

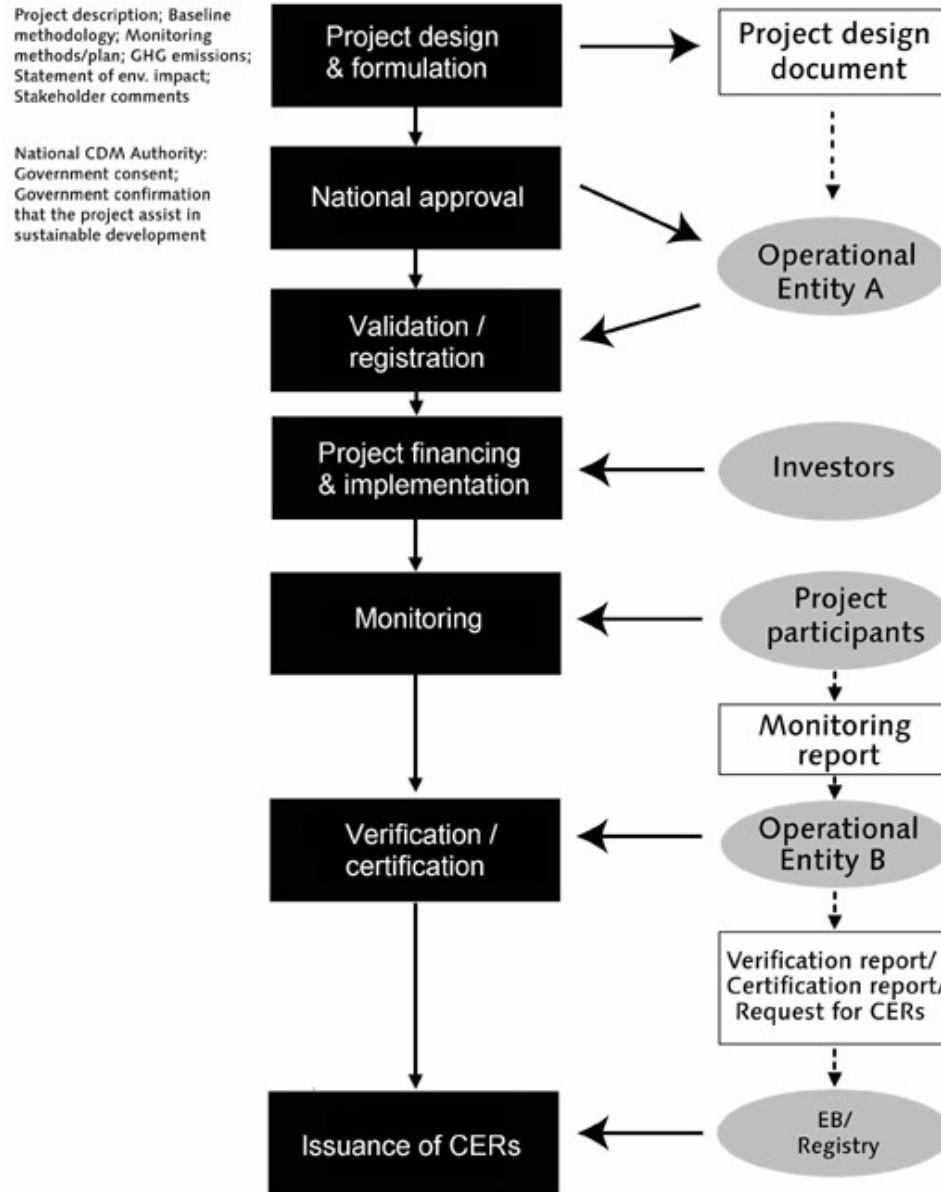
Overview of CDM bioenergy projects

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- The UNEP Risoe CDM Pipeline
- Which status do the CDM projects have?
- How fast are CDM projects coming into the pipeline?
- In which sectors are CDM projects made?
- Which countries host most CDM projects?
- Which countries host the biomass projects?
- How many MW installed using which biomass?

Project cycle for the CDM



Project description; Baseline methodology; Monitoring methods/plan; GHG emissions; Statement of env. impact; Stakeholder comments

National CDM Authority: Government consent; Government confirmation that the project assist in sustainable development

Legends:



Activity



Report



Institution

The UNEP Risoe CDM Pipeline Overview



- The CDM Pipeline spreadsheet is available at www.cd4cdm.org under “news” or “publications”.
- The Pipeline contains all CDM projects (and all JI projects) which have been sent for validation.
- The pipeline contain a list of all new and approved methodologies.
- The Pipeline is updated about each month, and contains.
- The Pipeline contains various analysis

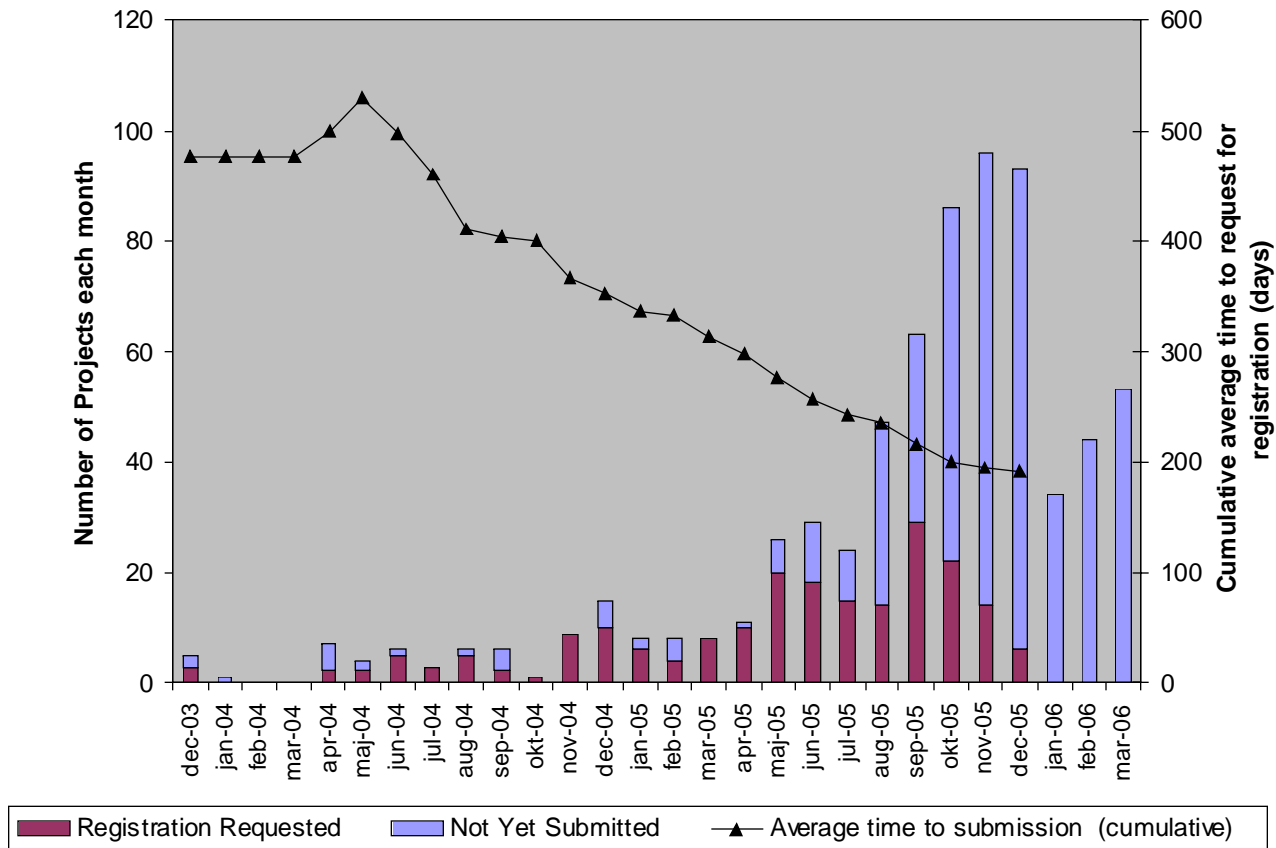
693 CDM projects now under validation and registration

| Status of projects (1 April 2006) | Number |
|---|--------|
| At validation (public comments for for 30 days; LULUCF 45 days): | 484 |
| Request for registration (normal 8 weeks, small-scale 4 weeks): | 55 |
| Request for review | 3 |
| Withdrawn | 2 |
| Under review (final<=2nd EB meeting after decision): | 0 |
| Rejected by EB: | 0 |
| Registered, no issuance requested | 138 |
| Registered, request for CERs: | 2 |
| Registered, CER issuance review (final <30 days): | 0 |
| Registered. CER issued (<15 days after the receipt of req. for issuance): | 9 |
| Total number of projects: | 693 |

All CDM projects are projected to deliver 909 MtCO₂ reductions at the end of 2012. 4.5 MCER's have been issued.

How fast are CDM projects coming into the pipeline?

Number of CDM projects starting the public comments period each month, the number of them that have requested registration, and the cumulative timelag between these two events.

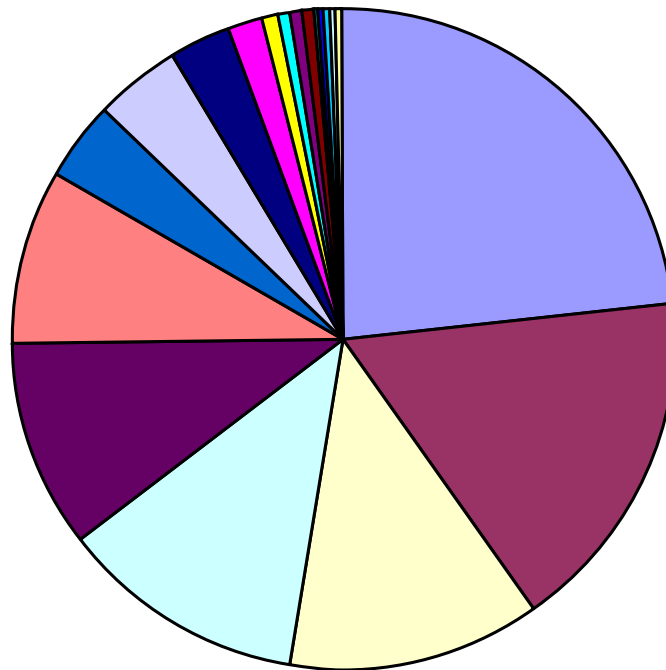


In which sectors are CDM projects made?

| Type | CDM | | | | | |
|--|------------|-------------|---------------|-------------|--------------------------|-------------|
| | number | | CERs/yr (000) | | Accumul. 2012 CERs (000) | |
| Biomass energy | 162 | 23% | 8032 | 6% | 62562 | 7% |
| Hydro | 117 | 17% | 6746 | 5% | 46974 | 5% |
| EE Industry | 83 | 12% | 6789 | 5% | 53388 | 6% |
| Wind | 84 | 12% | 5917 | 4% | 44176 | 5% |
| Agriculture | 71 | 10% | 4868 | 4% | 35109 | 4% |
| Landfill gas | 58 | 8% | 16013 | 12% | 112898 | 12% |
| Fossil fuel switch | 28 | 4% | 1334 | 1% | 11820 | 1% |
| Biogas | 28 | 4% | 1411 | 1% | 11426 | 1% |
| Cement | 22 | 3% | 2629 | 2% | 23758 | 3% |
| HFCs | 11 | 2% | 56109 | 42% | 357762 | 39% |
| Fugitive | 5 | 1% | 5030 | 4% | 34386 | 4% |
| Solar | 5 | 1% | 56 | 0% | 358 | 0% |
| Geothermal | 4 | 1% | 817 | 1% | 5294 | 1% |
| EE Households | 3 | 0% | 42 | 0% | 253 | 0% |
| N2O | 3 | 0% | 16385 | 12% | 100699 | 11% |
| Energy distrib. | 2 | 0% | 209 | 0% | 1509 | 0% |
| EE Service | 2 | 0% | 597 | 0% | 4651 | 1% |
| Coal bed/mine methane | 1 | 0% | 15 | 0% | 94 | 0% |
| Tidal | 1 | 0% | 311 | 0% | 1087 | 0% |
| Transport | 1 | 0% | 7 | 0% | 59 | 0% |
| Afforestation & Reforestation | 2 | 0% | 72 | 0% | 619 | 0% |
| Total | 693 | 100% | 133389 | 100% | 908882 | 100% |
| HFC & N2O reduction | 14 | 2% | 72494 | 54% | 458461 | 50% |
| CH4 reduction & Cement & Coal mine/bed | 157 | 23% | 28555 | 21% | 206245 | 23% |
| Renewables | 401 | 58% | 23290 | 17% | 171877 | 19% |
| Energy efficiency | 91 | 13% | 7644 | 6% | 59860 | 7% |
| Fuel switch | 28 | 4% | 1334 | 1% | 11820 | 1% |
| Afforestation & Reforestation | 2 | 0% | 72 | 0% | 619 | 0% |

Biomass Energy projects are the most popular

Number (%) of CDM projects in each sector



- Biomass energy
- Hydro
- EE Industry
- Wind
- Agriculture
- Landfill gas
- Fossil fuel switch
- Biogas
- Cement
- HFCs
- Fugitive
- Solar
- Geothermal
- EE Households
- N2O
- Energy distrib.

Which countries host most CDM projects?

| Host Country | Number |
|--------------|--------|
| India | 267 |
| Brazil | 131 |
| China | 46 |
| Mexico | 37 |
| Philippines | 21 |
| Chile | 20 |
| Honduras | 14 |
| Malaysia | 14 |
| Thailand | 12 |
| Ecuador | 10 |
| South Korea | 9 |
| Argentina | 8 |
| South Africa | 8 |
| Colombia | 7 |
| Guatamala | 7 |
| Indonesia | 7 |
| Peru | 6 |
| El Salvador | 5 |
| Panama | 5 |
| Sri Lanka | 5 |
| Vietnam | 5 |
| Bolivia | 4 |
| Costa Rica | 4 |
| Moldova | 4 |
| Morocco | 4 |

Some regions are behind!

| Total in the CDM Pipeline | Number | | kCERs | 2012 kCERs | |
|----------------------------|--------|--------------|--------|------------|--------------|
| Latin America | 265 | 38,2% | 36124 | 256421 | 28,2% |
| Asia & Pacific DC | 396 | 57,1% | 89156 | 602792 | 66,3% |
| Other Europe | 10 | 1,4% | 472 | 3000 | 0,3% |
| Sub-Sahara Africa | 13 | 1,9% | 6096 | 36738 | 4,0% |
| North Africa & Middle-East | 9 | 1,3% | 1541 | 9931 | 1,1% |
| World | 693 | 100% | 133389 | 908882 | 100% |

Which countries host the biomass projects?

| Biomass CDM projects | No. of projects | |
|----------------------|-----------------|--------|
| | Solid | Liquid |
| India | 71 | 12 |
| Brazil | 55 | 21 |
| Mexico | 3 | 24 |
| Philippines | 0 | 17 |
| Thailand | 3 | 8 |
| Chile | 4 | 6 |
| Malaysia | 10 | 0 |
| Honduras | 4 | 1 |
| Indonesia | 3 | 1 |
| Ecuador | 1 | 3 |
| El Salvador | 2 | 0 |
| Nicaragua | 1 | 1 |
| South Africa | 1 | 1 |
| Nepal | 0 | 2 |
| Colombia | 1 | 0 |
| Guatamala | 1 | 0 |
| Cambodia | 1 | 0 |
| Peru | 1 | 0 |
| China | 0 | 0 |
| Armenia | 0 | 1 |
| Vietnam | 0 | 1 |
| Total | 162 | 99 |

How many MW installed using which biomass resource

| Biomass CDM projects | | |
|---|----------|------|
| Ressource/technology | Projects | MW |
| Bagasse cogeneration | 70 | 1915 |
| Agricultural residues: several kinds | 24 | 149 |
| Agricultural residues: rice husk | 27 | 177 |
| Agricultural residues: mustard crop | 4 | 43 |
| Agricultural residues: poultry litter | 1 | 3 |
| Palm oil: Cogeneration from solid waste | 12 | 95 |
| Palm oil: biodiesel from liquid waste | 1 | 0 |
| Forest residues: sawmill waste | 7 | 105 |
| Forest residues: other | 4 | 50 |
| Forest biomass | 3 | 0 |
| Reforestation | 2 | 0 |
| Industrial waste | 3 | 41 |
| Gasification | 3 | 4 |
| MSW incineration | 1 | 0,4 |
| Biogas: flaring | 71 | 0 |
| Biogas: used for power production | 28 | 67 |
| Total | 261 | 2649 |

Which full scale approved biomass methodologies exist?

| | |
|--------------|--|
| Methodology | Biomass: (not applicable for non-renewable biomass, EB21) |
| AM7 | Switch from coal/lignite to seasonal agro-biomass power |
| ACM6 (ver 2) | Grid-connected electricity from biomass residues (includes AM4 & AM15) |
| AM27 | Substitution of CO2 from fossil or mineral origin by CO2 from renewable resources in production of inorganic compounds |

ACM0006 applicability conditions:

- Grid-connected and *biomass residue* fired electricity generation project activities, including cogeneration.
- Greenfield power projects + Power capacity expansion projects + capacity replacement + fuel switch.
- No municipal waste. No increase of raw input processing capacity. Biomass stored < 1 year.

46% of all CDM projects are small scale

| Project types | Small-scale CDM project activity categories | Number |
|---|--|--------|
| Type I: Renewable energy projects <15 MW | A. Electricity generation by the user | 12 |
| | B. Mechanical energy for the user | 3 |
| | C. Thermal energy for the user | 31 |
| | D. Renewable electricity generation for a grid | 211 |
| Type II: Energy efficiency improvement projects <15 GWh savings | A. Supply side energy efficiency improvements - transmission and distribution | 0 |
| | B. Supply side energy efficiency improvements - generation | 9 |
| | C. Demand-side energy efficiency programmes for specific technologies | 6 |
| | D. Energy efficiency and fuel switching measures for industrial facilities | 23 |
| | E. Energy efficiency and fuel switching measures for buildings | 4 |
| | F. Energy efficiency and fuel switching measures for agricultural facilities and activities | 0 |
| Type III: Other project activities always <15 ktCO₂ | A. Agriculture | 0 |
| | B. Switching fossil fuels | 13 |
| | C. Emission reductions by low-greenhouse emission vehicles | 1 |
| | D. Methane recovery | 30 |
| | E. Avoidance of methane production from biomass decay through controlled combustion | 24 |
| | F. Avoidance of methane production from biomass decay through composting | 0 |
| | G. Landfill methane recovery | 0 |
| | H. Methane recovery in wastewater treatment | 1 |
| | I. Avoidance of methane production in wastewater treatment through replacement of anaerobic lagoons by aerobic systems | 0 |

What about liquid biofuels and CDM?

The only project in the pipeline is: “Bio-Diesel Fuel Production Project in Indonesia”. This project in the validation phase uses small-scale methodology III.B.

Biofuel methodologies under development:

NM82: “Khon Kaen fuel EtOH” in Thailand

NM108: “30 TPD Biodiesel project in Andhra Pradesh”

NM129: “Methyl-ester biodiesel from sunflower on unused land “ in Thailand. Might be approved at EB24?

NM 142: “Palm Methyl Ester – Biodiesel project” in Thailand