DRAFT

Annex 20

COVER NOTE

DRAFT SUMMARY OF THE STUDY – "BENEFITS OF THE CDM – 2012"

I. Background

1. The Board, at its sixty-fifth meeting, considered the study "Benefits of the clean development mechanism – 2011", and requested the secretariat to continue providing such studies.

II. Purpose

2. This document summarizes the key findings of the latest study "Benefits of the clean development mechanism – 2012" report ,which provides both updated and new facts about the CDM its benefits and impacts. This report leads on from last years "Benefits of the clean development mechanism – 2011" report.[1]

III. Key issues and proposed solutions

3. The summary of the "Benefits of the clean development mechanism – 2012" report highlights some of the benefits and impacts of the CDM under four topics: sustainable development, technology transfer, finance and regional distribution.

4. The work is based on an aggregated assessment of approximately 4,000 registered CDM projects activities (no programmes of activities), verification via a survey of the same and statistical analyses.

IV. Proposed work and timelines

5. The complete "Benefits of the clean development mechanism – 2012" report will be made available in October 2012, via the CDM website.

V. Impacts

6. The report is indented for those interested in the CDM its benefits and impacts and the general public.

VI. Recommendation to the Board

7. The Board may wish to take note of the summary of the "Benefits of the clean development mechanism – 2012" report, as contained in the annex to these annotations, and provide feedback and recommendations for further work.

[1] See https://cdm.unfccc.int/about/dev_ben/index.html for all UNFCCC studies on CDM.

DRAFT

Draft summary of the study – "Benefits of the CDM – 2012"

(Version 01.0)

I. Background

1. The end of the first commitment period of the Kyoto Protocol (2008–2012) marks a turning point in the history of the clean development mechanism (CDM). This junction warrants posing the question: how did the CDM fulfil its initial design objectives and were there any other benefits?

2. The CDM was designed to meet two objectives, namely to help Annex I Parties to cost-effectively meet part of their emission reduction targets under the Kyoto Protocol and to assist non-Annex I Parties in achieving sustainable development. While CDM projects create certified emission reductions (CERs) that project participants can sell to Annex I Parties to help them meet their Kyoto Protocol targets, they can also provide complimentary benefits to non-Annex I Parties such as new investment, the transfer of climate-friendly technologies and knowledge, the improvement of livelihoods and skills, job creation and increased economic activity.

3. Since 2007 the secretariat has analysed aspects of CDM project activities and reported on the levels and types of benefits the CDM has provided.[2] The key findings from the latest of these reports ("Benefits of the clean development mechanism – 2012"), which covers approximately 4,000 registered CDM projects (excluding programmes of activities), are summarized under four topics: sustainable development, technology transfer, finance and regional distribution.

4. The CDM appears to have fulfilled large parts of its initial design objective. It has created value and resulted in complementary benefits that were not conceived at the design stage. Some of these include cost-effective mitigation and resultant savings for Annex I country participants and governments, new and possibly additional investment in, transfer of climate-friendly technologies and knowledge in, and job creation and increased economic activity to non-Annex I Parties. There is also evidence indicating what measures could be undertaken so that these benefits could be realized in countries with little or no exposure to the CDM.

II. Sustainable development

5. Since the registration of the first CDM project in 2004, scholars and policymakers alike have attempted to understand how the CDM contributes to sustainable development. All of the studies rely mainly on information provided in project design documents and they use different indicators of sustainable development. A positive impact with benefits distributed across economic, environmental, and social areas is claimed for all project types. Some studies claim that hydrofluorocarbon (HFC) and nitrous oxide (N_2O) projects yield the fewest sustainable development benefits. Other studies suggest a trade-off in favour of producing low-cost emission reductions at the expense of achieving sustainable development.

6. This study assesses the claims made by project participants in the project design documents submitted for registration. The relative reliability of these claims, as verified by a follow-up survey, suggests

[2] See https://cdm.unfccc.int/about/dev_ben/index.html for all UNFCCC studies on CDM including the "Benefits of the clean development mechanism" reports.

that the CDM is making a contribution to sustainable development in host countries in addition to the mitigation of greenhouse gas (GHG) emissions. Almost all CDM projects claim multiple sustainable development benefits, but the mix of benefits claimed varies considerably by project type.

7. The most prominent benefit claimed is stimulation of the local economy through employment creation and poverty alleviation, followed by reduction of pollution and promotion of renewable energy and energy access. The mix of benefits claimed has not changed significantly since the first CDM project was registered, except that claims of noise and pollution reduction have become more common.

8. Under the CDM modalities and procedures, each non-Annex I Party (host country) has the authority to assess whether a CDM project contributes to sustainable development according to national development priorities. A comparison of projects across different countries shows that the host country has an effect on the mix of benefits claimed by a project. However, social benefits tend to be cited (or possibly required of projects) less often than economic and environmental benefits in all countries.

9. There is considerable room for improvement in both the standards and approaches used for the declaration and assessment of sustainable development of CDM projects, as confirmed by many other studies.

III. Technology transfer

10. There is no doubt that the CDM facilitates technology transfer to host countries. Approximately a third of all projects claim to import equipment and/or knowledge. This understates the extent of technology transfer because it is now known that more than half of the projects that do not claim technology transfer use technologies from other CDM projects or imported knowledge and/or equipment.

11. This study, and others, show that the frequency of technology transfer declines over time as local expertise related to the relevant technologies grows. CDM project activities help develop this expertise; the frequency of technology transfer declines as the number of projects of a given type in a host country increases. The frequency of technology transfer via CDM projects has declined over time in China, India and Brazil – the countries that host the largest numbers of projects – but remains high in almost all other host countries.

12. The frequency of technology transfer differs significantly by project type and by host country. Not surprisingly, the rate of technology transfer is lowest for hydro and cement projects, which use mature technologies already widely available in developing countries. Many countries have requirements related to the technology used by CDM projects, separately or as part of their sustainable development criteria, which explains why the host country has an impact on the frequency of technology transfer.

13. A comparison of technology transfer in projects across different countries shows that CDM host country characteristics, such as population, GDP per capita, foreign direct investment, renewable share of electricity generation and knowledge stock significantly impact the rate of technology transfer via the CDM. Furthermore, a change to these host country characteristics has an almost immediate effect (after just one to two years) on the rate of technology transfer. Efforts to identify the specific characteristics that influence the rate of technology transfer have made some progress, but further research is needed.

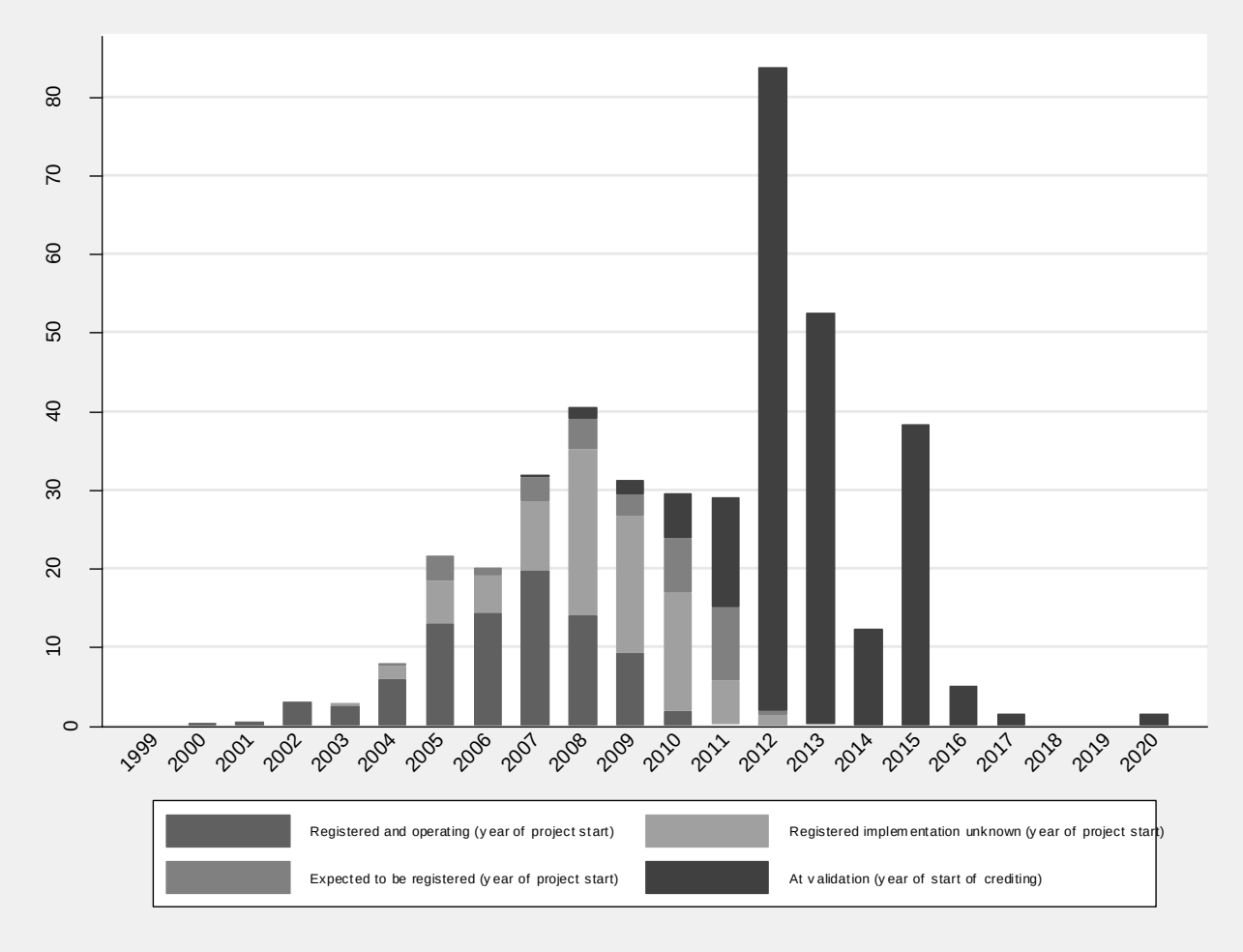
14. Innovation on climate mitigation technologies occurs primarily in developed countries with the top five technology suppliers for CDM projects being Germany, the USA, Denmark, Japan and China. Within these countries there tend to be many technology suppliers indicating that project developers have a choice

DRAFT

among a number of domestic and/or foreign suppliers with no dominant supplier able to restrict the distribution of the technology and/or keep the price high.

IV. Finance

15. The total investment in registered or soon-to-be-registered CDM projects as of June 2012 is estimated at USD 215.4 billion. The annual investment peaked in 2008 at USD 13.9 billion (operational projects) and USD 40.4 billion (all projects), but the large number of projects undergoing validation could lead to a new, much higher, peak in 2012 or thereafter (see Figure - Investment in CDM projects by year as of June 2012).



16. The average investment per project is approximately USD 45 million. China and India account for 65 per cent of the total investment with 45 per cent of the projects. Projects in East Asia have relatively large capital investment due to the capital-intensive (capital cost per MWe of capacity) nature of the projects undertaken (renewables) and their large average size. In contrast, the capital investment per project of almost every other region is equal to or below the overall average. A comparison of renewable energy CDM projects with similar projects in Annex I countries shows that CDM projects are often much larger and less capital-intensive (lower cost per MWe of capacity) than corresponding projects in Annex I countries.

DRAFT

17. Approximately 90 per cent of CDM projects and 65 per cent of similar renewable energy projects in Annex I countries are domestically financed. However, there is a strong indication that the share of foreign investment is increasing in both CDM and Annex I projects. The pattern of foreign investment in CDM projects is complex, with funds coming from both developed and developing countries and often from multiple countries for a single project.

18. Most CDM project types have an average estimated mitigation cost below 10 USD per ton of carbon dioxide equivalent (t CO_2e). These costs vary significantly by project type, with solar being the most expensive technology deployed in the CDM (>300 USD/t CO_2e). The average mitigation cost has increased over time, which reflects the change in the mix of project types with fewer low-cost industrial gas projects in recent years. However, it may also reflect a more stringent assessment of additionality over time leading to fewer project activities that are economically viable without the revenue from the sale of CERs.

19. Expected mitigation costs for CDM projects vary, sometimes widely, among projects of a given type. Many project activities have a negative mitigation cost but this does not necessarily mean the project is not additional. Baseline costs being avoided – the fossil-fired generation displaced by a wind project for example – may be critical to the economic viability of some project activities.

20. There is evidence of economies of scale – lower mitigation cost per ton of CO_2e for larger projects – for some types such as renewable, forestry and transport projects, and diseconomies of scale – higher mitigation cost per ton of CO_2e for larger projects – for others such as demand-side energy efficiency, supply-side energy efficiency, and methane avoidance project activities.

21. Over 750 million CERs had been transferred from the CDM registry by the end of 2011. The revenue generated by the sale of these CERs is estimated to be at least USD 9.5 billion and possibly as much as USD 13.5 billion.

22. Savings for Annex I countries through the use of CERs are estimated to be at least USD 3.6 billion for 2008 to 2012. The CDM is projected to reduce compliance costs for firms in the European Union Emissions Trading System and in Japan by at least USD 2.3 billion for the period 2008 through 2012. The estimate is based on the difference between CER prices and European Union Allowance (EUA) prices. Since CERs also had the effect of lowering the price of EUAs, the estimate understates the savings. The use of CERs by Annex I Party governments to meet their 2008 to 2012 national emission limitation commitments is expected to yield an additional USD 1.3 billion in savings.

23. Other studies suggest that investors focus on projects with low abatement cost so the CDM market is working relatively efficiently. They also suggest, however, that there is still significant untapped potential for CDM projects even in countries with many CDM project activities.

V. Regional distribution

24. Although the text of the Kyoto Protocol does not refer to the regional distribution of CDM project activities, it has long been a concern of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP). The CMP has never defined “equitable regional distribution”, so there is no benchmark against which to compare the evolving distribution of project activities.

25. As a market mechanism, the distribution of CDM project activities and CERs has generally matched the distribution of mitigation potential across countries. Although the number of host countries continues to grow, many countries with small economies and low GHG emissions have few, if any, CDM projects. These include many countries in Africa and the least developed countries (LDC) group, as well as some in Asia.

DRAFT

This pattern appears to be changing with the influx of CDM programmes of activities, and further research may be helpful in this regard. Various initiatives, both under and outside the Kyoto Protocol, have been implemented with the aim of increasing the number of CDM projects in such countries. It is too early to assess whether they have been successful.

26. While the most important driver for distribution is national mitigation potential, the investment climate is also critical. Having a strong institutional capacity for the CDM is necessary but not sufficient to attract projects. As many CDM project activities are domestically financed, a lack of access to early stage seed funding for CDM costs and high unit transaction costs are significant barriers in many poorer countries. The lack of underlying project finance prevents CDM projects from moving ahead in under-represented countries.

- - - - -

History of the document

Version	Date	Nature of revision
01.0	27 August 2012	Initial publication as an annex to the annotated agenda of EB69
Decision Class: Operational, Regulatory **Document Type**: Information note **Business Function**: Governance		