Capacity Building for the Implementation of the EU Emissions Trading Directive in New EU Member States (EU Ref.no ENV.C.2/SER/2004/0071)

Manual Nº 4 on CDM & JI projects

January 2006

"To protect the global climate through European Actions"

Capacity Building on EU Emissions Trading Directive in New Member States

This manual has been prepared in the framework of the project:

Capacity Building for the Implementation of the EU Emissions Trading Directive in new EU Member states (EU Ref. No ENV.C.2/SER/2004/0071)

The project's objectives have been defined as to "improve the capacity of relevant competent authorities to fulfil the requirements of the Emission Trading Directive and its supporting legislation" and "to improve the knowledge and awareness of the requirements of the Emissions Trading Directive among operators of installations and other stakeholders".

This Manual No.4 – CDM & JI projects – is mainly addressed to operators and stakeholders under the European Union Emissions Trading Scheme with information on the CDM and JI Mechanisms of the Kyoto Protocol and is supplemented by three other manuals:

- Manual No. 1 - Guide to Monitoring and Reporting (mainly addressed to operators);
- Manual No. 2: Guide on Verification (mainly addressed to verifiers);
- Manual No. 3: Guide on Accreditation (mainly addressed to competent authorities).

All manuals are used as background material for workshops te be held in the new EU Member States from October to December 2005.

It should be expressively noted that this manual is meant as an instrument to support the operators and other stakeholder with information on the CDM and JI Mechanisms of the Kyoto Protocol. However, there might be country specific circumstances which are not covered by this manual. In any case national laws, characteristics and experiences have be to considered and are always prevalent.

Disclaimer:

This manual is not an official EU-publication but has been developed as background information in the framework of the project 'Capacity Building for the Implementation of the EU Emissions Trading Directive in New EU Member States' (EU Ref.no ENV.C.2/SER/2004/0071).

Because of the rapid developments in the field of CDM and JI projects it is possible that information in the manual is not up to date. The manual is drafted with great care and precaution, nevertheless the accuracy of the information cannot be guaranteed. Readers should, where possible, verify the information (with local governments) before acting on it.

Preface

The purpose of this manual is to provide stakeholders under the European Union Emissions Trading Scheme with information on the CDM and JI Mechanisms of the Kyoto Protocol. The manual was drafted under the framework of the project 'Capacity building on the EU ETS in the New Member States'. Therefore this document does not have the status of an official EU-publication.

This is manual number four in a series of four manuals produced in the framework of the project, the other Manuals are:

- Manual No.1 - Guide to Monitoring and Reporting (mainly addressed to operators);
- Manual No. 2: Guide on Verification (mainly addressed to verifiers);
- Manual No. 3: Guide on Accreditation (mainly addressed to competent authorities).

It is possible to download the manuals and workshop reports on the projects' website www.euets.net.

There are very rapid developments in the field of CDM and JI-projects. The last year the Kyoto Protocol entered into force, making the treaty legally binding and on 1 January 2005 the EU ETS took off, marking the turbulent start of the world largest market in carbon credits. This manual was drafted in December 2005, and is an accurate description of the situation at that time. Because of the rapid developments in this field the information can be out-dated or incomplete.

The first chapter is on international climate policies, it sets the framework against which the current developments are having place. The last part of chapter 2 and the whole of chapter 3 focus on the European situation. The chapters 5 and 6 are take a close look on the CDM and JI projects. The last chapter gives an insight in the development of the European carbon market.

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1. Kyoto Protocol

The Kyoto Protocol is an international treaty on climate change. It is actually an amendment to the United Nations Framework Convention on Climate Change (UNFCCC). The main objective of the UNFCCC is the 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'[1].

Milestones in the global climate policy so far are:

- Establishment of the UNFCCC (1992);
- Agreement on the text of the Kyoto Protocol (1997);
- Adoption of legal documents of operational rules of the Kyoto Protocol, called the Marrakech Accords (2001);
- Entry into force of the Kyoto Protocol, making the agreed emission reductions legally binding (16 February 2005).

Annex I Parties means those listed in Annex I of the UNFCCC. (for a full list see Annex 1 of this manual) They are developed countries including Economies in Transitions, e.g. Russia and Eastern Europe. These countries have committed themselves to reduce their emissions of Greenhouse Gases (GHG). GHGs defined by the Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons HFCs, perfluorocarbon PFCs, and sulphur hexafluoride SF_6.

1.1 Emission Cap

Reduction are agreed upon as a percentile of the emissions of a certain year (mostly 1990-level). The Kyoto Protocol covers the five year period from 2008 to 2012, the so called first-commitment period. During these five years the countries which have ratified the Protocol have agreed to put a cap on their GHG emissions. This cap was negotiated during the drafting of the Protocol. On a yearly basis the GHG emissions of a Party during 2008-2012 can be seen as: $\text{emission}_{2008\text{-}2012} = \text{emission}_{1990} - \text{political target}$.

Each Party annually receives emission rights, equal to their emission cap for 2008-2012. These initial allocations are called 'Assigned Amount Units' (AAUs). In order to cover the GHGs emission at the end of each year each Party must surrender AAUs equal to their GHGs emission to the UNFCCC.

Countries under the Kyoto Protocol are obliged to annually submit a national inventory of their greenhouse gas emissions, in accordance with the UNFCCC. In this inventory, the political target is converted to a measurable amount: tons CO_2-equivalent [tCO_2-eq]. This unit is based on the Global Warming Potential (GWP) of 1 ton of CO_2. The other five GHGs under the Protocol are converted to tCO_2-eq, by multiplying their amount by an agreed factor[2]. The sum of the six emitted GHGs is total GHG emission of a certain country.

[1] Article 2 UNFCCC.
[2] IPCC Third Assessment Report, 2001.

The parties of the Kyoto Protocol must reduce their GHG emissions by domestically measures[3]. Therefore they must devise, publish and implement national programmes for limiting or reducing their anthropogenic GHG emissions by sources (sectors). In these programmes reductions are commonly realised by sector (e.g. total GHG emission reduction = industry + traffic + households + waste management).

If the total reduction accomplished by these measures is smaller then the reduction agreed upon in the Kyoto Protocol, the AAUs do not cover the Party's GHGs emissions. In this scenario there is need for additional reduction, a Party can establish this by the use of the so-called 'flexible mechanisms'

1.2 The Kyoto (Flexible) Mechanisms

The Protocol introduces three market mechanisms, the so-called Kyoto Mechanisms. By using these mechanisms, Annex I Parties can achieve their emission reduction targets in a cost-effective and economically efficient manner.

One Kyoto unit is equal to one ton CO_2 equivalent. There are four categories of Kyoto units defined by source of emissions: AAU (Assigned Amount Unit, the initial allocation), RMU (Removal Unit, a unit issued for the amount generated from domestic sinks activities), CER (Certified Emission Reduction, a unit arising from the Clean Development Mechanism), and ERU (Emission Reduction Unit, a unit generated through joint implementation).

GHG emission cap of an Annex I Party at the end of the 1st commitment period is as follows.

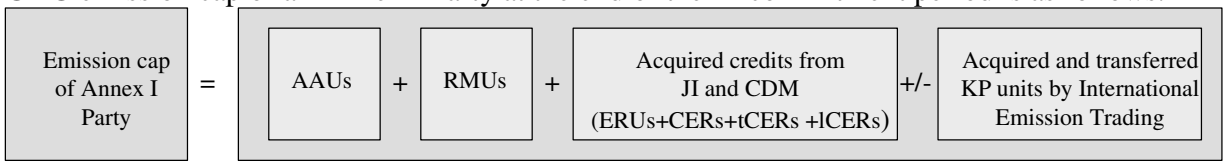


*Figure 1. Kyoto Units which **in theory** can be surrendered to cover GHG emission (Source: Japan, 2005). For the Situation under the EU ETS see3.1.*

International Emissions Trading

International Emission Trading (IET) defined in Article 17 of the Protocol provides for a stock-exchange for emission rights. The greenhouse gas emissions quotas and reduction amounts are treated as Kyoto units for trading among companies and countries.

Clean Development Mechanism (CDM)

The clean development mechanism (CDM) defined in Article 12 provides for Annex I Parties to implement project activities that reduce emissions in non-Annex I Parties, in return for certified emission reductions (CERs). The CERs generated by such project activities can be used by Annex I Parties to help meet their emissions targets under the Kyoto Protocol. Article 12 also stresses that such project activities are to assist the developing country host Parties in achieving sustainable development and in contributing to the ultimate objective of the Convention.

[3] Parties under the Kyoto Protocol are obliged to realise 50% of the reductions domestically. The other 50% can be acquired by the use of three 'flexible mechanisms' but must be additional.

Joint Implementation (JI)
Joint implementation (JI) under Article 6 of the Kyoto Protocol provides for Annex I Parties to implement projects that reduce emissions, or remove carbon from the atmosphere, in other Annex I Parties, in return for emission reduction units (ERUs). The ERUs generated by JI projects can be used by Annex I Parties towards meeting their emissions targets under the Protocol.

Most JI projects are taking place in the Annex I Parties with economies in transition in Eastern Europe.

2. International Emissions Trading

The Kyoto Protocol foresees in a market mechanism to enable Parties to the Protocol and Private firms to meet their emission targets. This system is based on the selling or buying of emission allowances. One emission allowance is defined as the equivalent of 1 ton CO_2. The ultimate goal of the UNFCCC is to have a global carbon market where all the Parties to the Protocol can trade their emission allowances. This should lead to cost effective reduction in the GHG emissions.

2.1 Regional Carbon Markets[4]

There are four active markets for GHG allowances as of May 2005: the EU ETS, the UK Emissions Trading System, the New South Wales trading system and the Chicago Climate Exchange. Volumes exchanged on these allowance markets has increased dramatically compared with last year, and is now comparable to the volumes exchanged through project based transactions. Cumulative volume exchanged on these four markets from January 2004 to March 2005 is about 56 $MtCO_2eq$.

Of the four allowance markets listed above, the EU ETS is the largest, with an estimated 39 $MtCO_2eq$ exchanged since January 2004, the bulk of which was transacted since January 2005.

2.2 National Registries

The carbon transactions are to have place in the UNFCCC International Transaction Log (ITL). This is a on-line registry which foresees in the transfer of allowances from the selling party to the buying party. At the moment it is expected that this registry will be on-line in the beginning of 2007[5].

The developed countries are required to establish a National Registry (NR) for the emission allowances. These National Registries can be seen as a bank-account which holds the amount of emission allowances of a Party (read in this section Party or private firm). In order to make trade possible the Registries are connected to the UNFCCC ITL. In the registries data on transfers of Kyoto units among nations as well as domestic transfers are recorded.

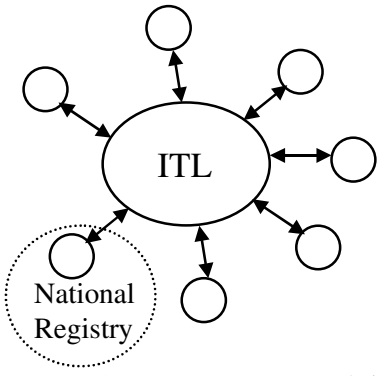


Figure 2. Representation of the connection of the National Registries with the UNFCCC International Transaction Log.

[4] Lecocg, F. and K. Capoor, 2005.
[5] UK Department for Food and Rural Affairs, 2005.

A Party sets up its own account in its NR. The Party manages its own allowances, and when it trades units with another Party, it can transfer units from its own account to the other party's account in the registry system. If the trade is domestically, the transfer takes place inside the NR, if the transfer is with a foreign Party the transfer has place via the ITL.

3. European Union Emissions Trading Scheme

The European Parliament adopted on 13 October 2003 directive 2003/87/EC, which establishes a scheme for greenhouse gas emission allowance trading within the European Community (EU ETS). Member states have to transpose this directive in national legislation. In this trading scheme only countries from within the EU can participate.

The Directive requires Governments to limit the total carbon dioxide emissions from national installations covered by the Scheme and to allocate allowances (known as European Union Allowances or EUAs) equal to this cap to the operators of individual installations. These EUAs are converted from AAUs from the Kyoto Protocol and are equal to 1 ton CO_2eq.

The EU ETS commenced on 1 January 2005. The first phase runs from 2005-2007 and the second phase will run from 2008-2012 to coincide with the first Kyoto Commitment Period. The first phase covers installations that carry out specified activities (see 3.2 criteria for installations) and will cover emissions of carbon dioxide only. However there is scope for the scheme to be expanded in the future to cover other activities and gases, either through an amendment to the Directive or an unilateral extension of the scheme by an individual member state. In the EU ETS about 12,000 installations have been identified to take part in it..

From 2005-2007 member states may "opt-in" smaller installations within the above sectors. From 2008-2012 they may "opt-in" additional sectors, including non-CO2 greenhouse gases. From 2005-2007 member states may apply to "opt-out" specified installations (subject to Commission approval), but from 2008 onwards all eligible installations must be covered.

3.1 National Allocation Plan

The number of EUAs that each member state intends to allocate to each installation is set out in their National Allocation Plan (NAP). These NAPs have to be approved by the European Commission. Member states had to develop their first NAP, for the period 2005-2007, by March 2004. These NAPs set targets for the relevant sectors and emission allowances to installations for the relevant periods. All installations will effectively be set an absolute emission cap. The national allocation plan has to be put together in a way that is objective, transparent and open to public comment.

Installations will have to surrender by 30 April each year EUAs equal to their emissions in the previous calendar year. If they are short on their EUAs, they can acquire additional allowances on the carbon market. Installations are obliged to hand in a monitoring report for their GHG emissions. These reports must be turned in at the ‘national emission authority’, which issues the EUAs.

The Linking Directive (see 3.3) gives member states the opportunity to allow private firms to substitute units from CDM and JI for allowances. Installations without sufficient allowances to cover their emissions will pay a direct financial penalty (40,- Euro per ton CO_2 from 2005-2007, 100,- Euro thereafter) and have to make up the deficit in subsequent commitment periods. For installations that have a surplus of allowances, member states may allow banking (see 3.3.3).

Allowances will be allocated mainly free of charge. Member States have an option to auction a small proportion (up to 5% 2005-2007, up to 10% 2008-2012)[6].

The appropriate ongoing contribution of the EU ETS to achieving the Kyoto targets and domestic goal remains to be decided and is being considered in the context of the development of the Phase II NAPs.

3.2 Criteria for installations

The installations covered by the EU ETS are divided in four sectors: Energy activities, Production and processing of ferrous metals, Mineral industry and Other activities. To identify the installations a set of criteria for each sector was agreed upon. Besides this there are two general remarks:

- Installations or parts of installations used for research, development and testing of new products and processes are not covered by the EU ETS.

- The threshold values given in the table below generally refer to production capacities or outputs. Where one operator carries out several activities falling under the same subheading in the same installation or on the same site, the capacities of such activities are added together.

[6] Hungary, Denmark and Lithuania have decided to auction AAUs.

Activities	Greenhouse gas
Energy activities Combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations) *Mineral oil refineries* Coke ovens	 Carbon dioxide Carbon dioxide Carbon dioxide
Production and processing of ferrous metals Metal ore (including sulphide ore) roasting or sintering installations Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour	 Carbon dioxide Carbon dioxide
Mineral industry Installations for the production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or lime in rotary kilns with a production capacity exceeding 50 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day Installations for the manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m^3 and with a setting density per kiln exceeding 300 kg/m^3	 Carbon dioxide Carbon dioxide Carbon dioxide
Other activities Industrial plants for the production of (a) pulp from timber or other fibrous materials (b) paper and board with a production capacity exceeding 20 tonnes per day Carbon dioxide	 Carbon dioxide Carbon dioxide

Table 1. Criteria for EU ETS installations

3.3 Linking Directive

The Linking Directive (2004/101/EC) is an amendment to Directive 2003/87/EC. It establish a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms. It was approved by parliament on 27 October 2004, the deadline for implementation in national legislation by member states was 13 November 2005.

The European trade system initially focused on the trade in allowances (EUAs). In addition to this trade, the directive creates the possibility to use outside the EU generated emission reductions. The directive establishes a 'link' between the EU ETS and the global Kyoto system. More specific, it creates the possibility for Member States to allow private firms the use of CERs and ERUs to comply with their obligations under the EU ETS.

3.3.1 National Registries

In order to have a operational EU ETS a system of National Registries, analogue to the system as described in 2.2 under the Kyoto Protocol, is established. The EU therefore established a Community Independent Transaction Log where all the NRs of the Member States can be linked. The Linking Directive states that the national registries have to be online ultimately 1December 2005. An up-to-date overview of the operational registries can be found at: http://europa.eu.int/comm/environment/ets/.

Operational registries (18)	**Non-operational registries (7)**
Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, the Netherlands, Portugal, Slovakia, Slovenia Spain, Sweden, United Kingdom.	Cyprus, Greece, Hungary, Italy, Luxembourg, Malta, Poland.

Table 2. Status of national registries (per December 2005).

3.3.2 Conditions for the use of CERs and ERUs

The CERs and ERUs to be used in the EU ETS have to comply with the Kyoto requirements. Additional conditions for the use can be found in , article 11a of the Linking Directive it:

- Allows for the use of CERs in the first phase of the EU ETS;
- Allows for the use of CERs and ERUs, subject to a quantitative limit to be provided in the national allocation plan, in the second phase of the EU ETS; and
- Excludes certain project credits from use in the EU ETS: namely CERs and ERUs generated from nuclear facilities, and ERUs and CERs generated from land use, land use change and forestry activities (tCERs and lCERs) and it sets criteria for hydro-electric installations with a capacity > 20MW[7].

[7] World Commission on Dams, 2000.

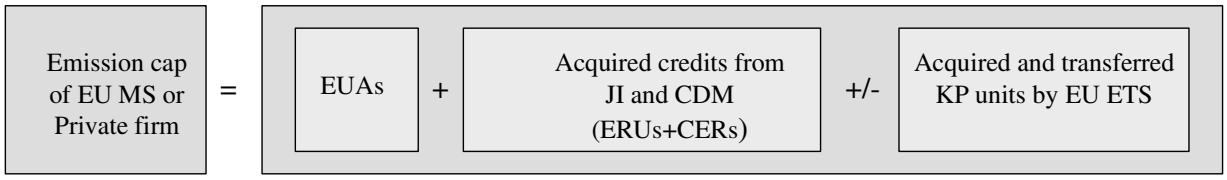


Figure 3. Emission units which can be surrendered under the EU ETS, compare with Figure 1. The Linking Directive bans the use of RMUs, tCERs and lCERs).

Article 11a states that Member States have to make a statement on the use of CERs in the period 2005-2007. They are allowed not to put conditions on the use of them, so companies can use as many as they like. The Governments are also allowed to put a cap on the use of CERs or forbid the use of CERs. Member Sates are obliged to set a cap, for the use of the JI and CDM mechanisms in the EU ETS in the period (2008-2007). This limit must be set as a percentage of the total amount of allowances allocated in a certain Phase and must be specified in the NAP for this Phase. This mandatory limit on their use is to be applied, consistent with the principle that use of the mechanisms should be supplemental to domestic action. This leads to differences between Member States at the moment there are these two different propositions: The Netherlands are allowing companies an unlimited use CERs in the period 2005-2007, and in the period 2008-2012 the use of CERs and ERUs may not exceed 8% of total amount. Whereas Slovakia will not allow companies the use of CERs and ERUs to comply with their obligation in both the periods.

Operators will be able to use CERs and ERUs in accordance with Article 53 of the Registries Regulation[8]. This provides that operators may request the registry administrator to transfer a specified number of CERs and ERUs. The number of transferred CERs or ERUs will be recorded in the surrendered allowance table which records the number of allowances surrendered by the operator. Therefore surrendering a CER or ERU will have the same effect as surrendering an allowance.

In the second and subsequent phases, the Registry would not allow operators to use CERs and ERUs in excess of the limit set in the National Allocation Plan.

Credits surrendered by operators for the period 2005-2007 will be cancelled by the governments, and will not be used for compliance (by governments) with Kyoto targets. Credits from both JI and CDM surrendered by operators for the period 2008-2012 will be available for retirement to meet the Member States' Kyoto target.

3.3.3 Banking

Almost all Member States will ban banking of allowances (EUA) from 2007 to 2008 (Poland & France allow for restricted banking). This implies that operators who do not use their EUAs from 2005-2007 see them automatically retired in 2008. Private firms are allowed to bank CERs to the second Phase.

[8] Available from: http://europa.eu.int/eurlex/lex/LexUriServ/site/en/oj/2004/l_386/l_38620041229en00010077.pdf

Banking from the second to the third and subsequent Phases, has other rules. The post 2012 rules allow carry over for any AAUs held in its national registry. It also allows the carry over of CERs and ERUs to a maximum of 2.5% of the assigned amount.

3.3.4 Double Counting

Double counting of EUAs would occur if JI projects lead indirectly or directly to a reduction or limitation in emissions from an installation under ETS.

On direct double counting article 11b (3) of the Linking Directive states: 'Until 31 December 2012, for JI and CDM project activities which reduce or limit directly the emissions of an installation falling within the scope of this Directive, ERUs and CERs may be issued only if an equal number of allowances is cancelled by the operator of that installation'. There is a is a clear causal connection between a JI-project and the CO_2 emission reductions in one or more specific ETS-installations.

On indirect double counting art 11b (4) of the Linking Directive states: 'Until 31 December 2012, for JI and CDM project activities which reduce or limit indirectly the emission level of installations falling within the scope of this Directive, ERUs and CERs may be issued only if an equal number of allowances is cancelled from the national registry of the Member State of the ERUs' or CERs' origin'. It is clear that the overall emissions of the ETS-sector are reduced, but it is not possible to determine which of the individual installations are affected .

The European Commission's guidance on the question of double counting of emissions reductions from JI projects with direct or indirect linkages to the EU ETS, is to set aside a JI reserve in the NAPs to cover such situations. Main problems with this approach includes deciding which JI projects to consider, estimating emissions reductions from these projects, and dealing with a possible under- or over-estimation of the reserve. The future of JI projects with indirect linkages to the EU ETS depends on whether it is politically feasible to set JI allowances aside by reducing allocations in other sectors.

4. Clean Development Mechanism

The Clean Development Mechanism (CDM) was established under Article 12 of the Kyoto Protocol to the UNFCCC and is designed to provide an incentive for developed countries to transfer greenhouse emission reduction technologies into developing counties. The CDM allows Annex 1 Parties to earn certified emission reduction credits (CERs), for investment in emission reduction projects in non-Annex 1 Parties (developing countries). CERs generated from CDM project activities can then be used by Annex 1 parties to contribute to the national emission reduction commitments under Annex B of the Kyoto Protocol, and similarly by private firms seeking to meet emission reduction obligations.

The CDM enables Annex 1 Parties to minimise the cost of complying with their greenhouse gas emission reduction targets, while affording private firms and investors the opportunity to earn money from the sale and trade of CERs on secondary markets. In effect, the CDM will assist developing countries to achieve sustainable development and reduce their greenhouse gas emissions by encouraging CDM project activities that contribute in real, measurable and long term ways to mitigate climate change.

4.1 Criteria for CDM projects

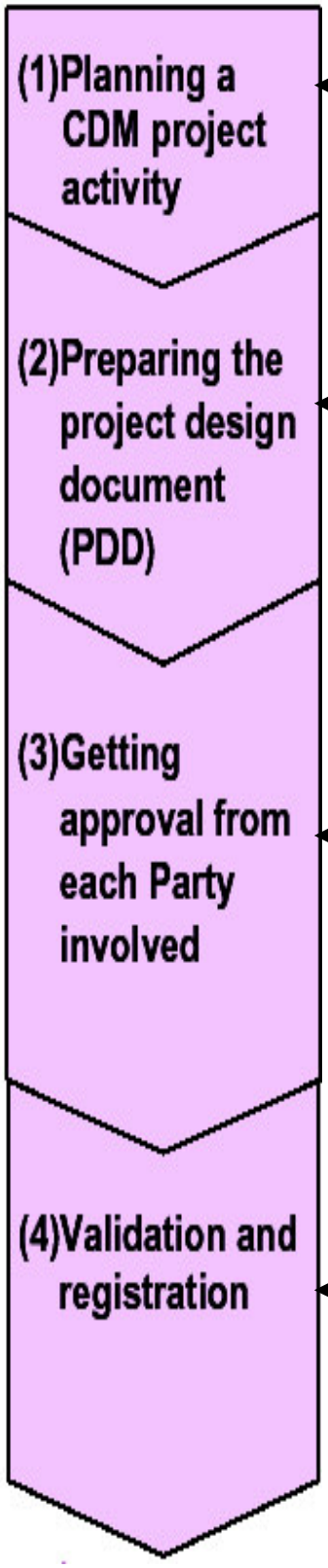
To be eligible to qualify as a CDM project activity and receive certification of emission reductions, a project activity must satisfy the following criteria [9]

- The CDM shall assist non-Annex I Parties in achieving sustainable development;
- It is the host Party's prerogative to confirm whether a CDM project activity assists it in achieving sustainable development;
- A CDM project activity is additional if GHG emissions are reduced below those that would have occurred in the absence of the registered CDM project activity;
- Annex I Parties are to refrain from using CERs generated from nuclear facilities to meet their quantified GHG emissions reduction targets;
- The eligibility of land use, land-use change and forestry project activities under the CDM is limited to afforestation and reforestation;
- Public funding for CDM projects from Annex I Parties is not to result in the diversion of official development assistance (ODA) and is to be separate from and not counted towards the financial obligations of Annex I Parties.
- Annex I Parties shall provide an affirmation that such funding does not result in a diversion of ODA.

4.2 CDM project Cycle

In this section a figure can be found which schematically represents the CDM project cycle[10]. A further discussion of the entities and processes involved can be found in the following paragraphs.

[9] Ministry of Environment Japan, 2005.
[10] The figure is based on Ministry of Environment Japan 2005.



CDM project participants plan a CDM project activity.

- There are several conditions in order to be registered as a CDM project activity, and CDM project participants should consider those conditions from a planning stage (see 4.1).

CDM project participants prepare the project design document (PDD) for a CDM project activity (see 4.4).

- There is a standard format for the PDD, and CDM project participants must fill in all the contents as necessary.

CDM project participants shall get written approvals of voluntary participation from the designated national authority (DNA) (see 4.3) of each party involved, including host Party.

- The written approval from host Party should include confirmation by the host Party that a project activity assists it in achieving sustainable development;
- A party involved is a Party that provides a written approval;
- The registration of a project activity can take place without an Annex I Party being involved at the stage of registration;
- The details of approval procedure is up to each Party.

CDM Project participants may get written approvals in step (1), (2) or even (4).

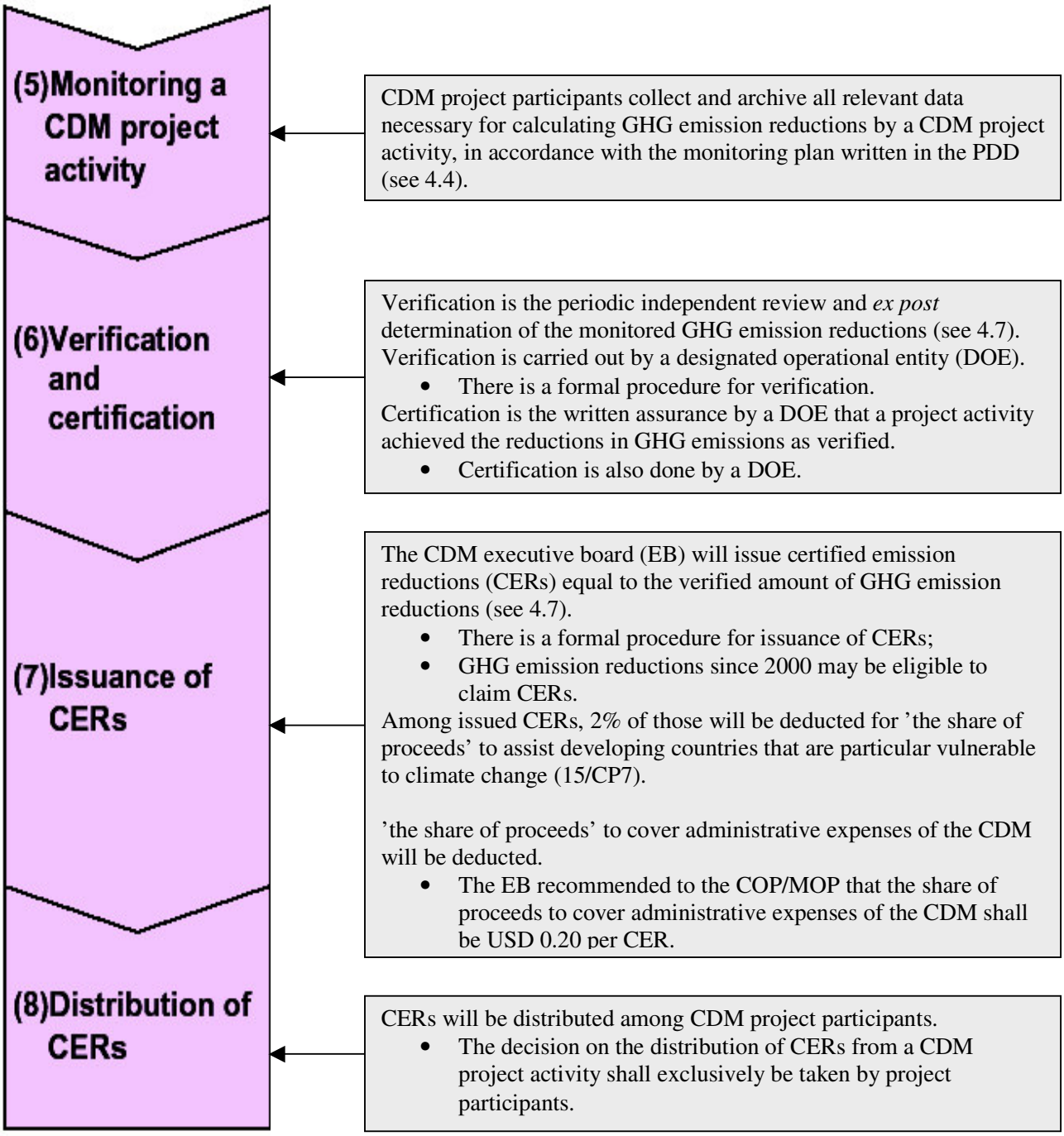
- But they must get written approvals before a request for registration.

Validation is the process of independent evaluation of a project activity against the requirements of the CDM on the basis of the PDD(see 4.5).

- Validation is carried out by a designated operational entity (DOE);
- There is a formal procedure for validation.

Registration is the formal acceptance of a validated project as a CDM project activity (see 4.5).

- Registration is done by the CDM executive Board (EB);
- There is a formal procedure for registration.


(5)Monitoring a CDM project activity
CDM project participants collect and archive all relevant data necessary for calculating GHG emission reductions by a CDM project activity, in accordance with the monitoring plan written in the PDD (see 4.4).
(6)Verification and certification
Verification is the periodic independent review and ex post determination of the monitored GHG emission reductions (see 4.7). Verification is carried out by a designated operational entity (DOE).
• There is a formal procedure for verification.
Certification is the written assurance by a DOE that a project activity achieved the reductions in GHG emissions as verified.
• Certification is also done by a DOE.
(7)Issuance of CERs
The CDM executive board (EB) will issue certified emission reductions (CERs) equal to the verified amount of GHG emission reductions (see 4.7).
• There is a formal procedure for issuance of CERs;
• GHG emission reductions since 2000 may be eligible to claim CERs.
Among issued CERs, 2% of those will be deducted for 'the share of proceeds' to assist developing countries that are particular vulnerable to climate change (15/CP7).
'the share of proceeds' to cover administrative expenses of the CDM will be deducted.
• The EB recommended to the COP/MOP that the share of proceeds to cover administrative expenses of the CDM shall be USD 0.20 per CER.
(8)Distribution of CERs
CERs will be distributed among CDM project participants.
• The decision on the distribution of CERs from a CDM project activity shall exclusively be taken by project participants.

4.3 Actors in the CDM project cycle

The issuance of CERs follows on a successful completion of the CDM project cycle. The cycle begins with the project participants. They must acquire approval from a Designated National Authority (DNA). After this the project must be validated and verified by an independent third party, the Designated Operational Entity (DOE). Ultimately the CERs will be issued by the UNFCCC Executive Board (EB). In the following sections a short list of their relevant responsibilities is given.

CDM Host Country

In order to develop a CDM project, the CDM host country must have ratified the Kyoto Protocol and established a Designated National Authority.

CDM project participants

A CDM project team (participants) usually consists of a buyer, a seller and a project developer. Key responsibilities are:

- Prepare Project Design Document (PDD);
- Propose baseline methodology and ensure additionality criteria;
- Calculate expected GHG reductions and generated CERs;
- Obtain all permits and approvals from DNA;
- Secure project financing;
- Sign an Emission Reduction Purchase Agreement (ERPA, see 4.4).

Designated National Authority

The Designated National Authority (DNA) is a country-level focal point for CDM, to be based in Ministry of Environment, Energy, or other relevant institution. DNA responsibilities include:

- Responsible for issuing Letter of Approval confirming the CDM project contributes to sustainable development in the host country;
- DNA of investor's country will send similar letter to DOE in support of the project;
- Link between international CDM investors and potential projects in the country;
- May be involved in marketing of CDM project pipeline;
- Will establish national CDM regulations, strategy, and criteria for sustainability and approval;
- Monitor CDM sector in the country.

Designated Operational Entity

A Designated Operational Entity (DOE) is an independent third party assigned by EB to conduct auditing of CDM project activities in host countries. Project participants choose the DOE they wish to deal with. Key responsibilities:

- Validate proposed CDM projects on basis of set criteria;
- Verify and certify reduction in GHG from CDM projects through monitoring of project management and transparency;
- Maintain publicly available list of all approved and on-going CDM projects and the amount of CERs approved for each project;
- Will post the PDD for 30 days for comment before final approval.

CDM Executive Board
The CDM Executive Board (EB) is the UNFCCC supervising body considering CDM projects. It consist of ten fixed members and ten alternating all with specialized technical expertise. Responsibilities include:

- Review & approve new methodologies related to baseline and monitoring plans[11];
- Provision of simplified procedures for small scale CDM;
- Accreditation of Designated Operational Entities (DOEs);
- Develop and maintain a CDM Project Registry;
- Establish Panels (Accreditation Panel and Methodologies Panel);
- Issue CERs.

4.4 CDM project documents
The documentation of a CDM project consists of several official documents. The Project Idea Note (PIN) is used for a general overview of the project and can be used as a marketing tool. The Project Design Document (PDD) is an official UNFCCC document and is used to validated and verify the amount of CERs to be generated. The Letter of Intent (LoI) is signed to start negotiations on the CERs transaction. Finally an Emission Reduction Purchase Agreement (ERPA) is negotiated, this document includes binding details on the CERs transaction.

Project Idea Note
The Project Idea Note (PIN) provides indicative information on the project. It is normally a 5-10 page document on a CDM project, and assesses whether the project meets general criteria of the DNA. In some countries a PIN is a tool to get a letter of endorsement from the DNA of host country, and can be used by project participants to seek additional financial support from potential investor The PIN is used as a marketing tool –to distribute to potential CDM investors to begin negotiations for partnership (e,g. buying CERs).

The PIN has three main parts:

a. Project Description (objective, description, proposed activities, technology, project participants, type of project, location, schedule, position of Host Country with regard to the Kyoto Protocol);
b. Expected Environmental and Social Benefits (GHG abated CO_2 sequestered, baseline scenario, Global and local benefits, socio-economic aspects, environmental strategy/priorities of the Host Countries);
c. Finance (total project cost estimate, sources of finance to be sought, or already identified, sources of carbon finance, indicative CER price.

Project Concept Note
The Project Concept Note (PCN) is a document that already demonstrates a complete planning of a project in terms of all required CDM criteria, is given to interested parties that may buy/invest in or CERs from the project. Typical of a PCN is its more extended information, compared to the PIN, but still not fully substantiated in detail. In general a PCN consists of 10-15 pages.

[11] Note: methodologies approved by EB could be used for other future projects.

Project Design Document
The Project Design Document (PDD) is the official UNFCCC document, required for registration at the CDM EB. It has a standard format[12], the size varies depending on the attachments. It is a sophisticated document and requires good English skills

A. General description of project activity
B. Baseline methodology
C. Duration of the project activity
D. Monitoring methodology and plan
E. Calculation of GHG emission by sources
F. Environmental impacts
G. Stakeholder Comments

Annex 1. Contact information on project participants
Annex 2. Information regarding public funding
Annex 3. New baseline methodology
Annex 4. New monitoring methodology
Annex 5. Table of baseline data

There are two comments on the above table of content. The first is that the PDD for Small scale CDM (see 4.8) contains same sections but only annexes 1 and 2 are required, the second considers annexes 3 and 4 have which been removed and will be done separately by project participants only in case of new methodology is being proposed.

Letter of Intent
The aim of the Letter of Intent (LOI) is for each party to agree on the terms and conditions for cooperation as well as the intentions of selling and buying CERs. Some of the key points in the LOI are listed below.

- Transaction and purchase of CERs. An initial assessment of the amount and price range is given;
- Exclusivity. This paragraph mostly states that the project developer is not allowed to enter into agreements or negotiations with other buyers when receiving support from the buyer;
- Financial assistance. This states the preparedness of a buyer to give financial support in the development of the CDM project;
- Arbitration. The paragraph on arbitration frames how disputes between the entities should be settled by rules of arbitration (e.g. under which countries law, what language);
- Termination and breach of the agreement. This frames what are the procedures if one of the entities braches the agreement, or the project is cancelled.

Emission Reduction Purchase Agreement
The LOI is to be replaced by an Emission Reduction Purchase Agreement (ERPA) preferably when the Project Design Document (PDD) goes for validation or earlier. The ERPA is a legally binding and commercial agreement on price and amount of CERs and conditions for transfer and purchase. The contract outlines in detail the various steps of the process of getting the project

[12] http://cdm.unfccc.int/EB/Meetings/014/eb14repanan6_CDM-PDD.pdf

idea approved by a Validator and the CDM Executive Board to the actual deliverance of Emission Reductions and consequent issuance of Certified Emission Reductions (CERs) by the CDM Executive Board.[13]

4.5 CDM project requirements

In order to issue CERs the Executive Board requires certainty in the established emission reductions, therefore the amount of CERs must be verifiable. The difference between 'baseline' emissions and the actual emissions after the project has been implemented gives the GHG emission reductions. These issues are incorporated in the PDD (sections B to E). Important concepts for a CDM project are the principle of additionality, the baseline of a project and its Monitoring Plan.

Additionality

When developing a CDM project, it is essential to establish the additionality of the GHG emission reductions. This is because CERS will only be awarded to activities provided that the projects achieve reductions that are 'additional to those that otherwise would occur'. A project activity is additional if its emissions are below those of its baseline. The additionality is also described as the difference from the Business As Usual (BAU) scenario.

A distinction is made between environmental additionality and economic/financial additionality.

- Financial additionality means projects will only earn credit if funds additional to existing ODA commitments are specifically committed to achieve the greenhouse gas reductions.
- Environmental additionality requires that emission reductions represent a physical reduction or avoidance of emissions over what would have occurred under a business as usual scenario.

Baseline

The definition[14] for a baseline states 'The baseline for a CDM project activity is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.' This definition calls for a clear definition of the project boundaries, and the development of by the EB approved baselines for the establishment of the verifiable amount of CERs generated.

Because of the above CDM projects must be based on an approved project methodology. The EB criticizes each submitted baseline-methodology. If a methodology is approved, it guarantees the project participants of the calculation of the correct amount of CERs generated by the project. It is possible to go through this process of establishing a new approved methodology for a project. Though this takes a long time (approximately 4 month). If the project meets the methodology-requirements it is possible to use an already approved methodology[15]. The advantage is a shorter development time of the project, and a higher level of certainty.

[13] An example of an ERPA format can be found on the IETA website http://www.ieta.org/ieta/www/pages/index.php?IdSitePage=593m.
[14] CDM modalities and procedures; paragraph 44.
[15] http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html

Besides the approved methodologies there are also consolidated approved methodologies. These are based on several approved methodologies, and give, compared to an approved methodology, a higher certainty in the amount of CERs to be generated.

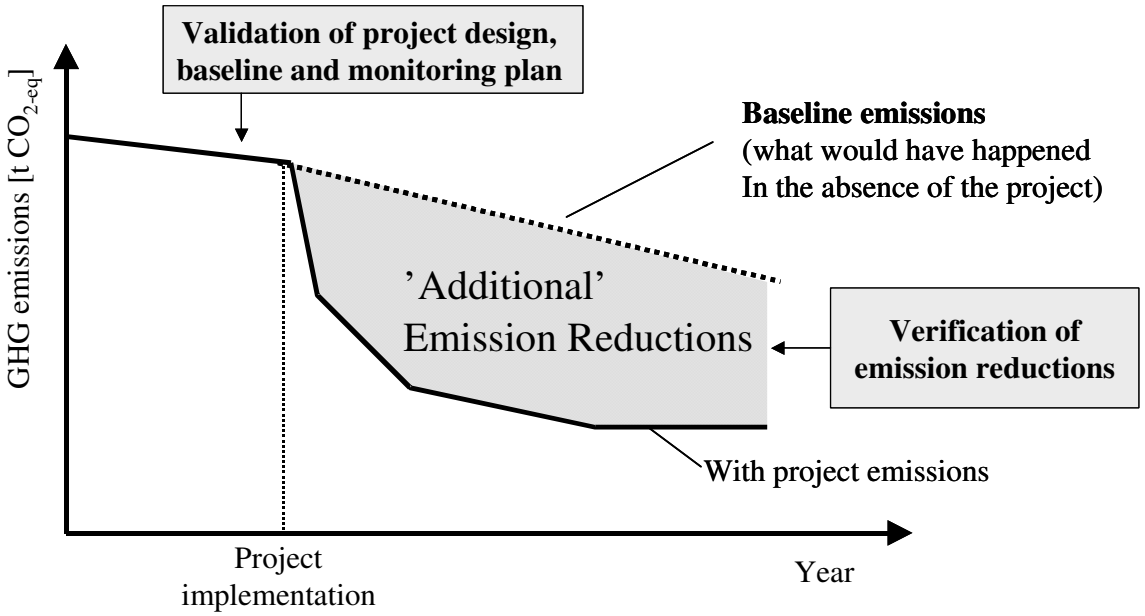


Figure 4. Definition of 'additional' emission reductions for a certain baseline. (Source: Det Norske Veritas; for validation and verification see 4.6 and 4.7)

Monitoring Plan
Once the project has begun its operational cycle, participants need to monitor their GHG emissions reductions according to the Monitoring Plan (MP) contained in the PDD. The monitoring plan must comply with established methodologies that have already been approved by the Executive Board.

A Monitoring Plan shall reflect good practise[16], and provide for[17]:

- Quality assurance and control procedures for the monitoring process;
- Procedures for the periodic calculation of the reductions of anthropogenic emissions by sources by the proposed CDM project activity, and for leakage effects;
- Documentation of all steps involved in the calculations of emission reductions.

When the participants decide to undergo a verification (see 4.7) by a designated DOE, they will need to prepare a monitoring report that is consistent with the registered monitoring plan.

[16] CDM modalities and procedures; paragraph 54b.
[17] CDM modalities and procedures; paragraph 53.

4.6 Validation/Registration of a CDM project activity[18]

Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of CERs. The purpose of a validation is to have an independent third party assess the project design, in particular, the project's baseline, the Monitoring Plan, and the projects' compliance with relevant UNFCCC[19] and host Party criteria in order to confirm that the project design as documented is sound and reasonable and meets the identified criteria. The project must be registered at the UNFCCC to be able to generate CERs.

4.6.1 Risk Based validation

The validator shall use a risk-based validation approach to focus and to determine the detailed scope of the validation. The key risks associated with the project design, baseline, monitoring plan, emission reduction estimates, environmental impacts and comments by local stakeholders are elements that are critical for meeting UNFCCC criteria for achieving real, measurable, long-term as well as additional GHG reductions.

- Based on the information on the project, provided in the PDD and based on the comments received by Parties, stakeholders and NGOs, the validator shall identify the key risks associated with assumptions/claims made and data sources used;
- The completeness, conservativeness and accuracy of the underlying evidence for the assumptions/claims made and data sources used are reviewed. Assumptions/claims and data sources that are well identified and discussed in the PDD, that are substantiated with information from reliable references and that are sufficiently controlled through the monitoring plan are of less risk and should thus be given less emphasis;
- Remaining areas of material uncertainty associated with assumptions made and/or data sources used, which could not be fully recognised and approved by the validator during the above review, shall be investigated and further tested by the validator;
- The results of this investigation shall then - together with the results of the review of other areas - give the necessary input for the validation opinion.

[18] This section is based on IETA, 2005.

[19] UNFCCC criteria refer to the Kyoto Protocol criteria for the CDM, the CDM rules and modalities as agreed in the Marrakech Accords and relevant decisions by the CDM Executive Board.

4.6.2 Validation actors

During the process of validation, several actors are involved, these 'validation actors' have contractual relationships and communication channels with each other. These relations are schematically drawn in the figure below.

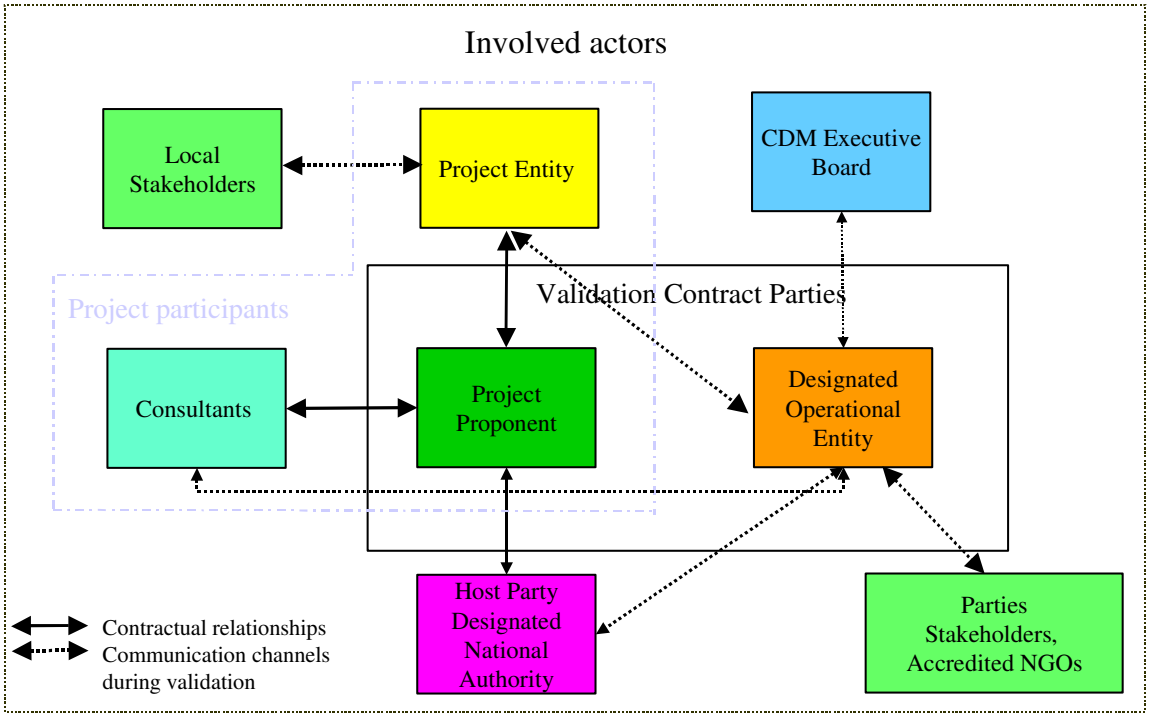


Figure 5. Contractual relationships and communication channels during validation of a project. Note: The above diagram reflects a contractual model where the project proponent is independent from the project entity. The frame for 'project participants' only shows an example. Other relationships are possible, such as a direct contractual relationship between project entity and the DOE.

4.6.3 CDM project registration

A successful validation leads to the next step in the project cycle: the registration. Registration is the formal acceptance by the Executive Board of a validated project as a CDM project activity. Registration is the prerequisite for the verification, certification and issuance of CERs related to that project activity[20]. Therefore the DOE shall submit a CDM Project Activity Registration Form and a registration fee shall be paid to the EB (see table 2). The registration shall be deemed final eight weeks after the date of receipt (if no review is required).

[20] CDM modalities and procedures; paragraph 35 & 37.

Average tonnes of CO_2 equivalent reductions per year over the crediting period (estimated/approved)	US $ (*)
<= 15,000	5,000
> 15,000 and <= 50,000	10,000
> 50,000 and <= 100,000	15,000
>100,000 and <= 200,000	20,000
>200,000	30,000

Table 3. Registration fee for CDM projects. Figures must be based on the information provided in CDM-PDD, the level of reductions over the indicated crediting period will be estimated by the project participants. The estimate shall be confirmed by the DOE. No registration fee has to be paid for CDM project activities with average annual emission over the crediting period below 15,000 tCO_2 equivalent.
(*) The registration fee paid will be deducted from the share of proceeds for administration due at issuance of CERs.

4.7 Verification, certification and issuance of CERs

This section covers the last part of the CDM project cycle, where ultimately the CERs are issued. It covers the verification and certification of CDM projects and the issuance of CERs by the EB.

4.7.1 CDM project verification

The objective of an initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions. This verification is done by a DOE[21].

Several purposes of the initial verification process can be identified:

- To ensure that the project has been implemented as planned, that the monitoring system is in place and that the project is ready to generate and record GHG emission reductions;
- To assess adjustments and amendments to the monitoring plan that may have become necessary during the detailed design and construction of the project;
- To provide assurance of generation of high quality emission reductions and clear the way for project commissioning.

4.7.2 CDM project certification

For CDM projects, the DOE shall certify in writing that the project activity has achieved the verified amount of emission reductions that would not have occurred in the absence of the CDM project activity in the specified time period.

The DOE shall inform the project participants, the Parties involved and the Executive Board of its certification decision in writing. This shall be done immediately upon completion of the certification process. The certification report shall be made publicly available.
The certification report shall constitute a request for issuance to the Executive Board of CERs equal to the verified amount of emission reductions[22].

[21] The DOE for verification is different from the DOE for validation (except for Small Scale Projects).
[22] CDM modalities and procedures; paragraph 63 & 64.

4.7.3 Issuance of CERs

The process for issuance of CERs is described below. The first CERs were issued on 20 October 2005 an important milestone in the lifetime of the EB. For the issuance of CERs:

- The DOE sends a request to issue CERs to the EB;
- The EB issues the certified amount of CERs within 15 days (this can be stopped by the project proponent or more than 3CDM EB members requesting for review);
- A share of the proceeds is deducted to cover administrative expenses of the EB. This share is USD 0.20 per CER issued;
- The net amount of CERs are placed under the account at the CDM pending registry created by the CDM;
- If the UNFCCC International Transaction Log and the project participants' National Registry is online, the CERs can be transferred to his account.

The CERs will be distributed by the CDM registry administrator, upon instructions by the executive board to issue CERs for a CDM project activity. The specified quantity of CERs shall be issued into the pending account of the executive board in the CDM registry. Upon such issuance, the CDM registry administrator shall:

- Forward the quantity of CERs corresponding to the share of proceeds to cover administrative expenses and to assist in meeting costs of adaptation , respectively, in accordance with Kyoto Protocol , to the appropriate accounts in the CDM registry for the management of the share of proceeds;
- Forward the remaining CERs to the National Registry accounts of Parties and project participants involved , in accordance with their request.

4.8 Small Scale CDM projects

Besides the CDM project cycle described above, there is also the Small Scale CDM . For the small-scale project categories simplified baselines and monitoring methodologies shall be employed[23].

Type I: **Renewable energy projects** (Capacity < 15 MW):

A. Electricity generation by the user
B. Mechanical energy for the user
C. Thermal energy for the user
D. Renewable electricity generation for a grid

Type II: **Energy efficiency improvement projects** (Energy Efficiency Improvement <15 GWh per year)

A. Supply side energy efficiency improvements - transmission and distribution
B. Supply side energy efficiency improvements - or generation
C. Demand-side energy efficiency programmes for specific technologies
D. Energy efficiency and fuel switching measures for industrial facilities
E. Energy efficiency and fuel switching measures for buildings

Type III: **Other project activities** (Direct Project Emissions < 15 kilotonnes of CO2equivalents)

[23] http://cdm.unfccc.int/methodologies/SSCmethodologies

A. Agriculture
B. Switching fossil fuels
C. Emission reductions by low-greenhouse gas emitting vehicles
D. Methane recovery and avoidance.

Bundling
Bundling is defined as, bringing together of SSC project activities, to form a single CDM project activity or portfolio without the loss of distinctive characteristics of each project.
One approach to reducing CDM transaction costs is to bundle a number of small-scale projects into a portfolio that can be developed as one larger CDM project as shown in Figure 1. As long as the portfolio is under the limits defined for small-scale projects (see below), they can benefit from reduced transaction costs associated with fast tracking procedures and the spreading of costs across several projects. It would also mean that every small-scale project developer would not necessarily need to accustom themselves to the complex modalities of the CDM.

5. Joint Implementation

Joint Implementation (JI) is established under Article 6 of the Kyoto Protocol to the UNFCCC. JI enables Annex I countries (developed countries and economies in transition) to undertake cross-border investments in projects aimed at reducing GHG emissions. The investor country (or a private actor in that country) provides financial and/or technical assistance to achieve cost-effective greenhouse gas emission reductions in a host country in exchange for emission reduction units (ERUs).

These ERUs can be used for compliance with an emission reduction targets or to sell on the international emissions trading market. Projects starting from the year 2000 that meet JI requirements may be listed as JI projects. However, ERUs may only be issued in relation to periods from 2008 onwards.

The JI mechanism is not yet fully operational, this is because the JI Supervisory Committee, comparable with the CDM EB, has only just been installed. This committee was elected at COP/MOP1 in Montreal. But because of the bilateral character of JI is possible though to already develop JI-projects. These projects are mostly based on CDM methodologies. Because of this similarity, issues concerning baseline of JI projects and additionality of JI projects can not be found in this chapter, but can be found in 4.5.

5.1 Criteria for JI projects

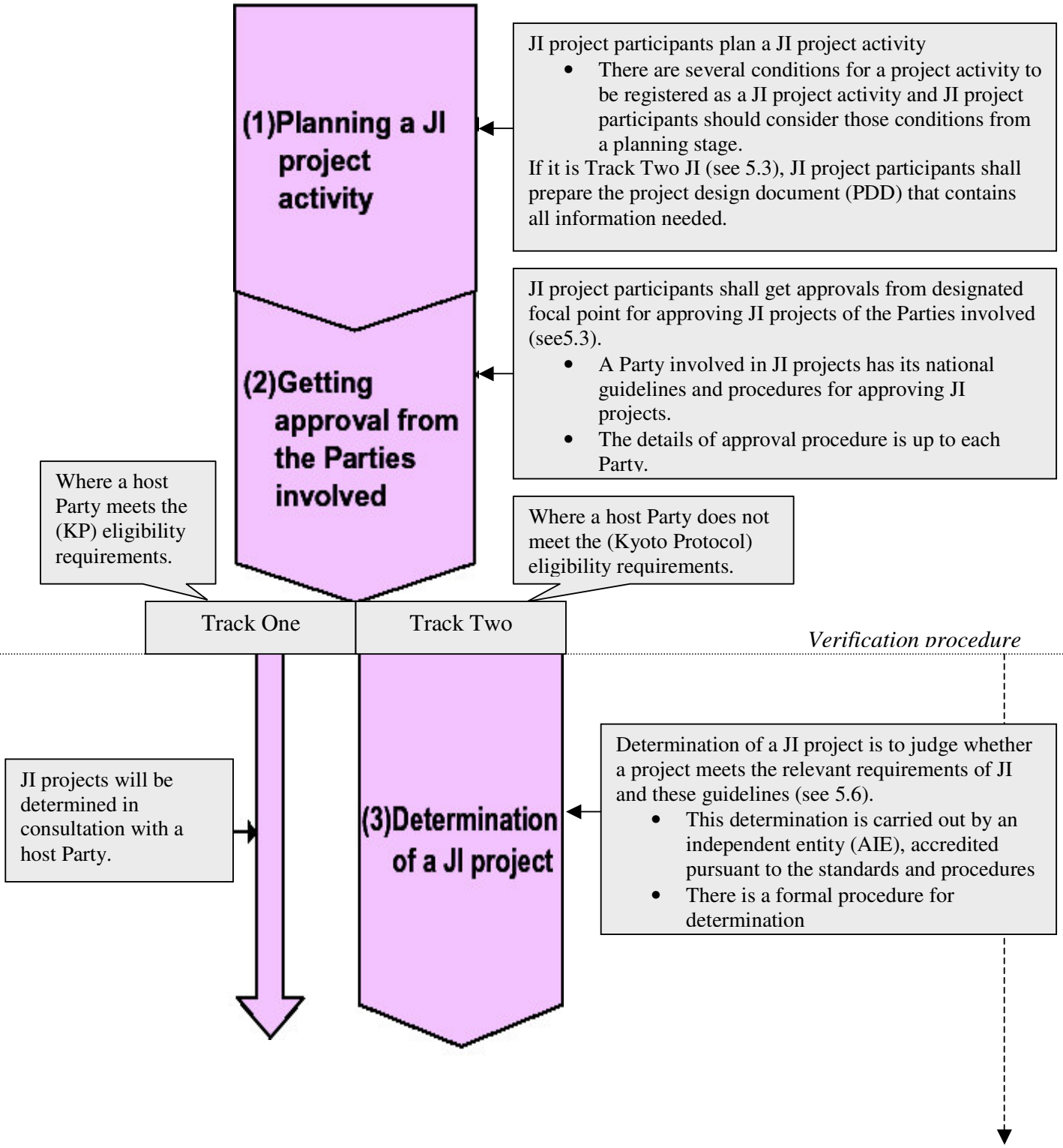
To be eligible to qualify as a JI activity and to receive ERUs, projects must satisfy the following criteria:

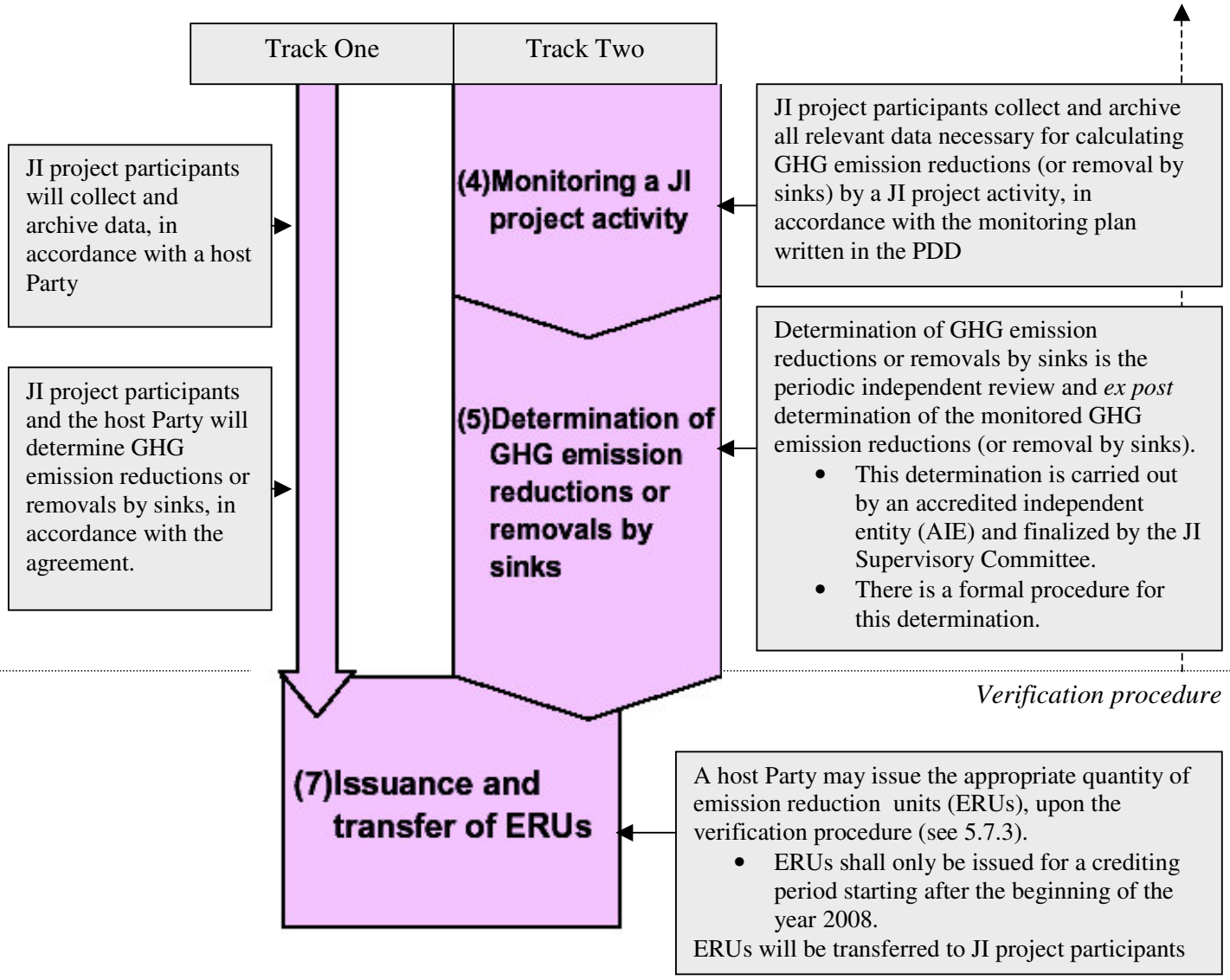
- The project must be undertaken between Annex I countries;
- The project activity must be of a type that results in a reduction in emissions by sources or enhancement by removal by sinks;
- The project provides a reduction or enhancement that is additional to any that would otherwise occur in the absence of the project activity;
- The participation of both Parties must be voluntary and approved by each Party; and
- The project must be supplemental to domestic actions to reduce greenhouse gas emissions.

5 .2 JI Project Cycle

In this section a figure can be found which schematically represents the JI project cycle[24]. A further discussion of the entities and processes involved can be found in the following paragraphs.

[24] The figure is based on Ministry of Environment Japan, 2005.


(1)Planning a JI project activity
JI project participants plan a JI project activity
There are several conditions for a project activity to be registered as a JI project activity and JI project participants should consider those conditions from a planning stage.
If it is Track Two JI (see 5.3), JI project participants shall prepare the project design document (PDD) that contains all information needed.
(2)Getting approval from the Parties involved
JI project participants shall get approvals from designated focal point for approving JI projects of the Parties involved (see5.3).
A Party involved in JI projects has its national guidelines and procedures for approving JI projects.
The details of approval procedure is up to each Party.
Where a host Party meets the (KP) eligibility requirements.
Where a host Party does not meet the (Kyoto Protocol) eligibility requirements.
Track One
Track Two
Verification procedure
JI projects will be determined in consultation with a host Party.
(3)Determination of a JI project
Determination of a JI project is to judge whether a project meets the relevant requirements of JI and these guidelines (see 5.6).
This determination is carried out by an independent entity (AIE), accredited pursuant to the standards and procedures
There is a formal procedure for determination



5.3 Actors in the JI-Cycle

The issuance of ERUs follows an a successful completion of the project cycle. The cycle begins with the project participants. Depending on what track the JI-project is the following actors are involved: for Track One: the project participants must acquire Letters of Approval from the JI designated focal points (host country and buyer country). After this they can bilaterally develop the project. For Track Two: the project participants must also acquire the letters of Approval, but for further development an Accredited Independent Entity (AIE) they must determinate their project and the JI Supervisory committee must approve with the transfer of ERUs. In the following sections a short list of their relevant responsibilities is given.

JI Host Country

In order to develop a JI project, the JI host country must have ratified the Kyoto Protocol and established a JI Focal Point. Also it must have national guidelines and procedures for approving JI projects, including the consideration of stakeholders' comments, as well as monitoring and verification

Track One procedures for JI apply when the host country meets all the eligibility requirements related to the transfer and acquisition of ERUs. In this situation, Annex I host countries are allowed to apply their own procedures for assessing JI project emissions additionality.

The eligibility requirements that allow an Annex I host country to participate in JI First Track are stricter than the requirements applying to the Second Track. The relevant eligibility requirements for countries to undertake First Track projects include:

- Having in place a national system for emissions estimation;
- Having submitted an annual inventory of these emissions;
- Have in place a national emissions registry; and
- Having established the nation's assigned amount of Kyoto emission allowance units.

The host country is then able to issue (by converting existing AAUs) and transfer ERUs to the investing party, without recourse to any international body for approval. The process for First Track will depend on the host country's own procedures.

Eligibility requirements for Track Two:

- Party to the Kyoto Protocol;
- Assigned amount calculated;
- National Registry in place for tracking assigned amount.

JI Project participants

A wide range of bodies can develop JI-projects and acquire or transfer ERUs. Examples of possible entities that could participate as project developer include government bodies or agencies, municipalities, foundations, financial institutions, companies and NGO's. The JI project team (participants) have the following key responsibilities

- Prepare PDD, including baseline and additionality (see 4.5);
- Calculate expected GHG reductions and ERUs;
- Obtain all permits and approvals (including Letter of Approval from host focal point);
- Secure project financing;
- Sign an ERPA (see 4.4).

Designated Focal Point

The national government of the country in which the JI project is located must approve the project, and if applicable also the national government of an investor country. This approval is given by the JI Designated Focal Point, installed by the government. Key responsibilities are:

- Asses a project activity by national guidelines and procedures;
- Approve or turn down a project activity (give a Letter of Approval).

Accredited Independent Entity

The Accredited Independent Entity (AIE) is an independent third party verifier for Track Two JI, which corresponds to a DOE for the CDM. Key responsibilities are:

- Determine whether a project which reduces GHG emissions (or removes by sinks) meets the relevant requirements of JI and these guidelines;
- Determination of the GHG emission reductions reported by project participants in accordance with the monitoring plan.

JI Supervisory Committee
The JI Supervisory Committee (JISC) is the equivalent of the CDM EB. It is installed during COP/MOP 1. The JISC will supervise the Track Two projects, therefore ERUs from Track Two projects can not be transferred if the JISC is not operational. Key responsibilities are the development of standards and procedures for:

- The Project Design Document (PDD);
- The review procedures in connection with determination of JI Track Two projects and determination of emission reductions.;
- The accreditation of independent entities.

5.4 JI project documents
The documentation of a JI project does have standard documentation, but it is not as strict applied as the CDM mechanism, this can be attributed to the fact that there are no new emission reductions units created but existing emission allowances are transferred to another party. Other reasons are the bilateral character of Track One projects, and the absence of the JISC responsible for guidelines and regulations.

Two Track approach
The international climate change agreements provide two sets of JI procedures commonly referred to as the 'Two Track' approach. These refer to alternative procedures and project cycles for JI projects that are open to project development depending on the status of the host Country in meeting the eligibility requirements.

5.4.1 Track One

For Track One a 'Letter of Approval' (LoA) is required, this can be obtained from the local focal point. Under Track One mostly a PIN (see 4.4) with a similar format as the CDM PIN is used. Project buyers usually have a tender (see 6.4) with own requirements, methodology for additionality and baseline calculations are mostly similar to CDM projects.

Relevant different (compared to CDM projects) requirements related to the project design:

- Determination is not required if the host Party complies with the eligibility requirements;
- No requirement for contribution to sustainable development in the host Party;

No requirements for local stakeholder consultations. However a Party involved must have national guidelines in place including the consideration of stakeholders' comments.

5.4.2 JI Track Two

Track Two procedures, which are likely to be quite similar to those for a CDM project, apply when the host country does not meet the eligibility requirements for First Track JI. Under Second Track, projects are assessed according to procedures administered by the JISC. Similar to Track One, the project participants must acquire a LoA. The next step for the project participants is to prepare a Project Design Document (PDD) and have this approved by an Independent Entity accredited by the Supervisory Committee. After projects are approved under this process, the host countries will be able to issue and transfer ERUs to the investing party.

This track has more uncertainty because of the JISC not being fully operational. Uncertainties are caused by the guidelines they are going to use for the methodologies they approve. For example:

do they align with the EB approved methodologies for establishment of additionality and baseline calculations or are they going to deviate from the EB approve methodologies. If ERUs by this track are transferred, the Committee must be operational before 1 January 2008.

Several Annex I countries who are buying JI-credits have developed capacity building programmes for host countries and are helping them establishing the required legal framework. This to facilitate the development of JI-projects.

5.5 JI Project Requirements

In order to transfer ERUs the established emission reductions, the amount of ERUs must be verifiable. Therefore it is important that the project uses a solid baseline for the calculations. Other important issues are the additionality and the monitoring plan of a project. These issues have been disused in paragraph 4.5 and are also applicable to JI projects. These definitions are used because there are (not yet) specific JI definitions of these issues, Track One JI therefore mostly uses these definitions.

5.6 Determination/Registration of a JI project activity[25]

Determination of a JI project is publicly mandatory if the host Party does not meet the eligibility requirements (Track Two) . JI determination is optional for those host Parties that meet the requirements (Track One). This may be desirable if the Party considers the value of the ERUs may be higher under such an international verification procedure. Registration of a JI project is less formalised in comparison with CDM projects.

5.6.1 Determination

It has the same purpose as CDM validation, namely to have an independent third party assess the project design. This in order to confirm the amount of ERUs to be generated by the project activity. Therefore the AIE determines whether:

- Project approved by the parties involved;
- Project would result in a GHG reduction that is additional to any that would otherwise occur;
- Project has an appropriate baseline and monitoring plan;
- Documentation on the analysis of the environmental impacts of the project has been submitted.

[25] This section is based on IETA, 2005.

During the process of determination several actors are involved, these 'determination actors' have contractual relationships and communication channels with each other. These relations are schematically drawn in the figure below (for a comparison with CDM validation see 4.6 figure 5)

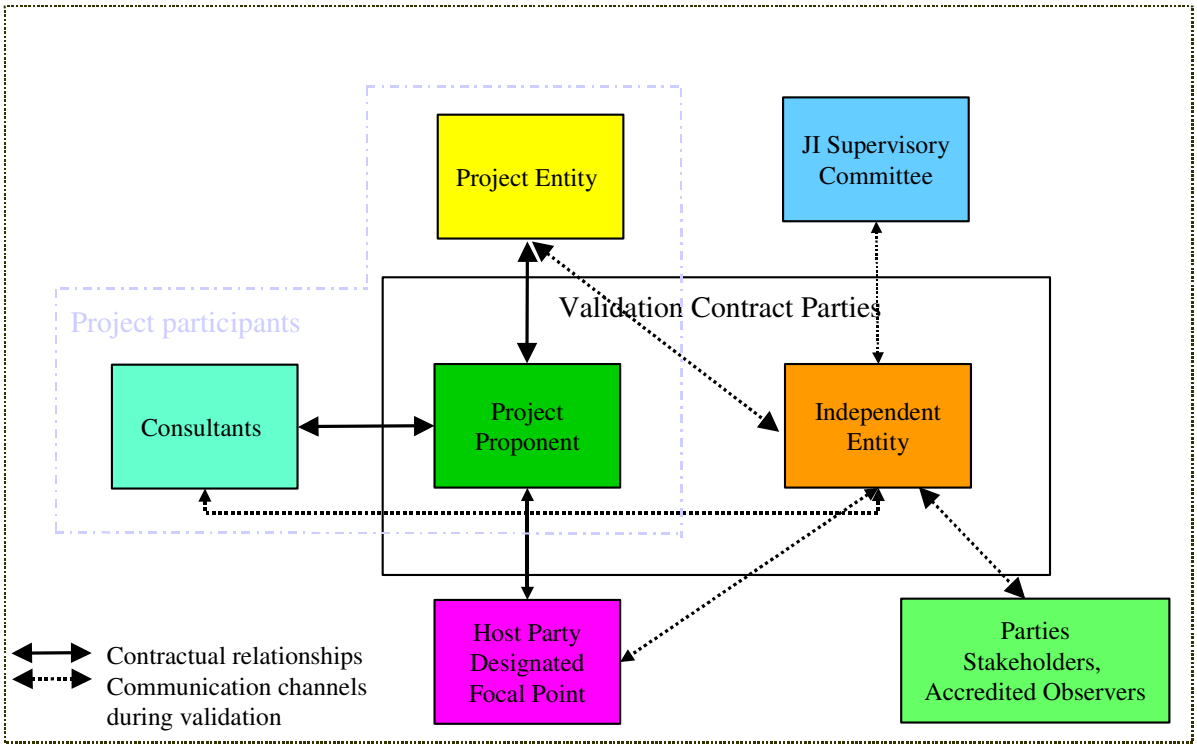


Fig 6. Contractual relationships and communication channels during validation of a project. Note: The above diagram reflects a contractual model where the project proponent is independent from the project entity. The frame for 'project participants' only shows an example. Other relationships are possible, such as a direct contractual relationship between project entity and the independent entity.

An example of this validation process (based on the Dutch ERUPT tender[26]), is given in the figure below.

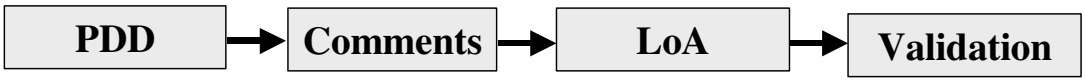


Figure 7. ERUPT validation proecess

1. Supplier prepares Project Design Document (PDD); supplier transfers PDD to Validator;
2. Validator makes PDD public on the Carboncredits.nl website for 30 days; validator evaluates comments;
3. Host country issues Letter of Approval;
4. Validator prepares Validation report, incl. validation opinion and protocol, which is part of offer to Dutch government.

[26] Senter Novem, 2004.

5.6.2 JI project registration

A successful validation report will function as an application form to get your project registered as a JI project under the JI mechanism. Registration is needed to be able to generate ERUs. There is still little known about registration of JI projects. For Track One the common procedure is registration at a JI focal point. There are not yet procedures for JI Track Two.

5.7 Verification, certification and transfer of ERUs

This section covers the last part of the JI project cycle, where ultimately the ERUs are issued. It covers the verification and certification of JI projects and the transfer of ERUs.

5.7.1 JI project verification.

Verification determines emissions reductions, and compliance with applicable Kyoto Protocol criteria. Since there are no specific requirements for verification of ERUs under Track One. Track One could vary from host country to host country, and could differ from Track Two JI procedures. It is likely that the Track One project procedures adopted will be more straightforward and simple than those established for the Track Two.

Verification is mandatory for Joint Implementation (JI) projects when host countries do not meet applicable methodology and reporting requirements (Track Two). The verification is carried out by an accredited operating entity, i.e. a third party verifier. The verification typically includes a review and assessment of baseline calculations, monitoring results and data collection, performance records, interviews with project participants and stakeholders, and assessment of established practices and accuracy of data collected and monitoring equipment.

5.7.2 JI project certification

For JI determination projects, the emission reductions are not certified. When the independent entity has made a determination of the emission reductions, this determination shall be made publicly available through the secretariat, together with an explanation of its reasons. The determinations is deemed final 15 days after the date it is publicised, unless either a Party involved or three of the members of the Supervisory Committee request a review of the determination.[27]

5.7.3 Transfer of ERUs

ERUs in respect of JI project activities can only be issued in respect of periods from 2008 onwards. Opposite CDM, where new credits are generated, ERUs are transferred between parties. This will take place via the UNFCCC International Transaction Log. An important precondition therefore is that the buyer and host country have operational registries and more important, the ITL is operational.

- The Host country will convert AAUs to ERUs by adding project identifier to the serial number and changing the type indicator to indicate ERU;
- Upon such issuance the Party will transfer ERUs to account of project participants and Parties;
- It also will notify the Secretariat transaction log.

[27] Guidelines for the implementation of Article 6; paragraph 38 & 39

6. Carbon market developments

Carbon emissions trading involves the trading of permits to emit carbon dioxide (and other greenhouse gases, calculated in tonnes of carbon dioxide equivalent, tCO2eq). As for other freely-traded goods, the price of a carbon allowance will be determined by the balance between supply and demand.

At the end of 2004, their were uncertainties around the status of the Kyoto Protocol, therefore the prices for 1 tCO_2eq were rather low. But as soon as Russia announced to ratify the Protocol, prices skyrocketed.

Major uncertainties remain however, notably the absence of any price signal for emission reductions beyond 2012, which limits the impact of carbon finance on CDM in projects with regular lead times. The amount of AAUs that Russia and Ukraine will supply to the market is also a key uncertainty for the medium-term balance between supply and demand on the carbon market[28].

6.1 EUA prices

Phase I of the European Union Emissions Trading Scheme (EU ETS) was launched on 1st January 2005. In the first few months, carbon allowances were trading at about €7 a tonne. They rose to a peak of just over €29 a tonne in July, driven by a variety of factors, including: strong demand from western utilities; fuel prices; and a lack of fundamental knowledge of the market, exhibiting some of the classic symptoms of a new market. At the moment the price is about € 23 per tCO_2eq.

6.2 CERs and ERU prices

Private firms can at the latest 30 April 2006 use their CDM rights to fulfil their obligation under EU ETS. This implies that CERs don not have to be available on the 1 January 2005, the start of the trade system, but on the above date. Because the obligation on 30 April 2006 considers the GHGs emissions of 2005.

CER/ERU prices are closely linked with the EU ETS allowances price Levels of supply from the CDM in the first phase are uncertain, and heavily dependent on the successful operation of the CDM Executive Board and the operation of registries. The level of risk on delivery of CDM credits affects the attractiveness (and price) of CERs. Risks associated with the CDM include[29]:

- Delivery and transfer risk, which is dependent on the implementation of the International Transaction Log and linking of EU registries. Based on the estimated date for completion of the ITL and testing of registries, CERs are unlikely to be delivered for use in the EU ETS before early 2007, and a large supply of credits may be built up prior to the connection of registry systems in 2007. CERs cannot be transferred between registries before 2008. Once delivered to national registries they are therefore less transferable than EUAs, making them less expensive.
- Registration risk, reflecting the pace of registration decisions being taken by the CDM Executive Board, and project risk (or the risk that the project does not actually deliver verified emissions reductions).

[28] Lecocg, F. and K. Capoor, 2005.
[29] UK Department for Food and Rural Affairs, 2005.

Delivery risk is mitigated by the ability for companies to borrow from the next year for each compliance period, as allowances valid for compliance in the previous years are allocated for the next year immediately prior to the compliance date for that previous year. CDM credits can also be banked between EU ETS phases which may smooth compliance costs for EU ETS operators. This provides operators with an additional tool to manage the risk on delivery of CDM credits. This implies that CERs could become more expensive than EUAs by the end of Phase I.

There are many factors influencing the CER-price[30], there can be a difference between pre-CER prices as agreed in contracts and final CER market prices. This is because price is only one feature of contract, factors influencing pre-CER price are: project size, project type and project risks.

- CER prices remain stable at € 5-8 in deals where buyer takes performance and delivery risk;
- and at least €9-11 for forward CERs from registered projects or projects where the seller takes registration risk and guarantees delivery;
- However, offers at €18 for delivery of CERs in 2006, and where the (credit worthy) seller compensates in case of non-delivery have also been reported.

6.3 The Green Investment Scheme

For some buyers the purchase of AAUs forms a fundamental problem, because it does not generate GHG reductions. A solution for this can be found in a Green Investment Scheme (GIS), which links emission mitigation activities and projects with the transfer of AAUs[31].

Sellers of AAUs can benefit from this scheme because green AAUs can have a higher price then regular AAUs. Countries can draft their own requirements for GIS. Because of this the administrative expenses can be significant lower compared to a JI-project. A GIS must fulfil the eligibility criteria for Track One, it is modelled upon JI projects, but more flexible. For instance, GIS could support environmental projects or activities where exact carbon emission reduction is more difficult to verify and with GIS the timing of the emission reduction could extend beyond 2012. Also, GIS could provide the flexibility to both parties to direct the funding as appropriate, and to achieve the overall emission reductions in the most efficient manner and in the shortest possible time[32].

6.4 Gold Standard

The Gold Standard has been initiated by WWF in conjunction and consultation with a wide range of environmental, business and governmental organisations and on the basis of work already carried out by other groups. It is the first independent best practice benchmark for CDM and JI projects. It provides project developers with a tool to ensure that the CDM and JI deliver credible projects with real environmental benefits and, in so doing, confidence to host countries and the public that projects represent new and additional investments in sustainable energy services.

[30] Pointcarbon
[31] Faber et. al., 2005.
[32] Worldbank, 2004.

The Gold Standard is based on a simple but rigorous assessment framework, meeting the following criteria:[33]

- A balance between environmental rigour with practicality in terms of application by project developers and operational entities.
- Avoidance of elevated transaction costs or bureaucratic procedure.
- Direct compatibility with the CDM and JI project cycles.
- Simple procedures, easily handled by standard CDM project operators, including developers, verifiers and local NGOs.

The Gold Standard can be used for buyers to profile their organisation, the CERs generated by projects which comply to these standards have a relative higher price (compared with 'regular' CERs). An example of this is the organizing committee of the 2006 FIFA World Cup in Germany, which is looking for 60,000 CERs from Gold Standard CDM projects, preferably in South Africa. In order to neutralise the carbon emissions from the championship.

6.3 Price of EUAs vs. Price of CERs/ERUs[34]

The widening gap between prices of carbon in JI / CDM and in the EU ETS is raising concerns from project sponsors and host countries. Three sets of elements can explain this differential.

- First, the markets for EUAs and for JI/CDM ERs are very different. Project-based ERs, as long as they have not been registered and delivered, are subject to important registration and delivery risks. By contrast, EUAs are government-issued, compliance-grade assets. And delivery risks in forward contracts for EUAs within Europe are likely to be smaller, on average, than in contracts for forward delivery of project-based ERs from developing countries.
- Second, the two markets are only partially connected. Precisely, for a project-based ER to be valid under the pilot phase of the EU ETS (2005-2007), the seller must be able to guarantee delivery of CERs from the 2005, 2006 or 2007 vintages, which can be challenging. In addition, certain technical aspects of the import of CERs into the EU ETS are still subject to some uncertainty.
- Third, there are reasons to believe that the current prices of EUAs does not reflect long-term equilibrium price between supply and demand on the EU ETS: few entities are selling allowances, there are still large uncertainties over some national allocation plans, and weather and high oil prices have had an important impact on prices. Relatively thin volumes traded so far have also resulted in high price volatility.

6.4 The tendering procedure

The way governments, can acquire large amounts of CERs and ERUs is by a tendering procedure[35]. Governments were the first to come with such a type of tenders for the purchase of emission reductions. During the last year though, large companies (e.g. the Spanish electricity company Endesa) and carbon funds (e.g. the Worldbanks' Prototype Carbon Fund) have started their own tenders, mostly based on the above mentioned tendering procedure.

[33] WWF, 2003.
[34] Lecocg, F. and K. Capoor, 2005.
[35] as mandatory by 92/50/EEC considering the coordination of procedures for the award of public service contracts.

These tenders generally have the following structure:

- In the first phase, candidates are selected on the basis of an Expression of Interest (EoI). Through this EoI they will have to express their interest in selling Emission Reductions and justify their administrative, technical and financial capacity to deliver these units.
- In the second phase, candidates selected during the First Phase are invited to submit a proposal. A validated PDD will be requested and the projects will be evaluated on for instance their certainty of delivering Emission Reductions and the price per unit.

To facilitate the development of emission reduction projects, countries have signed a Memorandum of Understanding (MoU). This is essentially an agreement between two parties that aims to formally recognise a joint desire to ultimately conclude an agreement or to achieve goals jointly. It may or may not have legal backing or sanction (depending upon how it is constructed).

If there is an principle agreement with a project developer and a host country, the host country can sign a Letter of Endorsement (LoE). This confirms that in principle the host government is happy to formally consider the project proposal for a CDM or JI project.

The next step is a more binding Letter of Intent (LoI). The aim of the LOI is for each party to agree on the terms and conditions for cooperation as well as the intentions of selling and buying ERs.

Successful project participants (who have completed the second phase), will then be invited to enter into contract negotiations and subsequently to sign an Emission Reduction Purchase Agreement (ERPA). This is a carbon purchase agreement - a contract between the carbon buyer and seller. Such a contract has the purpose of:

- Record agreement;
- Identify responsibilities;
- Establish rights;
- Manage risk.

The main elements are the purchase of ERs from the Project Entity or payment for achieving Ers an arrangement for initial and periodical verification, validation and certification and the transfer of ERs. The road to such an ERPA for the Prototype Carbon Fund (PCF) projects can be seen in the figure below[36].

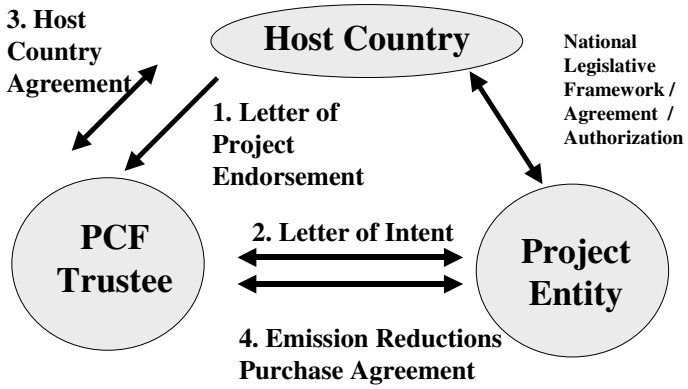


Figure 8. Road to an ERPA for projects under the PCF.

[36] Presentation PCF; contracting carbon.

Annex 1: List of Annex I countries

Australia
Austria
Belarus
Belgium
Bulgaria
Canada
Croatia
Czech Republic
Denmark
Estonia
European Economic Community
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Latvia
Liechtenstein
Lithuania
Luxembourg
Monaco
Netherlands
New Zealand
Norway
Poland
Portugal
Romania
Russian Federation
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
Ukraine
United Kingdom of Great Britain and Northern Ireland
United States of America

Annex 2 Serial number of Kyoto Protocol Units

Serial number of Kyoto Protocol Units

- Every CO2 of KP units is given a unique serial number.
- Each KP unit shall be held in only one account in one registry at a given time.

Serial Number Identifiers[37]

1	2	3	4	5	6	7	8	9	10	11
XX	1		000,000,000,000,001	999,999,999,999,999	01	01	1	0000001	1	XX/YY/ZZ

	Identifier	Range or Codes
1	Originating Registry	Two-letter country codes in ISO3166, as of 01 January 2005
2	Unit Type	1 = AAU, 2 = RMU, 3 = ERU converted from AAU, 4 = ERU converted from RMU, 5 = CER, 6 = tCER, 7 = lCER
3	Supplementary Unit Type	Blank for Kyoto-only Units, or as defined by STL
4	Unit Serial Block Start	Unique numeric values assigned by registry from 1 - 999,999,999,999,999
5	Unit Serial Block End	Unique numeric values assigned by registry from 1 - 999,999,999,999,999
6	Original Commitment Period	1-99
7	Applicable Commitment Period	1-99
8	LULUCF Activity	1 = Afforestation and reforestation, 2 = Deforestation, 3 = Forest management, 4 = Cropland management, 5 = Grazing land management, 6 = Revegitation
9	Project Identifier	Unique numeric value assigned by registry for Project
10	Track	1 or 2
11	Expiry Date	Expiry Date for tCERs and lCERs

Modalities for dealing with KP units [Data exchange standards for registry system under the Kyoto Protocol, draft technical specifications Annexes Non-paper, November 3, 2004, p F-2]

[37] Ministry of Environment Japan, (2005).

Annex 3: Useful Websites

Project website : www.euets.net
Website for the EU project Capacity building on EU ETS in the New Member states. On this website this manual and the other manuals and documents of the project can be downloaded.

European Commission Environment DG http://europa.eu.int/comm/environment/
This website informs visitors about all relevant issues pertaining to the environment. It provides up-to-date information on the state of our environment, policy initiatives and legislative issues.

EU Community Transaction Log: http://europa.eu.int/comm/environment/ets
The EU emission trading hub. With links to the National Registries.

United Nations Framework Convention on Climate Change: www.unfccc.int
The Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. Under the convention governments:

- Gather and share information on greenhouse gas emissions, national policies and best practices;
- Launch national strategies for addressing greenhouse emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries;
- Cooperate in preparing for adaptation to the impacts of climate change.

International Emission Trading Organisation: www.ieta.org
IETA is a non-profit, pro-active group of business organisations created in June 1999 to establish a functional international framework for trading greenhouse gas emission reductions.

Emission Marketing Organisation: www.ema.org
The mission of the Emissions Marketing Association is to promote market-based trading solutions for environmental management and to serve its membership.

Annex 4 References

All downloads have been done in November 2005.

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http://www.defra.gov.uk/corporate/consult/etsregs05-amend1/consultation.pdf).

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CDM modalities and procedures.
(obained from http://cdm.unfccc.int/Reference/Documents/cdmmp/English/mpeng.pdf)

Guidelines for the implementation of Article 6 of the Kyoto Protocol
(obtained from http://unfccc.int/resource/docs/cop7/13a02.pdf#page=5)

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Annex 5 Glossary of Terms[38]

Assigned Amount Units (AAUs): Each Party annually receives emission rights, equal to their emission cap for 2008-2012. These initial allocations are called Assigned Amount Units. In order to cover the GHGs emission at the end of each year each Party must surrender AAUs equal to their GHGs emission to the UNFCCC.

Accredited Independent Entity: The Accredited Independent Entity (AIE) is an independent third party verifier for Track Two JI, which corresponds to a DOE for the CDM.

Additionality: According to the Kyoto Protocol, gas emission reductions generated by Clean Development Mechanism and Joint Implementation project activities must be additional to those that otherwise would occur. Additionality is established when there is a positive difference between the emissions that occur in the baseline scenario, and the emissions that occur in the proposed project.

Annex I countries: These are the 36 industrialised countries and economies in transition listed in Annex I of the UNFCCC. Their responsibilities under the Convention are various, and include a non-binding commitment to reducing their GHG emissions to 1990 levels by the year 2000.

Annex B countries: These are the 39 emissions-capped industrialised countries and economies in transition listed in Annex B of Kyoto Protocol. Legally-binding emission reduction obligations for Annex B countries range from an 8% decrease (e.g. EU) to a 10% increase (Iceland) on 1990 levels by the first commitment period of the Protocol, 2008-2012.

Approved Methodology: A methodology is a tool to determine the baseline for an individual project activity, reflecting aspects such as data availability, sector and region. In cases where no methodology applicable to the proposed project has been approved by the CDM Executive Board project participants have the opportunity to propose a new methodology.

Banking: Banking is putting allowances (EUA or CERs) from the first Phase on an account in the National Registry and use them in the second Phase.

Baseline: The baseline for a CDM project activity is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases (GHG) that would occur in the absence of the proposed project activity. A baseline should cover emissions from all gases, sectors and source categories listed in Annex A (of the Kyoto Protocol) within the project boundary.

Business as Usual (BAU): The activities, emissions or removals that would occur in the absence of the proposed offset project.

Bundling: refers to combining or aggregating a number (more than one) of small-scale projects

[38] Based on IT Power UK et. al., 2003 and http://europa.eu.int/comm/environment/climat/glossary.htm ; http://www.climatechange.gc.ca/english/publications/offset_dp/dp/annex1.asp

and/or project activities into a single emissions reduction project. Small-scale CDM project activities may be bundled at the following stages in the project cycle: the project design document, validation, registration, monitoring, verification and certification.

Carbon Dioxide Equivalent (CO_2eq): The universal unit of measurement used to indicate the global warming potential (GWP) of each of the six greenhouse gases listed in Annex A of the Kyoto Protocol – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

Certified Emission Reductions (CERs): the technical term for the output of CDM projects, as defined by the Kyoto Protocol. One CER is the reduction of 1 tonne of carbon dioxide equivalent.

Certification: Certification is the written assurance by the designated operational entity that, during a specified time period, a project activity achieved the reductions in anthropogenic emissions by sources of greenhouse gases (GHG) as verified.

CDM Executive Board (CDM EB): The formal governance body established under Article 12 of the Kyoto Protocol to oversee the implementation and administration of the CDM, under the authority and guidance of the COP/MOP.

Clean Development Mechanism (CDM): The CDM was established by Article 12 of the Protocol and refers to climate change mitigation projects undertaken between Annex 1 countries and non-Annex 1 countries (see below). Project investments must contribute to the sustainable development of the non-Annex 1 host country, and must be independently certified. This latter requirement gives rise to the term “certified emission reductions” or CERs, which describe the output of CDM projects, and which under the terms of Article 12 can be banked from the year 2000, eight years before the first commitment period (2008-2012).

Commitment Period: A period for which the emissions limitation commitments apply under the Kyoto Protocol. The first commitment period is 2008 through 2012.

Conference of Parties (COP): The meeting of parties to the United Nations Framework Convention on Climate Change.

COP/MOP: Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. To avoid duplication, the COP will serve as the MOP. The first session of the COP/MOP will take place once the Protocol has entered into force. Parties to the UNFCCC that are not Parties to the Protocol will be able to participate in the COP/MOP as observers.

Consolidated Approved Methodology: These are based on several approved methodologies, and give, compared to an approved methodology, a higher certainty in the amount of CERs to be generated.

Designated National Authority (DNA): The national authority for CDM designated by the Party to the Protocol.

Designated Operational Entity (DOE): An entity designated by the COP (or MOP), based on

recommendation by the Executive Board, as qualified to validate proposed CDM project activities as well as verify and certify reductions in anthropogenic emissions by sources of greenhouse gases (GHG). A designated operational entity shall perform validation or verification and certification on the same CDM project activity. Upon request, the Executive Board may however, allow a single DOE to perform all these functions within a single CDM project activity.

Determination: It has the same purpose as CDM validation, namely to have an independent third party assess the project design. This in order to confirm the amount of ERUs to be generated by the project activity.

Double Counting: Double counting of EUAs would occur if JI projects lead indirectly or directly to a reduction or limitation in emissions from an installation under ETS.

Emission Cap: A limit designed to prevent projected growth in emissions from existing and future stationary sources from eroding any mandated reductions. Generally, such provisions require that any emission growth from facilities under the restrictions be offset by equivalent reductions at other facilities under the same cap.

ER: Emission Reduction.

Emission Reductions Purchase Agreement (ERPA): Agreement which governs the purchase and sale of emission reductions.

Emission Reduction Units (ERUs): JI projects will generate ERUs for Annex I investor countries in proportion to the amount of GHG emissions each project saves. The investor country can then add the ERUs to its assigned amount under the Kyoto Protocol, while the host country must deduct them from its own emissions allocation.

European Union Allowances (EUAs): The EU ETS Governments to limit the total carbon dioxide emissions from national installations covered by the Scheme and to allocate allowances European Union Allowances equal to this cap to the operators of individual installations.

European Union Emissions Trading Scheme (EU ETS): The European Parliament adopted on 13 October 2003 directive 2003/87/EC, which establishes a scheme for greenhouse gas emission allowance trading within the European Community (EU ETS). Member states have to transpose this directive in national legislation. In this trading scheme only countries from within the EU can participate.

Flexible Mechanisms: The Protocol introduces three market mechanisms, the so-called Kyoto Mechanisms. By using these mechanisms, Annex I Parties can achieve their emission reduction targets in a cost-effective and economically efficient manner. The Mechanisms are: emissions trading, CDM and JI.

Greenhouse Gases (GHGs): These are gases released by human activity that are responsible for climate change and global warming. The six gases listed in Annex A of the Kyoto Protocol are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), as well as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

Host Country: The country where an emission reduction project (under Joint Implementation or the Clean Development Mechanism) is physically located.

International Emissions Trading (IET): International Emission Trading defined in Article 17 of the Kyoto Protocol provides for a stock-exchange for emission rights.

International Transaction Log (ITL): The goal of the UNFCCC is to have a global carbon market where all the Parties to the Protocol can trade their emission allowances and by this establishing a cost effective reduction in the GHG emissions. These transactions are to have place in the UNFCCC International Transaction Log. This is a on-line registry which foresees in the transfer of allowances from the selling party to the buying party.

Intergovernmental Panel on Climate Change (IPCC):. Widely regarded as the most authoritative international voice on the science and impacts of climate change. Established by governments under the auspices of the World Meteorological Organization and UN Environment Programme (UNEP).

Joint Implementation (JI): Joint implementation under Article 6 of the Kyoto Protocol provides for Annex I Parties to implement projects that reduce emissions, or remove carbon from the atmosphere, in other Annex I Parties, in return for emission reduction units (ERUs). The ERUs generated by JI projects can be used by Annex I Parties towards meeting their emissions targets under the Protocol.

JI Designated Focal Point: The national government of the country in which the JI project is located must approve the project, his approval is given by the national JI designated focal Point, which is installed by the national government.

JI Supervisory Committee (JISC): The JI Supervisory Committee is the equivalent of the CDM EB. It will be installed during COP/MOP 1. The JISC will supervise the Track Two projects, therefore ERUs from Track Two projects can not be transferred if the JISC is not operational.

Kyoto Protocol: Adopted at the Third Conference of the Parties to the United Nations Convention on Climate Change held in Kyoto, Japan in December 1997, the Kyoto Protocol commits industrialised country ratifiers to reduce their greenhouse gas (or "carbon") emissions by an average of 5.2% compared with 1990 emissions, in the period 2008-2012.

Leakage: Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases (GHG) which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity.

Letter of Approval (LoA): A letter issued by the Designated National Authority (DNA) of the Host Country to a CDM Project confirming that the project, as proposed, will assist the Host Country to achieve its goals of sustainable development.

Letter of Intent (LoI): The aim of the Letter of Intent is for each party to agree on the terms and conditions for cooperation as well as the intentions of selling and buying CERs.

Linking Directive: The Linking Directive (2004/101/EC) is an amendment to Directive 2003/87/EC. It establish a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms. It was approved by parliament on 27 October 2004, the deadline for implementation in national legislation by member states was 13 November 2005.

Land Use, Land-Use Change and Forestry (LULUCF): A range of activities which can act either as carbon sinks or as emission sources. This area remains subject to considerable scientific and other uncertainties and risks.

Marrakech Accords: Detailed rules for a number of the provisions of the Kyoto Protocol that were negotiated and adopted by Conference of the Parties 7 in Marrakech, November 2001.

Member State: A country that is a member of the European Union.

Monitoring Plan (MP): A set of requirements for monitoring and verification of emission reductions achieved by a project. The Monitoring Plan is part of the PDD.

National Allocation Plan (NAP): The number of EUAs that each member state intends to allocate to each installation is set out in their National Allocation Plan. These NAPs have to be approved by the European Commission. The national allocation plan has to be put together in a way that is objective, transparent and open to public comment.

National Registry: A National Registries can be seen as a bank-account which holds the amount of emission allowances of a Party (or private firm). In order to make trade possible the Registries are connected to the UNFCCC ITL. In the registries data on transfers of Kyoto units among nations as well as domestic transfers are recorded.

Non Governmental Organisation (NGO): NGOs are development organizations that do not belong to, and are not associated with, national or local governments.

Non-Annex I countries: Countries which are not listed in Annex I of the UNFCCC (generally developing and least developed countries)

Official Development Assistance (ODA): A condition for CDM projects is that public funding for CDM projects from Annex I Parties is not to result in the diversion of official development assistance.

Party to the Kyoto Protocol: A country that has ratified the Kyoto Protocol.

Phase 1: Phase 1 of the European Union Emission Trading Scheme (EU ETS) covering the period 2005-2007.

Phase 2: Phase 2 of the European Union Emission Trading Scheme (EU ETS) covering the period 2008-20012, parallel with the first commitment period.

Project Activity: A project activity is a measure, operation or an action that aims at reducing greenhouse gases (GHG) emissions. The Kyoto Protocol and the CDM modalities and procedures use the term "project activity" as opposed to "project". A project activity could, therefore, be identical with or a component or aspect of a project undertaken or planned.

Project Boundary: The project boundary encompasses all anthropogenic emissions by sources of Greenhouse gases (GHG) under the control of the project participants that are significant and reasonably attributable to the CDM project activity.

Project Design Document (PDD): A project specific document required under the CDM rules which will enable the Operational Entity to determine whether the project (i) has been approved by the parties involved in a project, (ii) would result in reductions of greenhouse gas emissions that are additional (iii) has an appropriate baseline and monitoring plan.

Project Concept Note (PCN): The Project Concept Note is a document that already demonstrates a complete planning of a project in terms of all required CDM criteria, is given to interested parties that may buy/invest in or CERs from the project. Typical of a PCN is its more extended information, compared to the PIN, but still not fully substantiated in detail. In general a PCN consists of 10-15 pages.

Project Idea Note (PIN): The Project Idea Note provides indicative information on the project. It is normally a 5-10 page document on a ER project, and assesses whether the project meets general criteria of the DNA. In some countries a PIN is a tool to get a letter of endorsement from the DNA of host country, and can be used by project participants to seek additional financial support from potential investor The PIN is used as a marketing tool –to distribute to potential ER investors to begin negotiations for partnership (e,g. buying ERs).

Registration: Registration is the formal acceptance by the Executive Board of a validated project activity as a CDM project activity. Registration is the prerequisite for the verification, certification and issuance of CERs related to that project activity.

Removal Unit (RMU): A unit issued for the amount generated from domestic sinks activities.

Small-scale CDM project activities: Includes project activities that fall within the limits below:

- Renewable energy project activities with a maximum installed capacity of 15MW;
- Energy efficiency improvement activities up to 15 gigawatt hours per year;
- Other project activities that both reduce emissions directly less than 15,000 tonnes of carbon dioxide equivalent per year.

Sink: Ecosystems, notably forests and oceans, which can remove carbon from the atmosphere by absorbing and storing it, thereby offsetting CO2 emissions. The Kyoto Protocol allows certain terrestrial human-induced sinks activities undertaken since 1990 to be counted towards Annex I Parties' emission targets.

Sustainable Development: The original definition by the Brundtland Commission report

states that development is sustainable when it "meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Sustainable development is a requirement of CDM projects and it is the responsibility of the host country to confirm whether a CDM project activity assists in achieving sustainable development.

Track One: Track One procedures for JI-projects apply when the host country meets all the eligibility requirements related to the transfer and acquisition of ERUs. In this situation, Annex I host countries are allowed to apply their own procedures for assessing JI project emissions additionality.

Track Two: Track Two procedures for JI-project apply when the host country does not meets all the eligibility requirements related to the transfer and acquisition of ERUs. In this situation the emission reductions have to be determined by an AIE.

United Nations Framework Convention on Climate Change (UNFCCC): The international legal framework adopted in June 1992 at the Rio Earth Summit to addresses climate change. It commits the Parties to the UNFCCC to stabilise human induced greenhouse gas emissions at levels that would prevent dangerous manmade interference with the climate system.

Validation: The assessment of a project's Project Design Document, which describes its design including its baseline and monitoring plan, by a Designated Operational Entity, before the implementation of the project against the requirements of the CDM.

Verification: Verification is the periodic independent review and ex post determination by a designated operational entity against the requirements of the CDM.