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**GLOBAL CARBON MARKETS - EMISSIONS TRADING
TRAINING PROGRAM
FOR ENVIRONMENTAL AND GHG SPECIALISTS**

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SUSTAINABLE GAS ACCOUNTING & REPORTING
SUSTAINABLE SMART CITY



**PROJECT AND CREDIT MARKETS
FOR ENVIRONMENTAL PROFESSIONALS**

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LEARNING OBJECTIVES

DEMAND: WHO BUYS CERS AND ERUS?

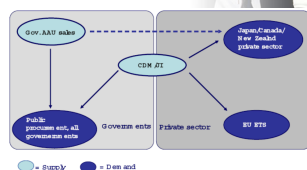
In the previous lesson, you learned that countries can buy Certified Emission Reductions and Emission Reduction Units as offsets to comply with their national emission targets under the Kyoto Protocol. These credits can be used to cover emissions in excess of an Annex I country's target during the 2008 to 2012 period. The case of a country like Germany investing in a Chinese wind farm is appropriate here – the German government has a state-run fund that buys credits from an array of different projects, not just in China.

However, individual companies in Germany and other European states also buy CERS and ERUs. They use these for compliance with their individual, meaning facility-level, emission reduction targets under the EU's emissions trading scheme, which you will learn about in the next lesson. This type of demand is called private demand because the buyers are not large government-run funds but private-sector companies.

DEMAND: WHO BUYS CERS AND ERUS?

As you should recall from Lesson 2, emission allowances allocated to national governments under the Kyoto Protocol are called Assigned Amount Units, or AAUs. These units may be traded among countries. If one country, for example Russia, has a surplus of AAUs, another government may purchase AAUs to comply with their Kyoto targets.

Thus the demand for project-based credits (CERs and ERUs) parallels demand for AAUs to a certain extent. But because AAUs are perceived as somewhat illegitimate, due to the issue of "hot air" we mentioned in lesson two, countries have thus far tended to favor the project-based credits.



WHAT COUNTRIES HOST CDM PROJECTS?

Of the developing, or non-Annex I, countries that are eligible to host CDM projects, China hosts by far the most with about one-third of all CDM projects taking place there. India is home to about 22 percent of all CDM projects and Brazil to 6 percent. This chart shows the percentage of CDM projects by host country.

Examples of CDM Projects Typical CDM project types include:

- * the destruction of greenhouse gases with high global warming potential. Recall the chart of the six greenhouse gases in Lesson 3 – eliminating just a few kilograms of hydrofluorocarbons is equal to the removal of thousands of kilograms of CO₂.
- * renewable energy projects such as wind farms, solar arrays, biomass burning facilities, or small-scale hydroelectric projects.
- * energy efficiency projects such as upgrades of industrial equipment or transmission lines that cause less energy to be used and therefore reduce emissions, and
- * projects that trap the greenhouse gas methane and either flare it or burn it to produce electricity. The source of methane for these projects can be coal mines, landfills or agricultural operations.

WHAT COUNTRIES HOST JI PROJECTS?

For JI, the most active project hosts are countries whose emissions are in no danger of exceeding their Kyoto targets anytime soon. These are countries who can thus afford to sell credits for emissions reductions occurring in their country rather than using them to achieve their own targets. The largest JI project countries are Russia, with 23 percent of the volume of credits in the pipeline, and Ukraine with 15 percent.

Examples of JI Projects Typical project types for JI include some of those employed in the CDM, such as renewable energy or energy efficiency projects. Another popular project type in Russia and other former Soviet Republics is repairing leaks in natural gas pipelines that would otherwise release methane, which are referred to as 'fugitive emissions.' Depending on the price of natural gas, fugitive emission reduction projects may have trouble meeting the additionality requirements. This situation occurs because, if the price of natural gas is high, then it is in the interest of the fuel company to fix leaks in its pipelines. Making industrial production more efficient, or using inputs that ensure industrial processes emit less carbon, are also popular JI project types.

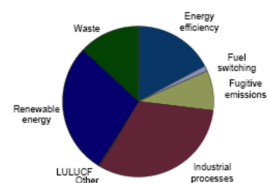
PROJECT TYPES, PLANNED REDUCTIONS

To date, the Clean Development Mechanism has issued far more credits than the Joint Implementation program. This is because there are more potential CDM host countries, and also because the bodies governing the CDM were established earlier than those governing the JI program.. The graphs you see here show the different types of projects and related reductions for the CDM and JI programs.

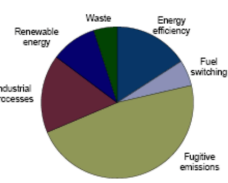
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PROJECT TYPES, PLANNED REDUCTIONS

CDM (2.7 Gt)



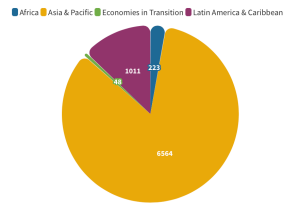
JI (0.3 Gt)



STATUS OF THE CDM MARKET TODAY

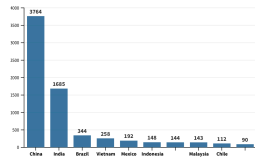
The scope of the CDM was to establish emission reduction projects in developing countries. Accordingly, by March 2022, a total of 7846 projects are registered across the world. Out of this, Asia & Pacific countries bagged more than 83% of the projects, followed by Latin America and Caribbean countries with 13%. Despite being an under-developed continent, Africa could only get 3% of the total registered projects.

Worldwide distribution of registered projects under CDM
(Data as of 31 March 2022)

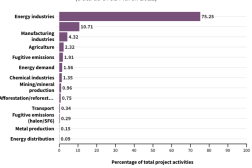


STATUS OF THE CDM MARKET TODAY+

Top 10 countries in registered projects under CDM
(Data as of 31 March 2022)



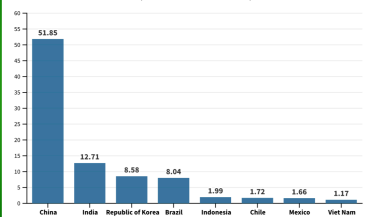
Project activities undertaken in CDM
(Data as of 31 March 2022)



STATUS OF THE CDM MARKET TODAY

As mentioned earlier, one CER is equivalent to one tonne of CO₂ emissions. It is important to understand that a greater number of projects does not necessarily translate into a greater number of CERs. This is because the CERs are calculated on the additional reductions or sequestrations that the project provides. A total of 2169 Million CERs are issued till 31 March 2022, out of which only China accrued more than 50%. It is followed by India, Korea, and Brazil with 12.7%, 8.6% and 8% respectively. The rest of the countries have less than 2% CERs issued by them.

Percentage of total CERs issued by the host country
(Data as on 31 March 2022)

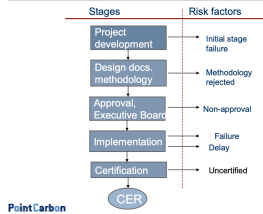


RISKS IN THE CDM AND JI PROJECT DEVELOPMENT CYCLE



A CDM or JI project has a long path to follow from the development phase to when credits are actually issued. Investors in CDM or JI projects should know the risks associated with the stages of the project cycle and weigh them against the potential for profit if they invest early.

Risk factors related to the project cycle



RISKS IN THE CDM AND JI PROJECT DEVELOPMENT CYCLE



Typical project risks include:

- ✓ difficulty securing financing;
- ✓ disagreement over the terms of a contract to purchase the resulting credits (CERs or ERUs) between the buyer and the seller;
- ✓ lack of validation, often due to disagreement over documentation or methodology outlined in the project design document
- ✓ lack of approval by the host country
- ✓ rejection of the project by the CDM EB or for JI, the JISC
- ✓ delays at any stage in the project cycle. For example, equipment needed for the project or for monitoring the project may arrive late or not be accessible.
- ✓ Even after a project is registered, it is still not risk free for an investor.
- ✓ The project's monitoring system could break down, making the emission reduction credits that have accrued so far become unverifiable.
- ✓ For buyers of CERs and ERUs, counterparties in the contract for the emission reduction credits could default or fail to deliver the amount of CERs or ERUs agreed.
- ✓ The political situation in the host country could change, altering the terms under which an emission reduction purchase agreement was originally drawn up.
- ✓ And lastly, projects may simply not perform as expected, due to underperforming technologies or overly-optimistic assumptions, leaving investors with fewer credits to sell

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