASS (2000)	NA	841	1090	1330
EIA (2003)	617	780	1109	1574
IEA (1998)	657	NA	1450	1929
World Bank (1994)	650	987	1512	2045
Zhang (1997)	587	899	1441	NA

Source: Zhang, Z. X. (2004). "Towards an Effective Implementation of CDM Projects in China," East West Center. (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=555906), p.11

<Critical Policy Issues for Developing Countries>

- For developing countries, the improvement of the energy efficiency becomes the top priority issue from the perspective of reducing energy-related costs, improving the productivity, and securing the energy security. These efforts will make a large contribution to the reduction and limitation of GHG emissions as well as to the reduction of emissions of atmospheric pollutants.

<Developing Countries and the CDM>

- Many developing countries are making preparations for the Clean Development Mechanism (CDM), which was introduced under the Kyoto Protocol.
- For example, the Indian government is extremely supportive of the CDM, and has already

formulated standards to evaluate CDM proposals based on contribution to “sustainable development,” and “consistently with development objectives.” Partly due to the impact of government arrangements such as these, according to a World Bank study (Lecocq, 2004), three countries (India, Brazil and Chile) accounted for 56 percent of all JI/CDM proposals since 2001, and if Romania and Indonesia are included, these top five countries account for two-thirds. Of 23 international competitive tenders from the government of Finland in the spring of 2003, twelve went to India. According to CDM Watch (2004), among 112 CDM candidate projects whose PDD is available as of 5 November, 21 were in India, and here too India ranked first (followed by Brazil, at 17 projects).

- In China, workshops are being organized proactively under the initiative of the Chinese government, and there is now a website dedicated to the CDM (<http://cdm.ccchina.cn/>), as well as a CDM newsletter. The Interim Measures for Operation and Management of Clean Development Mechanism Projects in China was promulgated at the end of June 2004. Memorandums of understanding (MOUs) have already been signed with Austria, Denmark, Finland, Germany, Italy, and Netherlands (project base), and progress is being made on a credit trading agreement with the World Bank’s Prototype Carbon Fund.
- Meanwhile, some issues remain regarding the CDM, include the following: (1) uneven distribution of host countries (i.e., very few from Africa), (2) low prices for credits, (3) high transaction costs and risks, (4) difficulty of confirming that a project contributes to a host country’s sustainable development, and (5) competition with other carbon credits.