
1. Current awareness of climate change mitigation measures in developing countries

(1) Sustainable development and climate change in developing countries

Ten years have passed since the United Nations Conference on Environment and Development, at which “Agenda 21” was adopted, with the key phrase “sustainable development.” In August 2002 there will be a World Summit on Sustainable Development’ (WSSD), bringing together leaders from around the world in Johannesburg in order to assess the level of accomplishment thus far, and to discuss the continuing plans for the future. Both developed and developing countries are moving into a new phase of achieving sustainable development.

For the developing countries, in addition to their own efforts, there are various other organizations working toward sustainable development, through the support of international organizations, developed countries, and NGOs. The Official Development Assistance (ODA) is a part of this support.

The OECD Development Assistance Committee (DAC), in its report on “Strategies for Sustainable Development” (DAC, 2001), recognizes the importance of harmonization and unification among the three elements of “Society,” “Economy,” and “Environment” for sustainable development (see Figure 1.1), while developing countries face six issue areas (poverty, political instability, environmental deterioration, population increases, HIV/AIDS, and marginalization). With regard to the environmental deterioration, in addition to the depletion of natural resources and environmental pollution, the vulnerability of the developing countries to climate change has been noted. It is expected that the emissions of greenhouse gases (GHG) by developing countries will exceed that in developed countries in the first half of the 21st century.

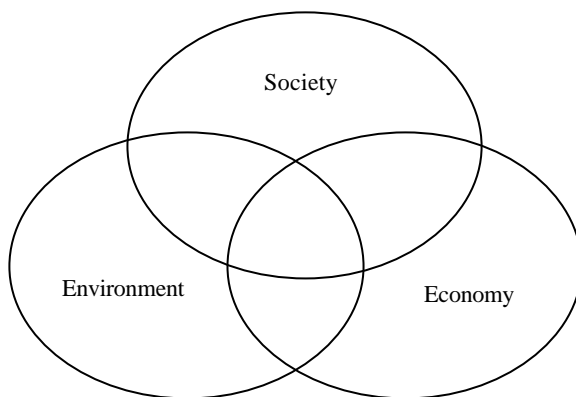


Fig. 1.1 Elements of sustainable development

Bilateral assistance to developing countries from developed countries like Japan is intended to support the attainment of sustainable development in the developing countries. As shown in Table 1.1, there is a great deal of money invested in fields directly related to GHG emissions, such as energy, transportation, mining and manufacturing, in addition to agriculture. For many other fields as well, including education and population, development assistance also has a connection to the climate change problem.

Table 1.1 Fields receiving bilateral assistance and connection to climate change (1999)

Assistance field	Percentage of support		Connection to GHG emissions		
	22 DAC countries	Japan	Direct	Indirect	Possible
I. Society infrastructure and services	29.9	18.9			
1. Education	10.7	8.7		+	
2. Health	4.2	2.4		+	
3. Population planning and reproductive health	1.8	0.1		+	
4. Water supply and hygiene	4.1	5.8	+		
5. Public and private society	4.2	0.9		+	
6. Other social infrastructure	4.9	1.0			+
II. Economic infrastructure and services	17.2	31.5			
1. Transportation & communication	8.7	21.6	+		
2. Energy	4.6	9.1	+		
3. Other	3.9	0.8			+
III. Production sector	8.1	13.9			
1. Agriculture	5.5	7.6	+		
2. Mining, manufacturing, and construction	2.2	5.7	+		
3. Trade and tourism	0.4	0.7		+	
IV. Multi-sector assistance	7.4	4.8			+
V. Program assistance	6.9	11.2			+
VI. Debt relief	7.4	4.6			
VII. Emergency assistance	11.1	2.9			
VIII. Administrative expense	5.9	5.6			
Miscellaneous	6.1	6.3			

Source: DAC statistical data

(2) Trends in aid related to climate change mitigation measures by DAC countries

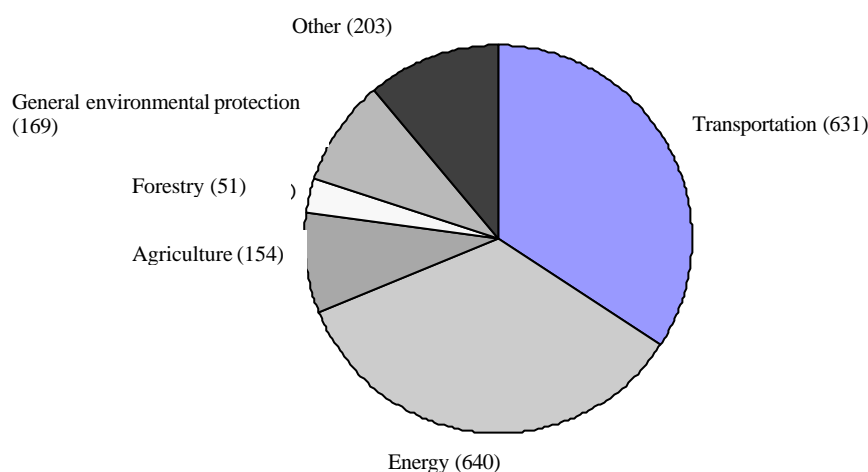
The United Nations Framework Convention on Climate Change (UNFCCC) places a major portion of the responsibility for current climate change on developed countries, calling them “common but differentiated responsibilities” and indicating that developed countries have an obligation to support the implementation of climate change mitigation measures in developing countries. As a result, there are a variety of efforts underway for climate change mitigation measures in developing countries through multi-lateral aid, such as the Global Environment Fund (GEF), the World Bank, the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP), as well as bilateral aid from developed donor countries.

Of the 23 member countries of DAC, cooperation was obtained from 17 countries, the aid results for 1998 have been analyzed for trends in aid targeting climate change mitigation measures, and the results announced at the Thirteenth Session of the Subsidiary Bodies of the UNFCCC (September 2000, Lyon). Although this is a pilot study, the following points were clarified (see Figure 1.2)

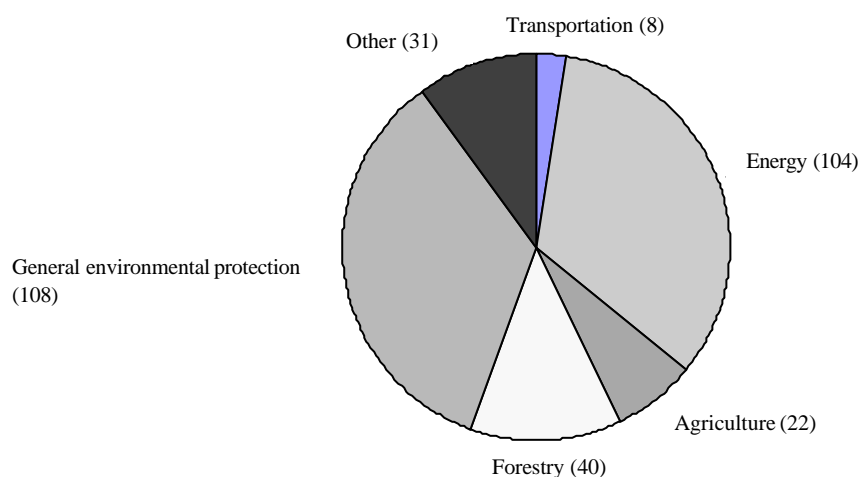
- Development assistance related to climate change mitigation measures is clearly being implemented in fields for which there is a strong dependence. Assistance for fields such as energy, transportation, agriculture, and general environmental protection accounts for nearly 90% of the money spent on climate change mitigation measures.
- Of the 30,000 instances of bilateral aid in 1998, approximately 1% (313 instances) and 0.5% of the aid funds (\$1.8 billion out of a total \$33 billion) were for activities related to climate change mitigation measures.
- The transportation field reflects the large loan undertakings of the aid funding, accounting for 35% of the aid funds, although the number of projects was small (8 cases). The energy field utilizes 35% of the funds spread across 104 projects. The aid funding for general environmental protection is small (9%), but the number of projects is more than 1/3 of the

- total. For the field of forestation, both the fund amount and number of projects are small. For the majority of donor countries, aid in the fields of energy and general environmental protection are regarded as contributing to climate change mitigation measures, and there are few countries providing aid for water supply, transportation, agriculture, and rural development in connection with climate change mitigation measures. There are 1 or 2 countries supporting alternative fields (economic development planning, manufacturing, fisheries industry development, privatization, multi-sector assistance).

Aid targeting global warming measures (aid funding: million dollars)



Aid targeting global warming measures (number of projects)



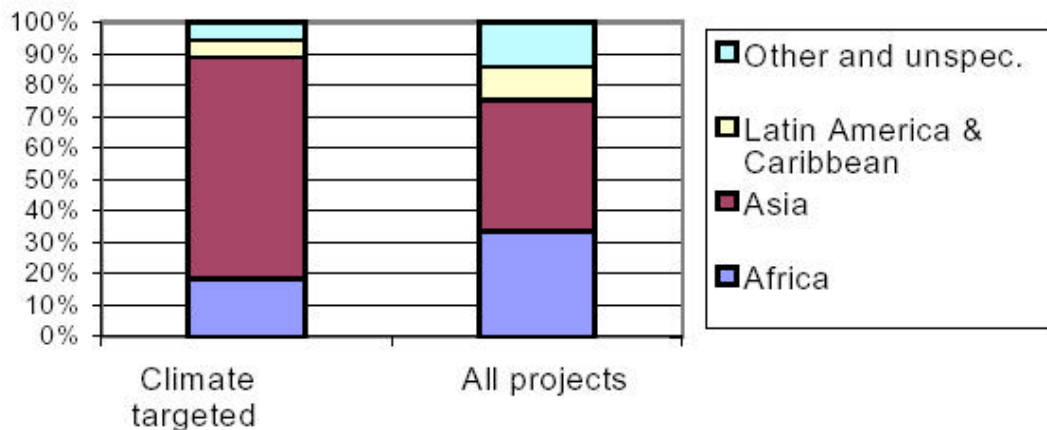
Source : AID TARGETING THE RIO CONVENTIONS

First results of the pilot study : A contribution by the DAC Secretariat for the information of participants at the session of the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC in Lyon in September 2000.

Figure 1.2 Analysis results of DAC aid targeting climate change mitigation measures

Figure 1.3 shows the geographical distribution of the aid targeting climate change mitigation measures. Two-thirds is spent in Asia, and 18% in Africa.

Figure 1.3 Geographical distribution of aid targeting climate change mitigation measures (% of aid funds)



Source : AID TARGETING THE RIO CONVENTIONS

First results of the pilot study : A contribution by the DAC Secretariat for the information of participants at the session of the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC in Lyon in September 2000.

(3) Japanese development assistance of developing countries related to climate change mitigation measures

The following summarizes the range of Japan's support to developing countries in the environmental field.

(i) [Environmental Aid Policy] from the Arche Summit (1989)

- When addressing global environmental issues, it is necessary to support environmental conservation efforts in developing countries. For a three year period between 1989 and 1991, 300 billion yen will be targeted for expanding and enhancing bilateral and multilateral aid efforts for the environment. (The final tally was more than 400 billion yen).
- Actively work on efforts for research and **forest conservation**, focusing specifically on rain forests, and exert efforts to improve the ability to handle environmental problems in developing countries. An essential factor of rain forest deterioration is **poverty**. Therefore, advance measures to relieve peasant farming, promote technology cooperation for the **capacity building** for environmental fields in developing countries, and coordinate with the activities of the multilateral development banks.
- Further expand and enhance to consider environmental aspects when providing development assistance.

(ii) [New Environmental ODA Policy] from the London Summit (1991)

- For global environmental issues, the basis for handling them will be through collaboration and **joint effort** between advanced and developing countries.
- It is necessary to strengthen support for self-help efforts for environmental conservation in developing countries. **Japanese technology and experience should be put to good use** to achieve both environmental conservation and economic growth.
- In order to appropriately address the diversified environmental problems in developing countries, in addition to understanding the needs and actively identifying actions through enhanced policy dialogs, there will also be the **functional, effective coordination of assistance from various types of aid initiatives**.
- There are many environmental issues that are related to **poverty** and **rapid population growth**. Focus will be placed on continuing to strive to resolve these problems.
- Focus on fields like **forest conservation and development, energy conservation, clean energy**

technology, pollution control, wildlife protection, and soil conservation, and strive to improve the developing country's ability to handle environmental problems. Also focus on cooperation with multilateral development financial institutions. Further, provide support for cooperation at the grassroots level.

- (f) Strengthen consideration for the environmental aspects before implementing projects by fully implementing environmental impact assessment (EIA), and creating EIA guidelines for each field.

(iii) Declaration on Japan's environmental ODA by UNCED (1992)

- (a) For a 5 year period from 1992, expand and enhance assistance to environmental fields in developing countries targeting 900 billion to 1 trillion yen for bilateral and multilateral aid.
- (b) Target fields: **forest conservation**: rain forest protection, protection of bio-diversity, prevention of desertification; water quality control: prevention of water pollution of ocean, hazardous waste treatments; **atmospheric pollution control**: prevention of ozone layer depletion, **climate change mitigation measures**, acid rain countermeasures; support for improving capability to handle environmental problems: capacity building in partner countries, building systems, policy advice.
- (c) It is especially important to have the joint effort of the developing country (**partnership**) when providing aid for environmental fields. Actively advance the identification, development and implementation of appropriate policies through policy dialogs.

(iv) Human security and the Initiatives for Sustainable Development toward the 21st Century (ISD concept) (1997)

- (a) Purpose: Further enhance environmental effort through the ODA, aiming to **achieve UNCED targets**.
- (b) ISD concept: Security of mankind, self-help effort, and **sustainable development**
- (c) Action plan: atmospheric pollution control, water pollution control and waste control, **climate change mitigation measures**, conservation of the natural environment, forest preservation and reforestation, handling of water resources, enhancement of environmental awareness, strategic studies
- (d) Implementation points: support for pollution countermeasures focused on Asia (brown issues); preservation of endangered wildlife and reforestation (green issues (land), blue issues (oceans and waterways)); institutional enhancement for environmental ODA

(v) Kyoto Initiative (1997)

- (a) Priorities: As the **host country for COP3**, the Kyoto Initiative has been set forth as an **ISD concept to aid developing countries in climate change mitigation measures** in order to further strengthen the support to developing countries through the ODA.
- (b) The 3 pillars
 - Cooperation in「**Capacity building**」: (A) air pollution (including projects directly related to climate change mitigation measures), (B) waste disposal, (C) energy conservation, (D) forest preservation and reforestation.
 - **Most-favored terms**: Offer yen loans with (Interest rate 0.75%, repayment period of 40 years) targeting: (A) energy conservation, (B) new and renewable energy sources, (C) forest preservation and reforestation.
 - **Use and transfer of Japanese technology and know-how**: (A) dispatching diagnosis and survey teams to manufacturing plants, (B) building a climate change technology information network, (C) development and transfer of appropriate technology for use in the developing countries, (D) sponsoring workshops

Japan's aid to developing countries related to climate change mitigation measures places priority on the UNCED important fields, and is continuing to proceed through the Kyoto Initiative to realize the ISD concept. Since the announcement of the Kyoto Initiative, various schemes related to climate change have been produced, with far-reaching effect.

For the capacity building for fields related to climate change, over a three year period from 1998 to 2000 a total of approximately 4,600 people in 47 projects related to the advancement of climate change mitigation measures benefited from yen loans under the most-favored terms, totaling 563.3 billion yen (16 projects and 160.7 billion yen in fiscal year 2000 alone). For personnel training, courses such as "Climate Change Prevention Technology," "Energy Conservation," and "Climate Change Mitigation Measures" have been established at the JICA Central Training Institute (Japan).

With the Kyoto Initiative, support is proceeding in a variety of fields according to the 3 pillars. For free funding efforts as well, in 2001 the existing reforestation fund and clean energy fund were unified to include the fields of pollution control and preservation of ecosystems with the preparation of the "Global Environment Grant."

With regard to the utilization and transfer of Japanese technology and know-how, work,

such as improvement of the electric power grids, which are a priority for climate change mitigation measures, modernizing and energy efficiency improvement of factories, and energy efficiency improvement of power plants, continues to be implemented. Recently, development cooperation efforts have included on-site forestry study (methodology development) for carbon sequestration assuming CDM.

Based on the DAC analysis results shown in (2), the characteristics of Japanese aid to developing countries for climate change mitigation measures can be summarized as follows.

- Yen loan efforts are being implemented through the Kyoto Initiative, with priority on climate change mitigation measures. The strength of this influence is apparent in the DAC statistical analysis results (proportion of aid funds to the transportation field, and in Asia). Furthermore, for grant projects as well, work that places the priority on climate change mitigation measures is also being conducted.
- A feature of Japanese aid is the active utilization of training systems. Training of personnel to handle climate change mitigation measures is actively implemented.
- For fields like energy, transportation, agriculture, and general environmental conservation, which have a direct connection to climate change mitigation measures, there is a large amount of aid, with a large potential for making future contributions to the prevention of climate change by developing countries.
- Have started incorporating the support of private entities that aims for the implementation of the CDM.

(4) Perspective of development assistance regarding climate change mitigation measures

From sections (1) ~ (3) above, for the desirable directions for Japan's support of climate change mitigation measures efforts in developing countries, it is necessary to consider and discuss the following viewpoints.

(i) There must be “ancillary benefits” from the climate change mitigation measures for the developing countries.

The ODA's aid to developing countries is intended to help those countries achieve sustainable development, and is conducted in the form of partnerships. As many developed countries have experienced, there is a tendency for those guiding national development to have conflicting “development priorities,” leading to environmental pollution and the depletion of natural resources. It is desirable for developing countries, to accept support from developed donor countries to conduct their national development, and to incorporate adequate consideration of the environment based on the environmental impact assessment. However, environmental measures do not have quantitative economic benefits; so in many cases, the priority on such measures is low. Climate change will have a serious influence on developing countries as well, and many developing countries believe that it is more important to adapt appropriately to climate change than it is to reduce GHG emissions. Furthermore, those in charge of policy decisions do not have sufficient information or awareness on the climate change problem. This means, excluding the island countries in the South Pacific, it is likely that efforts that are only aimed at combating climate change will be given a lower priority than conventional environmental measures. Therefore, climate change mitigation measures for developing countries should be implemented so that they are incorporated into a scenario for achieving sustainable development, and be designed to provide

significant ancillary benefits when they are implemented, such as simultaneously reducing air pollution, or reducing transportation costs through energy conservation.

(ii) It is crucial to implement climate change mitigation measures in developing countries in order to stabilize the climate.

The UN Framework Convention on Climate Change (UNFCCC) clearly states that there are “common but differentiated responsibilities,” and places the main burden for climate change on developed countries. The Kyoto Protocol places the priority on the first steps toward fulfilling these responsibilities. However, to achieve the ultimate goal of the convention of “Climate stabilization,” for global-scale problems, it is necessary for each country to participate, including the USA, which produces the most GHG emissions of any country. It is especially crucial to implement climate change mitigation measures in developing countries, which are expected to exceed the GHG emissions of developed countries in the first half of the 21st century. Support of developing countries to achieve this implementation can be considered a portion of the responsibilities of the developed countries.

(iii) Developing countries must simultaneously handle the three dimensions of issues; achieving economic growth; handling environmental pollution and addressing global environmental problems

In developed countries the three dimensions of the problems of ensuring basic human needs (BHN) while achieving economic growth, handling the pollution that is caused during economic growth, and the global environmental problems that have become manifest since the late 1980s have been handled individually. However, in today's developing countries these three dimensions of issues are being confronted simultaneously. In other words, the course that developing countries must travel in the future has not been experienced by other developed countries. Therefore, as the developing countries receive support from developed countries, they need not necessarily choose the same path of development as the donor country. It is best that they incorporate methods and policies that help achieve sustainable development.

To do this, it is necessary to integrate unique indigenous techniques with the latest technology on climate change mitigation measures, such as efficient use of fossil fuels and effective use of renewable energy, and to realize a methodology that fits the traditional systems of that country. Therefore, the technology transfers to and capacity building (personnel development) in developing countries is an indispensable area of support by developed nations. In addition to scientific technology support, there is also a great need for organizational and system support.

(iv) Japan's ODA can have a large impact on attaining sustainable development in developing countries, along with aid funding and activities.

The results for Japan's bilateral ODA in 1999 are an increase of 6.1% over the previous year, for a total of 1.1957 trillion yen. Japan continues to remain first in the world in bilateral aid as has been the case since 1991. In 1998 Japan partnered with more than 40 developing countries, becoming the largest aid-supplier in the world. With regard to support of developing countries on climate change mitigation measures, the results of the Kyoto Initiative activities have had a clear influence on trends throughout the world, as demonstrated by the DAC analysis results.

(v) Changes in the relationship between developed countries and developing countries regarding climate change mitigation measures, through the application of the Kyoto Mechanisms, particularly CDM.

One of the goals of the CDM is to support sustainable development in developing countries. Therefore, Japan's ODA, which has the role of supporting sustainable development in developing countries, should support the implementation of CDM projects. In addition to supporting sustainable development in developing countries, Japan's assistance in the CDM can fulfill the responsibility to support developing countries, which is the spirit of the Framework Convention on

Climate Change. Furthermore, the carbon credits generated by CDM projects, which can be used in achieving the target of developed countries, make a change from the one-way flow of capital and technology from developed countries to developing countries into a relationship based on two-way exchanges. The Marrakech Accord for COP7 stated that “Public funding contributions to CDM efforts must not be diverted for ODA use.” Based on the changes in the relationship between these two, there needs to be an investigation of the role that should be played by the ODA with regard to the climate change mitigation measures in developing countries.

(5) **Recommended directions of Japanese development assistance regarding climate change mitigation measures**

Based on the above points, the following recommended directions are suggested for Japan's contribution to the support of developing countries with regard to climate change mitigation measures.

(i) Incorporate climate change mitigation measures in Japan's key development assistance fields while continuing to promote the Kyoto Initiative

For the fields of electric power, energy and forestry, proceeding further with the Kyoto Initiative is steadily providing results. In addition, for fields in which Japan's ODA plays a large role in cooperation with developing countries, including mining and manufacturing, agriculture, forestry and livestock industries, and transportation, it is necessary to incorporate climate change mitigation measures into existing programs. For example, it may be possible to reduce GHG emissions in comparison with conventional programs by fully considering the effective utilization of livestock waste and renewable energy for the programs promoting agriculture and animal husbandry.

(ii) Provide effective support through the construction of new frameworks, while maximizing the utilization of Japan's ODA results.

By adding new roles from the perspective of climate change mitigation measures to the framework and socioeconomic infrastructure achieved through Japanese ODA, effective support should continue, including making good use of the existing systems in the short term, and building appropriate new systems for the mid- and long-range. For example, functions should be added to advance climate change mitigation measures to the Environment Center or Energy Conservation Center, and Coral Reef Protection Center, etc. In addition, public traffic systems must be revised from the perspective of reducing GHG emissions from the transportation sector, while considering introducing transportation systems with low GHG emissions.

(iii) Place priority on climate change mitigation measure support that is easy for developing countries to accept, and provide multiple ancillary benefits including the climate change mitigation measures, while also meeting the current needs of the developing country.

Climate change mitigation measures are not a priority issue for developing countries. In order to increase the priority, it is necessary to focus on support that meets their current development needs and is easy for developing countries to accept, having multiple ancillary benefits, including climate change. It is desirable to give priority to acting on the development needs with these ancillary benefits that have the higher effects as climate change mitigation measures. For example, implementing countermeasures to fixed sources of air pollution by introducing energy conservation technology to manufacturing plants can have many effects, including reducing air pollution, preventing acid rain, saving energy, and decreasing GHG emissions. In addition, it is recommended that one devise ways to contribute to adaptation measures to the climate change impact on developing countries.

(iv) Support developing countries with proactive use of CDM support, and advance the implementation of climate change mitigation measures

The establishment of the Kyoto Mechanisms, particularly the new opportunity for GHG reductions through CDM, has the potential to change the relationship between developing and developed countries. It is necessary to proactively support the implementation of CDM projects, devise new support policies, and advance the implementation of climate change mitigation measures through the implementation of technology transfers, capacity building and infrastructure preparation for the purpose of conducting the CDM project.

(6) Support guidelines for JICA's developing country climate change mitigation measures

(i) Relationship between the climate change mitigation measures in developing countries and JICA activities

In order to identify the potential for JICA contributions to climate change mitigation measures in developing countries, it is first necessary to understand the connection between the JICA activities and the climate change mitigation measures in developing countries. Climate change mitigation measures can be generally classified into GHG emissions reduction measures, sequestration enhancement measures, or adaptation measures. Figure 1.4 shows current JICA activities roughly classified into these three categories. Many of the JICA projects are implemented for the purpose of reducing poverty and improving the quality of life in developing countries, including stable power supply, providing training for manufacturing, and the management of natural resources. It is clear that these activities also have ancillary effects as climate change mitigation measures for the developing countries.

(ii) Features of climate change mitigation measure support through JICA activities

Unlike developed countries that have achieved mature economies, the current priority for developing countries is further economic development through production stimulation and regional development. Furthermore, as mentioned previously, it is expected that the development in developing countries will increase GHG emissions in the future.

JICA supports economic development and the alleviation of poverty in developing countries from the perspective of achieving sustainable development. It is possible that the results of implementing projects with such goals increases the GHG emissions in these countries and regions. Therefore, JICA must consider project content that contributes low GHG emissions for conducting the existing support projects for developing countries.

In other words, for JICA activities related to the support of climate change mitigation measures, it is crucial to suppress GHG emissions as much as possible for existing projects in addition to steadily implementing the (I) projects that make direct contributions to GHG emissions reduction and sequestration enhancements (improving power distribution networks, energy conservation for factories, reforestation), and (II) projects making indirect contributions (public transportation infrastructure, support for building fuel tax systems, building plant nursery facilities). Viewed from this perspective, all JICA projects related to the consumption of fossil fuels and land utilization, even those not listed in figure 1.4, can incorporate elements of climate change mitigation measures.

Furthermore, the importance of support for adaptation measures as well can be called a characteristic of the support for climate change mitigation measures through JICA activities. Climate change will have an effect on the vulnerable production foundations and economic infrastructures in developing countries, making JICA's efforts to support the development of these production foundations and economic infrastructures very important.

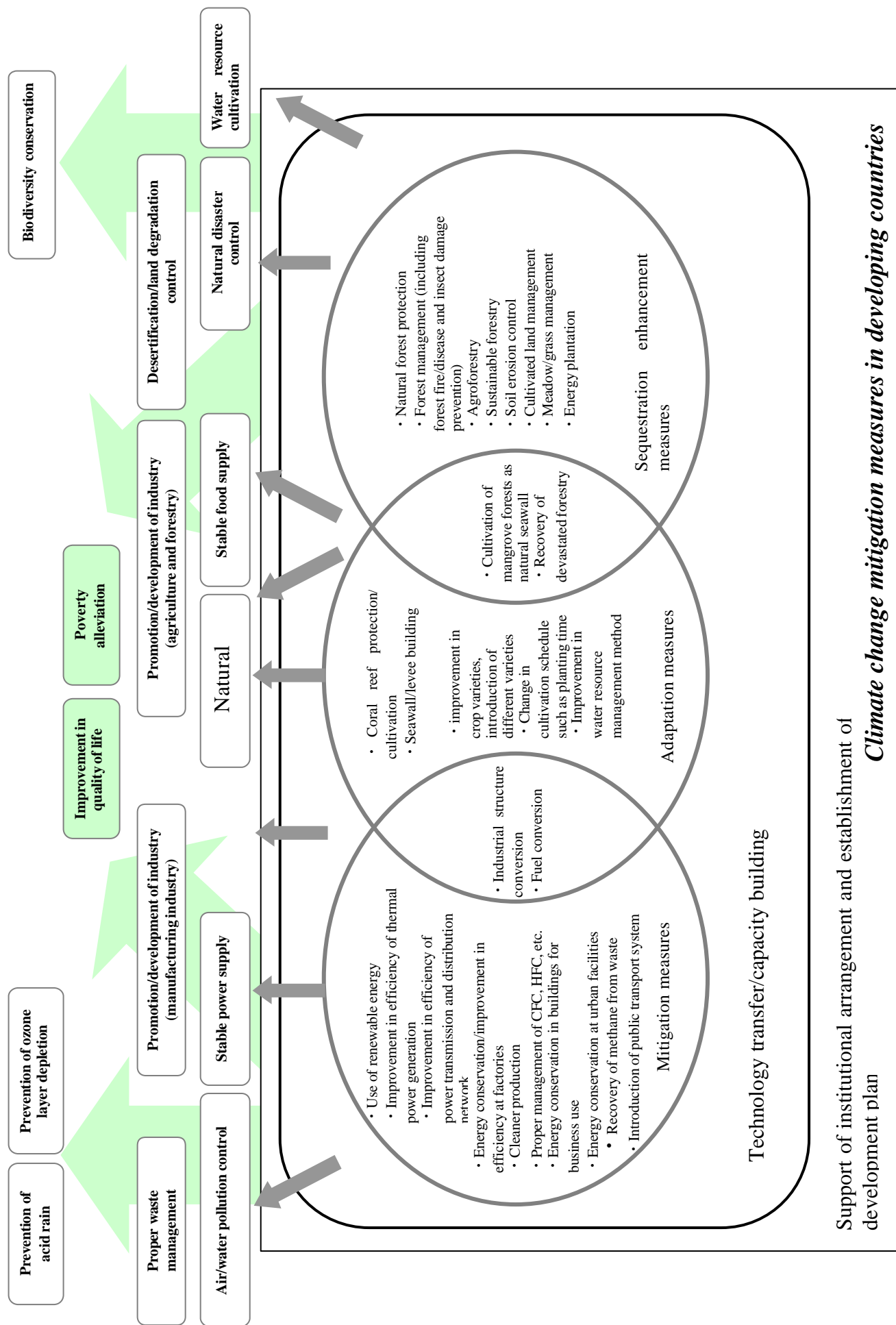
(iii) Objectives of JICA support of developing country climate change mitigation measures

Based on the above, the objectives for JICA's support of climate change mitigation measures in developing countries can be stated as follows. It would be worthwhile to establish more detailed guidelines for the climate change mitigation measures for implementing JICA projects. After setting such guidelines, it is necessary to ensure the effectiveness of the progress on the climate change mitigation measures by making sure that these guidelines are known by not only the people associated with the JICA project, but also the outside offices.

- Provide support for all reasonable measures for GHG reduction, sequestration enhancement and adaptation measures.
- For developing countries, since there is a priority on items related to sustainable development, in addition to social and economic development, efforts should be made to devise ways of incorporating elements of the climate change mitigation measures into these items, so that they can be easily adopted by the developing countries.
- Promote projects contributing directly and indirectly to the reduction of GHG emissions and enhanced sequestration. In addition, consider the maximum limits on reduction and sequestration effects in comparison to the baseline case.
- Develop total climate change mitigation measures packages, organically and effectively coordinating existing JICA schemes, such as bringing in trainees, dispatching specialists, development planning, and grants.
- Focus on support for activities based at the community level, leading to the attainment of regional sustainable development, from a long-term perspective.
- In addition to coordination with other organizations, actively promote the technology transfers and capacity building necessary to implement the CDM projects.

: The baseline case is the implementation according to the conventional methods, without considering the introduction of the available climate change mitigation measures to the project. Cases in which climate change mitigation measures are included are indicated as being "with measures," while the baseline case is "without measures."

Figure 1.4 Relationships between Climate Change Mitigation Measures in Developing Countries and JICA Projects



2. International Trends on Climate Change Mitigation Measures and the Kyoto Mechanisms

(1) Marrakech Accord Summary

At COP7, the Executive Board for CDM was inaugurated. The first meeting of the Board was held, and the plans for the second meeting were settled. The schedules for items such as the format and procedure for small-scale projects, and Executive Board procedure rules were clarified. With regard to JI between developed countries with emissions targets, umbrella groups were advocated, and the opinion was that the accreditation and verification procedures should be simpler than for CDM. In other words, the accreditation and verification procedures for JI between developed nations with established GHG inventories is simple, but for JI between other countries, there was a demand for formats and procedures like those for CDM, and a decision was made to adopt a 2-track method.

With regard to the trading of emissions credits, the participation of private entities, which had become an issue, was approved.

A representative from Japan was selected to serve as the vice-chairman of the CDM Executive Board.

The figures that follow show the “Roles of COP/MOP, the Executive Board, and the Operational Entities,” the “CDM Project Flow,” and “Estimated Schedule of CDM-related Activities.” For Figure 2.1 “Roles of COP/MOP, the Executive Board, and the Operational Entities,” the Executive Board provides the oversight for CDM, so it is clear that this group has the ability to largely influence CDM implementation. Details such as the accreditation standards for “operational entities” that will be heavily involved with conducting the actual CDM projects, will be discussed at the second meeting of the Executive Board.

Figure 2.2 “CDM Project Flow,” presents the important steps of the creation and validation of project planning documentation, verification of the amount of emissions reduction and sink capacity improvement, as well as certification.

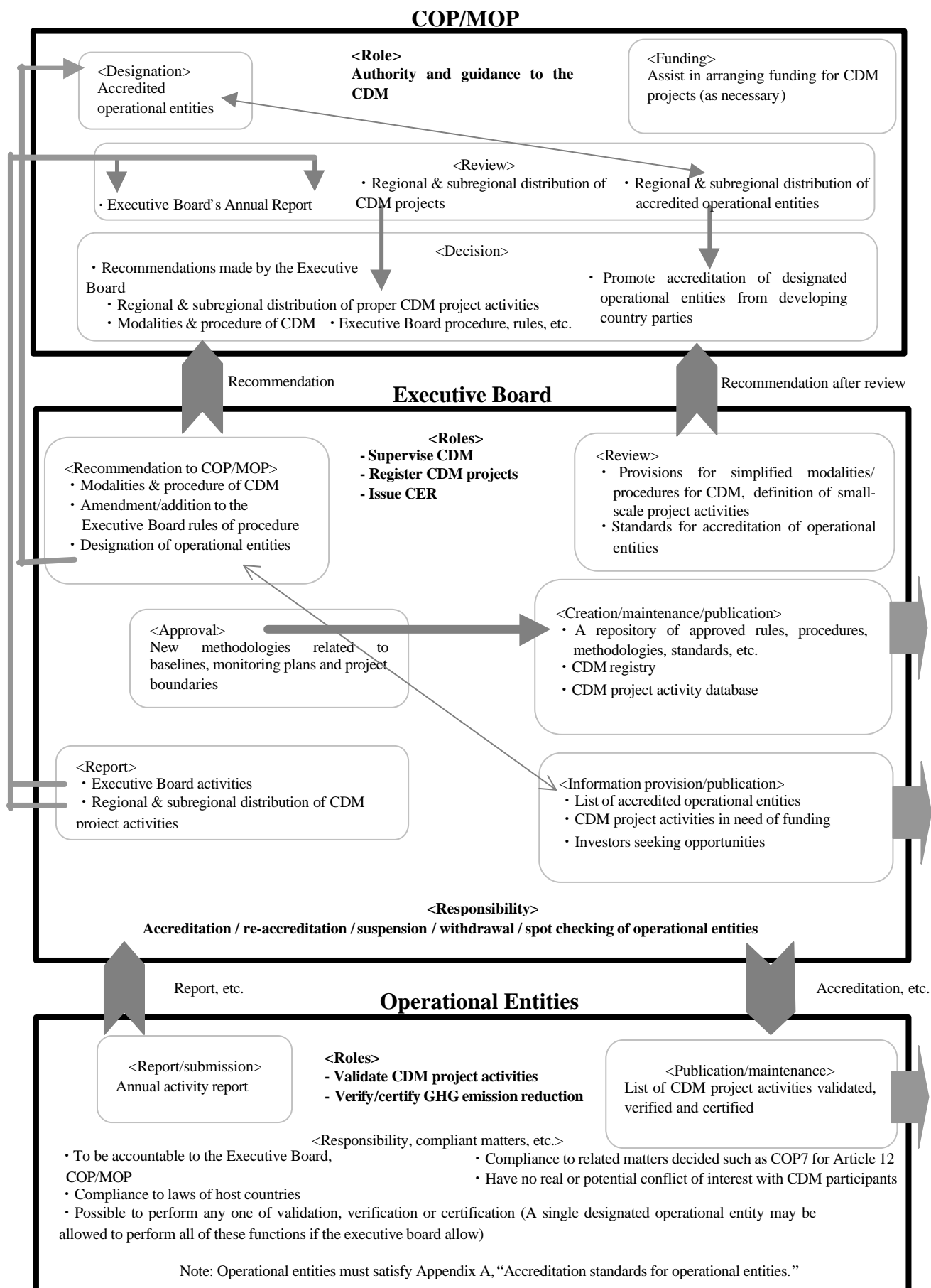
For Figure 2.3, “Estimated Schedule of CDM-related Activities,” if the Certified Emission Reduction (CER) is used for the first commitment period, for projects started prior to the adoption of the COP7 decisions in and after 2000, it is necessary to apply for registration for the relevant CDM project by the end of 2005. This means that for the next 3 years, it will be possible to proceed with project preparation even with portions still undetermined, while simultaneously investigating various pending items in relation to CDM

For the start of CDM, the following main discussions and agreements have yet to be settled.

- Procedural rules for the Executive Board
- Method of accrediting operational entities, provisional designation
- Simplified modality and procedure for small-scale CDM
- Guidelines for baselines and monitoring methods

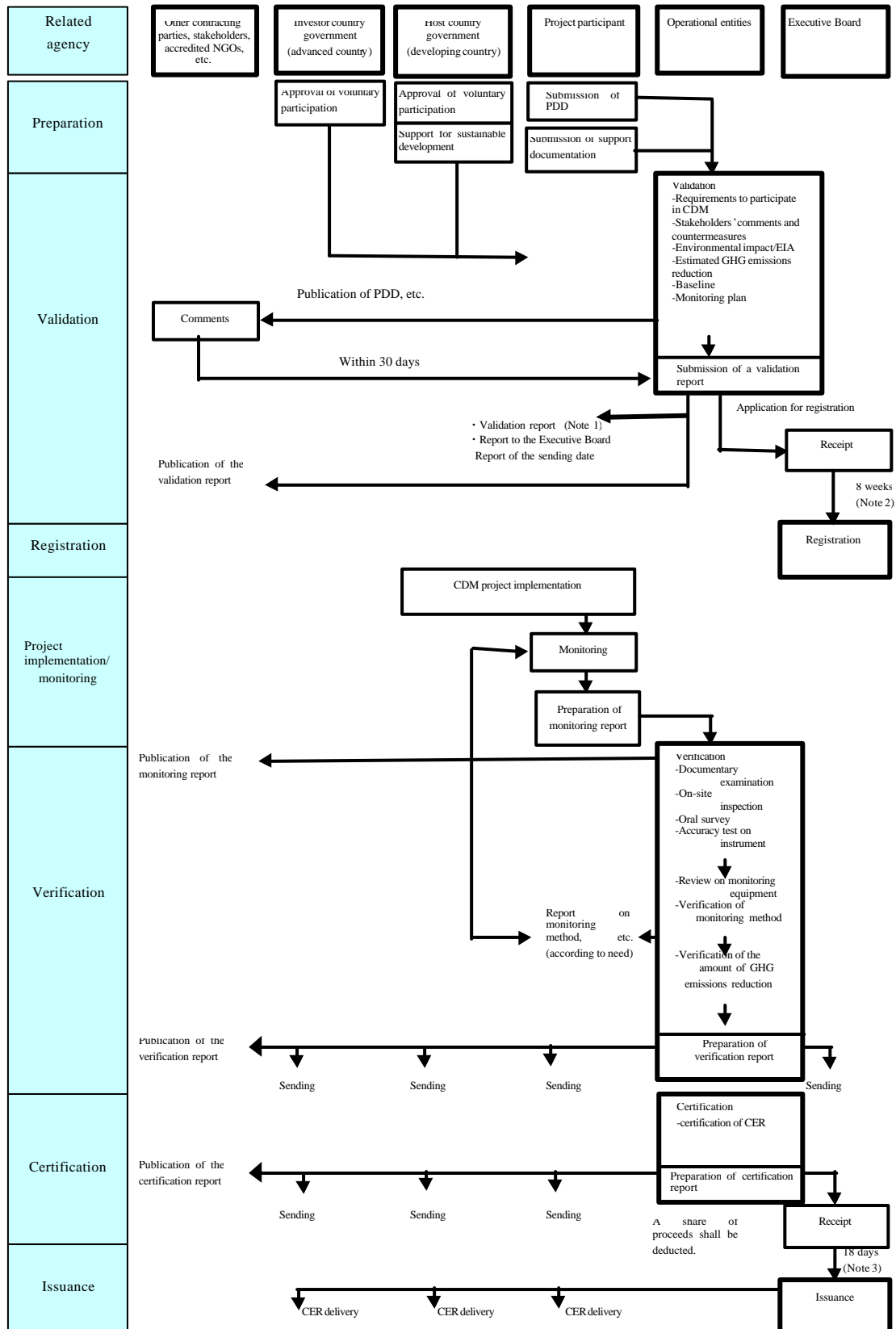
For CDM related to forestation and reforestation projects, since it is necessary for these to be based on the definition and format of the "sinks", which is planned to be adopted at COP9, registration will be possible from about 2004.

Figure 2.1 Roles of COP/MOP, the Executive Board and the Operational Entities



Source: Ministry of the Environment document

Figure 2.2 CDM Project Flow



Note 1: If a project activity in question does not fulfill the requirements for validation, the participant will be informed of its reasons of non-acceptance.

Note 2: When a review is requested (from a contracting party participating in the project or three members of the Executive Board), the Executive Board shall (i) review problems related to issues associated with the validation requirement and (ii) the review shall be finalized no later than at the second meeting following the request for the review, with the decision and the reasons for it being communicated to the project participants and the public.

Note 3: The request for review (from contracting party participating in the project or three members of the Executive Board) is limited to fraud, malfeasance, etc. by designated operational entities. Upon receipt of a request for such a review, the executive board shall (i) at its next meeting, decide on its course of action, (and in case it decides that the request has merit, it shall perform a review and decide whether the proposed issuance of CERs should be approved); (ii) complete its review within 30 days following its decision to perform the review; (iii) inform the project participants of the outcome of the review, and make public its decision regarding the approval of the proposed issuance of CERs and the reasons for it.

Source: Ministry of the Environment document

Figure 2.3 Estimated Schedule of CDM-related Activities

Activity	2000		2001		2002												2003		2004		2005	
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
	COP 6	COP6 v2	COP 7							SB 16			VSSD	COP 8 SB 17			SB 18	COP 9 SB 19	SB 20	COP 10 SB 21	COP 11 SB 22	
International activity																						
<div>Contracting by each country</div> <div>Coming into effect</div>																						
Putting the Protocol into effect/Holding COP/moP (estimated)																						
Related to the Executive Board																						
Convening the Executive Board (E: electronic conference)																						
Preparation of work plan																						
- Preparation of/agreement on procedural rules and recommendation to COP																						
- Accreditation of operational entities/provisional designation																						
- Development of simplified modalities and procedures for small-scale CDM and recommendation to COP																						
- Preparation for recommendation for examination on the development guidelines for baselines and monitoring methods at COP																						
- Validation of form of cooperation with SBSTA in terms of methodology and scientific problems																						
Related to sink CDM																						
Examination on the definition and formats of the sinks, including forestation and reforestation projects provided in Article 12 during the first commitment period																						
• Submission of contracting parties' opinions (until February 1, 2002)																						
• Workshop (before SB16)																						
• Examination at SBSTA, adoption at COP9																						
Related to CDM registration																						
Credits for emissions only after the registration date are approved as effective in principle. However, for projects that have started after 2000 but before the adoption of COP7 decision, the deadline of application for registration shall be at the end of 2005, and credits are retroactively effective from January 1, 2000.																						

Source: Ministry of the Environment document

(2) Noteworthy trends related to the Kyoto Mechanisms

International negotiations surrounding climate change mitigation measures have been progressing at a dizzying pace, with the Buenos Aires Plan of Action from COP4, the breakdown at COP6, the U.S.A.'s announcement of its refusal to ratify the Kyoto Protocol, the Bonn Agreement from the COP6-bis, and COP7. There are some trends related to the Kyoto Mechanisms to which attention should be paid. The points that have a connection to the support of developing countries in connection with climate change mitigation measures are described below.

(i) Carbon credit prices

There was a large drop in the going price for carbon credits following the announcement by the United States that they did not intend to ratify the Kyoto Protocol after COP6. For ERUPT (see below), the procurement tender of carbon credits from GHG emission reduction projects promoted by the Ministry of the Economy of the Netherlands, prior to the U.S.A. seceding, the rate was about USD\$7 ~ 8/ ton of CO₂. After the secession announcement, it was reported that the price had dropped to less than USD\$2 ~ 3/ ton CO₂. The steep drop in the price of the carbon credits testifies to the magnitude of the United States' influence on the carbon emissions market, but it may also decrease the incentive for developing countries to participate in CDM projects, and have a large effect on the actions of private entities with regard to the Kyoto Mechanisms.

(ii) Ambitious activities

The country with the most proactive and advanced utilization of the Kyoto Mechanisms for the purpose of achieving the Kyoto Protocol targets is the Netherlands. Their government has announced that 50% of their first commitment period emission reduction target will be met using domestic measures, and the remaining 50% will be achieved through the use of the Kyoto Mechanisms, such as JI and CDM. The Ministry of the Economic Affairs has jurisdiction over JI (ERUPT), the Ministry of Housing, Spatial Planning and the Environment has jurisdiction over CDM (CERUPT), and the implementation agencies are the responsibility of a government corporation called Senter Internationaal. ERUPT/CERUPT is a framework for the Dutch government to buy carbon credits at a price determined by tenders (bids) from the private entities conducting JI/CDM. Those implementing projects can receive up to 50% of the contracted amount in advance. For defaulting on a contract, there is a requirement to return the advanced funds, with a penalty (repay 150% of the advance amount). The Dutch Ministry of Housing, Spatial Planning and the Environment is cooperating with multinational investment agencies in addition to CERUPT, and is conferring with the World Bank and IFC on establishing new funds to conduct activities similar to the World Bank Prototype Carbon Fund (PCF) that was established through financing from various governments, government agencies, and the private sector, for the purpose of investing in projects that help reduce greenhouse gas emissions, and for emissions credit trading. (December 2001)

The World Bank PCF, which is partially financed by JBIC and private Japanese enterprises, has been conducting a project to recover methane from an ordinary waste landfill in Latvia. The PCF investment, in addition to the other funding, is a form of implementing emissions reductions.

(iii) Use of sinks

The sink projects for CDM and JI incorporate various issues, such as permanence (potential for re-release of sequestered carbon due to damage from disease, insects or fire) and

leakage (for example, in the case of making forested land from land cultivated by slash-and-burn farming, the possibility of carbon release activity from the burnt field being substituted to other lands.) In the Marrakech Accord only afforestation and reforestation are recognized as CDM projects. There is a plan to proceed with a variety of technical discussions at COP9 that are aimed toward adopting a definition and format for the sinks. In this way, although the CDM/JI related to sinks has many undetermined portions, countries such as Indonesia, Thailand, and various countries in South America, are very positive about CDM projects. The JI projects are being conducted in central and Eastern Europe through ERUPT and PCF. Japan actively supports the promotion of sink projects for CDM and JI, and must continue to maintain an understanding and awareness of the international trends on sink projects from ERUPT/CERUPT and PCF.

(3) Importance of the Kyoto Mechanisms for Japan and its utilization strategies

Considering the international activities related to the Kyoto Mechanisms as presented above, what is the significance to Japan of promoting the Kyoto Mechanisms, with the aim of meeting the emissions reduction targets for the first commitment period of the Kyoto Protocol? Some thoughts on this and on the methods of utilization are presented below.

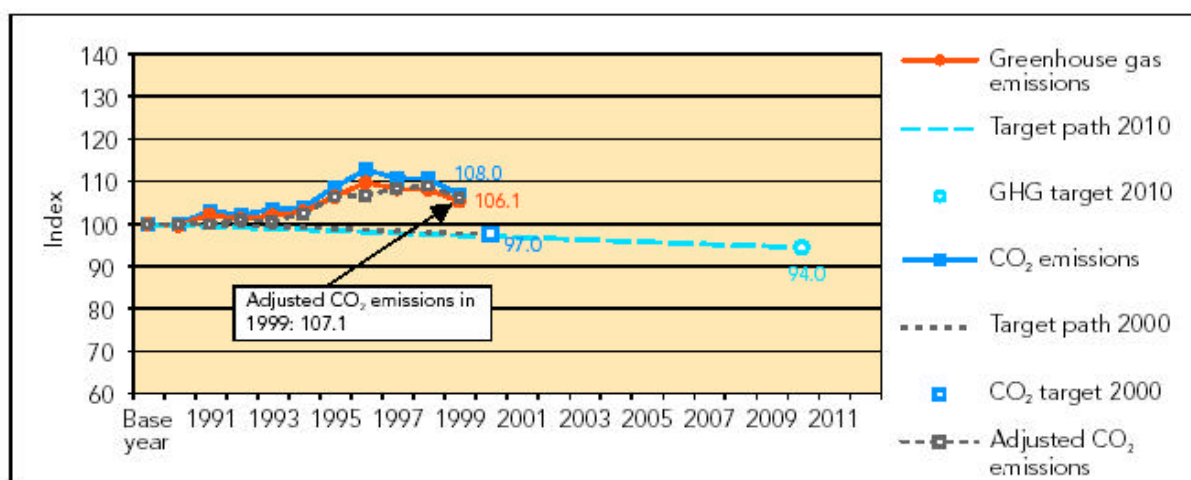
(i) **Importance of the Kyoto Mechanisms to Japan**

GHG emissions in Japan in 1999 were 6.8% higher than they were in 1990. The largest source of these emissions is the industrial sector; but since this sector is a world leader in the use of energy conservation technology, it will be very difficult to achieve further reductions. In recent years, the amount of emissions from the transportation sector and the private sector has increased rapidly. Effective countermeasures for these sectors are considered to be difficult, but it is a problem that is shared by other developed countries. In order to achieve the reduction targets, it is necessary to utilize other options in combination with the domestic efforts.

In March 2002, Japan revised the “Outline for Climate Change Mitigation Measures,” setting forth the basic concepts on the utilization of the Kyoto Mechanisms as well as the immediate measures. Therefore, it is extremely important to define the desirable role of the Kyoto Mechanisms in Japan’s emission reduction efforts, and to make appropriate use of their functions, also called the “flexible mechanisms.”

Among Annex I countries, the Netherlands is a member of the EU bubble, and has an individual reduction target of –6% relative to the 1990 levels; but, in 1999 the emissions were higher by 6% (see figure 2.4), so their situation is considered to be similar to that of Japan. The Netherlands was quick to announce their intent to obtain half of their reduction target outside the country, and developed the previously-mentioned ERUPT and CERUPT mechanisms. They continue to work on means of public funding for reductions outside the country in combination with the domestic efforts.

Figure 2.4 GHG reductions in The Netherlands



Source : European Community and Member States greenhouse gas emission trends 1990–99, Aug. 2001, European Environment Agency

(ii) Strategies for using the Kyoto Mechanisms

It would be best to set up strategies that focus on the timeline, based on estimates of the social and economic trends in Japan and the directions of international negotiations related to the second commitment period. However, the directions of the international negotiations and agreements on the second commitment period, including the points related to the previously-discussed Kyoto Protocol activities, are difficult to forecast at the present time. Therefore, for our Kyoto Mechanism utilization strategy it is necessary to discuss what measures should be implemented in order to flexibly respond to later, uncertain situations, while also investigating the measures to implement quickly in order to meet the first commitment period targets.

The “Outline for Climate Change Mitigation Measures” that was established on March 19, 2002, mentions “support of Kyoto Mechanism activity by private enterprise” as a necessary means of utilizing the Kyoto Mechanisms. For example, in order to use the carbon credits obtained through the Kyoto Mechanisms to meet the first commitment period target, it is crucial to support the activities of private enterprises with public funding and to focus on activities that achieve the targets with certainty. In this case, there should be an evaluation of the cost-effectiveness of the Kyoto Mechanisms from the viewpoint of the most effective use of public funds, and if the reductions through the Kyoto Mechanisms are effective, then these should be utilized to the fullest extent.

However, considering the characteristics of the Kyoto Mechanisms that make it desirable for private enterprise to actively participate, and considering a sound framework for reducing greenhouse gases in Japan, there is a greater need to investigate building a means of utilizing Japan's technical know-how rather than endlessly investing public funds into the Kyoto Mechanisms.

(iii) Characteristics and Issues for Japan on the Kyoto Mechanisms

The characteristics and issues of the three Kyoto Mechanisms from a Japanese perspective are presented below.

Emissions Trading:

For emission trading, the countries with which Japan anticipates making trades are Russia, various countries in central and Eastern Europe, and Australia. Of this group, Russia is expected to be able to sell the greatest amount of emissions credits. However, there are many worrisome points, such as the uncertainty of acquisition due to the systems in Russia, so there is also believed to be a large risk in such transactions. The issue is how to deal with this kind of risk. Furthermore, there are reports that Australia is somewhat against ratification of the Kyoto Protocol, so it is necessary to continue to pay attention to this situation.

JI :

For JI, the host countries are also most probably Russia, various countries in central and Eastern Europe, and Australia, with the same considerations about Russia as for the emissions trading. For the countries in central and Eastern Europe, geographically and historically, the EU countries are the more likely investors. Since there are many cases of AIJ throughout Sweden and the Netherlands, it is possible that the focus will be on cooperation with Europe. Accordingly, if Japan wishes to proceed with JI with these countries, it will be necessary to create incentives that will be attractive to countries in central and Eastern Europe. For Australia, the focus is likely to be on afforestation and reforestation projects, but there are some difficulties with actively promoting many such projects, since the handling of sinks is currently not determined.

CDM :

For CDM, since the host country is a developing country, Japan is already involved in many cooperative efforts. In particular, a great deal of data, etc. has been accumulated on developing countries in Asia. CDM-related activities are already being conducted through Japanese governmental organizations, including the energy conservation model project of the New Energy and Industrial Technology Development Organization (NEDO).

However, since the technical and organizational capacity in the host countries is inadequate in comparison to the JI partner countries, in order to implement projects it is necessary to simultaneously address the technical, organizational, and systemic issues. The inadequate information and understanding of CDM in the related agencies of the governments in the developing countries responsible for CDM are also big issues. It is also required to provide appropriate information and ensure that there is widespread understanding.

In light of these characteristics and issues, it is necessary to gain an understanding of the advantages and disadvantages of utilizing these mechanisms and to proceed appropriately.

3. Support Measures to Promote CDM Utilization

Considering the fact that the majority of JICA activities target developing countries, here the discussion focuses on the proceeding with appropriate activity for CDM as part of the Kyoto Mechanisms conducted with the developing countries as host countries.

The examples presented here are ideas discussed by this Coordination Committee.

(1) Problems with the CDM framework

For a discussion of the advancement of appropriate CDM activities, there must first be a framework for the CDM. As shown below, it is necessary to gain an understanding of the problems with the CDM framework itself.

(i) Technical, organizational and institutional capability for developing countries

For CDM, it is necessary for monitoring to be performed in accordance with the monitoring plan determined in the project design documents, including acquiring data periodically, recording it and archiving it. The verification through the operational entities (OE) is performed mainly based on this data, so it is crucial that the monitoring methodology be appropriate, and that the data acquisition, recording and archive are conducted by persons implementing the project who meet a substantial level of technical and operational ability for monitoring. For CDM the project design documents are created through collaboration between both the investor participants and the host participants, but it is assumed that monitoring will mainly be the issue for the host participants. To train a technical staff with a given level of ability for a site, such as a factory, it is not necessarily sufficient to rely on the voluntary methods of each operator, as was made clear with the introduction of the pollution control manager system for industrial pollution prevention in Japan; national measures are required. Further, for setting baselines and creating the project design documents, it is desirable for the statistical data related to GHG emissions and sequestration, such as fossil fuel consumption and land use, to be prepared at the national or regional government level with a high degree of reliability.

However, based on past experience with technical cooperation, in many developing countries, the technical, organizational and institutional abilities to prepare national data are considered to still be weak. It is clear that there is a need to improve the data preparation conditions and reliability. With regard to the development of technical personnel above a certain level too, there are few countries that are actually working on this on a national level. On this point, the countries with economies in transition in central and Eastern Europe that can be JI partners, are better prepared than the developing countries, so JI ranks higher than CDM.

In addition, for developing countries, the advancement of climate change mitigation measures, including CDM is not a high priority among the issues for national development. In some cases there is inadequate information or understanding about CDM, not only in the government agencies that should be handling CDM, but also the departments responsible for the environment.

(ii) Priority of CDM

Initially, it was pointed out that for CDM there is little competition in comparison to JI, due to an obligation to contribute a portion of the benefits (a share of proceeds) to an adaptation fund, and the large transaction costs. As a result of the secession of the United States from the Kyoto Protocol, there has been a large reduction in the total quantity of carbon credits required by developed countries. If JI and emission trading are actively conducted between Annex I countries, this may lower the priority of CDM.

(iii) Equality among regions

Both public and private entities can participate in CDM, and CDM is expected to be implemented mainly led by the private sector. CDM projects that have superior cost-performance for private entities have a high probability of being implemented, but among the countries and regions in which implementation is possible, there is an unequal distribution of projects that can provide such results and provide a lot of carbon credits. For example, it is likely that the absolute quantity of carbon credits that can be obtained is small in certain countries, such as some countries in Africa and some island nations. If there is an unequitable distribution of CDM projects, it is possible that these countries will demand ways to ensure equitable distribution. The Executive Board will submit a report to COP/MOP on equality between regions, and COP/MOP will issue appropriate decisions; but if equitable distribution is not maintained, practical measures for addressing the imbalance will become an issue.

(2) Role that should be filled by public funds for CDM

Having gained an understanding of the problems with the CDM framework, this section looks at the effective use of public funds to promote appropriate CDM activities.

(i) Removal of barriers to CDM project implementation in developing countries

It will be difficult for private entities alone to handle the removal of the barriers caused by the weak technical, organization and institutional capacity in developing countries. Accordingly, it is desirable to deal with this in some way through public funding. Doing so will contribute to capacity building in the developing country itself while also removing the barriers to conducting the CDM projects.

In addition, an indispensable requirement for CDM project implementation is that both the investor participants and the host participants have the latest information and accurate understanding on CDM. However, the priority on the climate change problem is currently considered to be low in developing countries, and the information provided by the government agencies responsible for climate change problems to the CDM implementing agencies like the Ministry of Industry and Ministry of Forestry is inadequate. This problem is primarily a domestic issue for the developing country, but from the perspective of smoothly running CDM projects, it is an urgent issue to ensure the proper provision, distribution and understanding of information for the agencies handling CDM as well as the ministries and offices implementing CDM. Measures to ensure this are also difficult for private entities to implement alone.

(ii) Support of CDM projects conducted by private enterprise

In the short term, there is the opinion that there will be few CDM projects conducted by private entities. It is expected that public funding will be used, but if the original purpose of CDM is considered, it will be necessary to consider ways of obtaining greater participation by private entities. Accordingly, there is a need to promote public funding for support that enables CDM projects to be smoothly implemented by private entities.

(iii) CDM project implementation with public funds

JI and emissions credit trading will start in 2008, but CDM projects allow carbon credit to be acquired retroactively to 2000, so it is practical to start with CDM. However, the framework in Japan to support CDM project implementation by private entities is under consideration, and it is also said that for the present, the number of CDM projects conducted by private entities will be small. Therefore, implementation of CDM projects through public funding for the first commitment period should not only be considered from the perspective of earning carbon credits. It will also be effective to accumulate know-how and experience on CDM project implementation, and contribute to the preparation of an environment to facilitate CDM projects conducted by private entities .

(iv) Ensuring equitable distribution of CDM projects between countries and regions

The Executive Board will submit a report to COP/MOP on the equitable geographic distribution of CDM projects, and COP/MOP will issue appropriate decisions. However, if there are few opportunities to implement CDM projects in certain areas, such as Africa or island nations, it is possible that there will be a call for developed countries to take on the responsibility of making some kind of contribution towards ensuring the equitable geographical distribution of CDM projects.(The preface to COP 7 Decision 17/CP.7 contains the statement “Bearing in mind the need to promote the equitable geographic distribution of CDM project activities at regional and sub-regional levels”). As one means of addressing this, there could be contributions to a fund for implementing CDM projects in the applicable countries. Alternatively, CDM projects could be conducted in the applicable countries with public funding from Japan, at the request of developing countries. In this case it would be possible to consider this to be a use of public money for the purpose of protecting the CDM principle of making a contribution to the attainment of sustainable development in developing countries.

(3) Implementation options of CDM using public funds

In order to meet the first commitment period targets of the Kyoto Protocol under the existing time constraints, the following options are available, including devising a means of spending public funds to obtain carbon credits.

(i) **Direct CDM project implementation with public funds**

This has the advantage of making it possible to quickly use public funds to obtain carbon credit through the government with certainty.

(ii) **Directly obtaining carbon credits with public funds**

This means using public funds to build a framework like ERUPT/CERUPT or PCF, implementing CDM projects with the participation of private entities, and obtaining the carbon credits. By using public organizations that already have experience conducting projects that can become related to climate change mitigation measures, such as JICA, NEDO, and the Japan Bank for International Cooperation (JBIC), it is expected that CDM projects will be conducted smoothly. However, it is necessary to have some kind of incentive to encourage the participation of private entities.

(iii) **Support of CDM projects by private entities using public funds**

Use public funds to supplement the activities of private financial institutions, and directly support CDM projects by private entities through measures such as low-interest loans and tax concessions. Alternatively, support the CDM projects by private enterprise indirectly by conducting training on CDM-related technology and institutions for the private sector in the developing country that has accepted the CDM project, conducting survey studies on CDM implemented by other developed countries like the Netherlands and Germany (CDM feasibility study, etc.), or acting as a go-between for negotiations with the relevant agencies of the host country government. However, there still needs to be some kind of incentive for private enterprises to implement CDM projects.

It would be good to start an investigation right away on the options that have the highest necessity, and to consider effective and appropriate combinations of these options in order to meet the targets. The provision, distribution and promotion of the comprehension of information by the relevant agencies of the host country government, as well as technology transfers and capacity building are indispensable activities that form the foundation for implementing all of these options. So these should be started as soon as possible using public funds.

(4) Potential for ODA utilization for CDM

Next, we will investigate the potential for utilization of ODA, which has a deep connection with the support of developing countries, and is covered by public funds.

With regard to ODA utilization for CDM projects, there is a limitation based on the Marrakech Accord stating that “there must not be diversion for ODA.” Nevertheless, Japan’s ODA contribution is at the highest level in the world. Contributing to the sustainable development in developing countries through capacity building and technology transfers is an area of expertise for Japan. Furthermore, there are already many projects underway that have the same GHG reduction effect as CDM projects, including the global environmental Grant and the special yen loan terms for projects aimed at addressing sources of climate change for the Kyoto Initiative. It is necessary to consider the essential results as climate change mitigation measures for developing countries. Among climate change mitigation measure projects like the Kyoto Initiative, for the implementation of CDM projects through ODA, the question of whether it qualifies as CDM is at the mercy of future international discussions, such as COP. Nevertheless, it is a fact that the projects conducted through ODA have an effect as climate change mitigation measures, so it is necessary to emphasize this point. Improving the technical, organizational and institutional capabilities of developing countries with regard to CDM, building an adequate framework to support private entities, as well as implementing global countermeasures in developing countries all must be dealt with over the long term. For this reason, making use of ODA to contribute to sustainable development and supporting the effective implementation of CDM projects is advantageous to both Japan and the developing countries involved.

Therefore, with regard to the use of ODA for CDM, since both Japan and the developing country attain benefits, it is a win-win situation, and there is a need to develop methods of advancing the utilization of ODA that has ancillary benefits. For the provision, distribution and promotion of understanding of information as well as technology transfers and capacity building, this may be a method of utilizing ODA that will be internationally recognized.

Current possible expected uses of ODA for CDM are mentioned below.

(i) Information provision, distribution and promotion of understanding

As described in section (2) (i) “Removal of barriers to CDM project implementation in developing countries,” the first problem to face when conducting CDM projects is the inadequacy of the information and understanding of the developing country governments. From the perspective of being able to smoothly carry out CDM projects, holding CDM workshops and seminars for the CDM receiving agencies as well as the CDM implementing agencies in developing countries using the existing technology cooperation schemes can be one worthwhile JICA program at the present time.

Activities to deepen the understanding of the importance of CDM among stakeholders in the developing country other than the government agencies of the host nation, such as local people and NGOs, are also a piece of the foundation for advancing CDM projects in partnership with the developing country. For the activities to provide and distribute information to these other stakeholders as well, it is necessary to discuss the use of ODA for the purpose of “supporting the attainment of sustainable development.”

(ii) Support for preparation of climate change mitigation measures infrastructure in developing countries

As mentioned previously, in many instances the infrastructure for implementing climate change mitigation measures in the developing countries that are the host countries for

CDM are inadequate, including technical, organizational and institutional capabilities, preparation of a GHG inventory, and the personnel and facilities for conducting monitoring. Support to resolve these problems is performed using existing ODA programs such as grants, and technical cooperation. In this way, it is possible to prepare the foundation of facilities and personnel to handle CDM projects, and improve the climate change mitigation measure capabilities of the developing country itself. JICA has been conducting cooperative programs with government bases for some time. By extending from this, it is possible to make the most effective use of the wealth of accumulated results and know-how.

Some specific examples of support measures are listed below.

- Technology transfer and personnel training:

When conducting climate change mitigation measures in a developing country, the first obstacles are the lack of prepared data and the insufficient personnel and technology. In particular for a CDM project, it is necessary to clarify the amount of GHG reduction and sequestration enhancement that will be obtained through the project, and conduct precise monitoring throughout the progress of the project. For this reason, the most important and urgent issues are the preparation of the data related to GHG emissions and sequestration for the corresponding developing countries, and the technology transfers and personnel development for monitoring the GHG emissions and absorption.

At the same time, it is necessary to support the development of the statistical systems and databases to appropriately process, manage, and use the collected data. It is also thought to be worthwhile to collect information related to CDM and set up a clearinghouse to promote the public use of this information both inside and outside the country.

In addition, in order to transfer the know-how on establishing strategies to advance climate change mitigation measures to the host country for the CDM project, it will be effective to conduct CDM strategy-setting investigations in collaboration with the developing country.

With regard to the implementation of the projects themselves, it will be possible to carry out CDM projects smoothly by training personnel through technology transfers along with a suitable combination of training both at home and abroad with experienced instructors from Japan, focusing on the relevant technologies needed for the main CDM projects, such as energy conservation, renewable energy, and afforestation.

- Support of organizational and institutional preparation:

For developing countries, the preparation of the organization and institutional foundation for receiving CDM is as important an issue as technology transfer and personnel training. Specifically, the primary need is to support the establishment of organizations that have the responsibility to prepare the inventories, implement monitoring and manage CDM projects that encompass a wide range of fields. In addition to the organizations responsible for CDM, it is necessary to prepare the organizational and institutional foundations for the implementing agencies, such as the Ministry of Industry and Ministry of Forestry, and to build an effective coordination system between these organizations.

There is also a need to prepare the legal system for CDM. A legal system on how to handle the carbon credits on the developing country's side that are generated by the CDM project is important to both the investor participants and the host participants. Further, the legal system related to land use rights in connection with afforestation and reforestation will also have a major impact.

The promotion by the developing country of the operational entities (OE) given the role of validating the project design documents for the CDM project activities, and verifying and certifying the GHG emissions reduction amounts and sequestration enhancement, is an

important issue that was also recognized at COP7. We are now at the stage of accrediting the OE, but the issues and problems associated with establishing an OE have not yet been clarified. For developing countries, many of whom have inadequacies in personnel, organization and systems, the development of highly-reliable OE is likely to be difficult in many ways. However, the establishment of OE by a developing country is one step in achieving sustainable climate change mitigation measures for the developing country, and is indispensable for the proper implementation of the CDM projects. When the governments of developing countries undertake the establishment and development of OE, it is necessary to discuss support using ODA, such as support for organizational and institutional development.

From the above, it can be claimed that supporting the development of the infrastructure of the developing country reduces the risks and barriers arising from the host country for the implementation of CDM projects by Japanese private entities.

(iii) Private entities activity support

Besides the items discussed above, another example of support for CDM project activities by Japanese private entities could be training on CDM-related technology and institutions for the private sector in the developing country receiving the CDM project. In this case, by sending Japanese specialists as instructors to conduct the training on-site, this also creates an opportunity for these specialists to gain a better understanding of the situation in the developing country. In the same way, it is necessary to open the training by Japan for the technical staff in developing countries, and have Japanese technical personnel participate as well, including people from private entities. This will provide a means for greater interaction with the technical personnel in developing countries, helping to lay the foundations of developing CDM specialists in both the developing countries and Japan.

Activity support targeting Japanese private enterprises is expected to be an effective use of Japanese technical cooperation organizations, which have accumulated a wealth of experience and know-how through cooperation with the private sector in developing countries.

Of the CDM-related data that is obtained for preparing the foundations for climate change mitigation measures, it would be beneficial for the material that can be publicly released to be made widely accessible through media like the Internet, using the administrative offices of the public agencies in the developing countries.

(iv) Main activity for CDM project implementation

Considering the long range trends both domestically and internationally, including the potential of domestic measures to prevent climate change in Japan and increasing GHG emissions from developing countries, it is recommended for public agencies that will handle the main implementation of CDM projects to investigate ways of effectively using ODA, rather than methods that will be subject to international criticism.

(v) Linkage between various types of support

- Unification of developing country development strategies and climate change mitigation measures /CDM

Climate change mitigation measures have a low priority in developing countries at the current stage. Even with CDM, unless the benefits for the developing country are large, it is unlikely that such efforts will attain a higher priority than economic development and efforts to combat poverty.

Therefore, it is necessary to devise ways of creating linkages between current support programs and climate change mitigation measures, such as GHG reduction as an ancillary benefit for economic development and poverty alleviation. In such a case it is important to also conduct capacity building to develop the foundation for climate change mitigation measures for the developing country. In this way, by shifting the existing support projects toward incorporating climate change mitigation measures, this will enable climate change mitigation measures that can be accepted by the developing countries. This method is already being attempted by Germany. By gradually merging climate change mitigation measure activities into the existing mainstream of support to developing countries, it is possible to advance the merging of the development strategies for developing countries, with climate change mitigation measures and CDM. Since climate change mitigation measures and CDM projects are intended to contribute to sustainable development, this means that there can be an even greater contribution through the merging of climate change mitigation measures and CDM into existing development support programs that have always aimed at supporting sustainable development.

- Importance of linkage

In order to advance both the acquisition of carbon credits and the effective support to developing countries from a variety of perspectives, such as cost-performance, and effective use of personnel and existing systems, it is recommended that separate measures be linked to achieve optimization. For the various agencies related to ODA, regardless of whether the mechanism is supported to develop infrastructure, providing and disseminating the necessary information, support of private enterprise,s or acting as a principle for implementation, these efforts will span a broad range of fields. Accordingly, in addition to appropriately coordinating these 4 roles, it is extremely important to proceed with ways to attain organic linkages with other related agencies.

(5) Potential for cooperation between related domestic organizations

In Japan there are a variety of studies on CDM projects being conducted by public agencies and private enterprise. With regard to public agencies, the New Energy and Industrial Technology Development Organization (NEDO) and Japan External Trade Organization (JETRO) are conducting CDM feasibility surveys.

The largest number of CDM feasibility surveys are being implemented in the field of energy industry, and an investigation is being made of the possibility of collaboration among various agencies connected to domestic climate change mitigation measures.

(i) Domestic public organizations related to energy industry CDM

The main public agencies connected to CDM for the energy industry field are NEDO, JETRO, JBIC, and JICA. The characteristic activities of each of these agencies as related to CDM are presented below.

- NEDO

NEDO has results from projects on energy conservation models for iron works and oil refineries in developing countries in the Asia-Pacific region. Five of these projects are being conducted as Activities Implemented Jointly (AIJ), and are the only results that have been reported by Japan to the United Nations Framework Convention on Climate Change secretariat.

In addition, various other energy conservation projects are being conducted in developing countries. Since these projects are funded through public funds, there is a potential to establish them as CDM projects. Furthermore, since 1998, feasibility studies on CDM/JI projects have been underway as basic surveys on joint implementation and advancement. There are also results from conducting baseline research sessions, so this group has knowledge regarding the concepts of establishing baselines.

- JETRO

JETRO is the core of operations on trade promotion and trade negotiations, and is proceeding with projects such as developing grass-roots industries in developing countries, promoting industrial collaboration with developed nations, supporting regional economic vitalization, and promoting international negotiations. JETRO has offices overseas, including some in developing countries, and is building a global network. Furthermore, they have the largest regional research agency in Japan, the Institute of Developing Economies, and are conducting research on social and economic trends in various countries in the Asia-Pacific region. Work is being done with regard to climate change mitigation measures, including global environment / plant activation studies, and seminars/training sessions on energy conservation technology in developing countries through GAP.

- JBIC

JBIC conducts international financial operations, such as import and export loans, and investment funding, through yen loans, overseas investment loans, and OOF (other official funds). As a result of the Kyoto Initiative, they are providing support for climate change mitigation measures by applying concessionary, highly-favorable interest rates as “Special Environmental Project Loans” for anti-pollution measures and projects that contribute to countermeasures to global environmental problems. JBIC has also contributed to the World Bank Prototype Carbon Fund (PCF).

- JICA

JICA implements free-funding cooperation and technical cooperation through ODA for the purpose of nation-building in developing countries in order to support the attainment of sustainable development for the developing country. In addition to possessing offices in 51 developing countries and 5 developed countries, they dispatch specialists and youth volunteers, and have a superior understanding of the needs related to the support of developing countries and the collection of data on development policies of the governments in developing countries. As operations to contribute to climate change mitigation measures for the Kyoto Initiative, they have trained about 4,600 people over a 3 year period since 1998, and are supporting capacity building in developing countries. In addition, they have implemented many programs, including the dispatch of specialists in fields related to climate change mitigation measures, such as energy conservation and afforestation, and conducting training and seminars.

There is expected to be cooperation that takes advantage of the various characteristics of each of the organizations associated with climate change mitigation measures, starting with the agencies above. It is recommended that the three options indicated in section (3) “CDM options using public funds” be effectively implemented in parallel with the infrastructure development such as technology transfers and capacity building.

(6) Future issues

The future issues are as follows:

- (i) In order to establish cooperation guidelines for implementing CDM, making use of the combined strength of the various organizations, it is necessary to quickly investigate concrete policies to effectively coordinate the areas that can be supported by the various agencies.
- (ii) For the implementation of CDM, it is necessary to clarify the areas that will be difficult to handle and the areas that can be addressed by each of the organizations. In order to effectively utilize public funds to achieve Japan's emissions reduction targets, it is important to investigate the cost-effectiveness of acquiring carbon credits through CDM projects, based on the examples from other developed countries.

