

# The Operation of the CDM and its Establishment in China

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## Abstract:

CDM(Clean Development Mechanism) is a new international cooperation mechanism. It is a challenge for many countries to understand and make effective use of this mechanism to service their economy development. During the negotiating, various issues were put forward and were discussed among many scholars in different countries. Although some of them have not been solved yet, in the following negotiating, they may be solved gradually. China has already established its CDM and issued the “measures for operation and Management of Clean Development Mechanism Projects in China”, and the operation of CDM in China also has a lot of questions to answer in order to meet the challenge of climate change and promote the sustainable development of Chinese economy.

## Keywords:

CDM/Clean Development Mechanism operation China

## I Introduction to the Kyoto Protocol and CDM

The 1997 Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC) incorporate several flexibility mechanisms to help parties comply with their numerical greenhouse gas emission reduction targets.<sup>76</sup> One set of flexibility tools consists of market-based mechanisms. In addition to mechanisms for emission trading among the Annex I developed countries<sup>77</sup>, the Clean Development Mechanism allows for transfer of emissions credits between developed countries and developing countries.

The Clean Development mechanism was created in Article 12 in Kyoto Protocol. Its key purpose is to allow the developed countries invest in projects in developing countries that will result in emissions reductions there. Through this, certified emission reductions (CERs) are created that can be traded and used within Annex I countries to comply with Kyoto emissions limits.

According to Article 25, the Kyoto Protocol became effective 90 days after the Russian

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<sup>76</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change

<sup>77</sup> These mechanisms: Joint Implementation (JI), Emission Trading (ET) and Clean Development Mechanism(CDM), provide for countries with GHG emissions commitments to meet the targets by implementing measures outside their national boundaries.

ratification documents were filed with the United Nations. Thus, on February 16<sup>th</sup>, 2005, the treaty formally entered into force.<sup>78</sup> At the COP-11/MOP-1 meeting in Montreal, Canada, the Kyoto Protocol parties adopted the implementing regulations for the Kyoto Protocol, allowing for full implementation for the treaty thereafter.<sup>79</sup>

## **II The purpose and mechanism of CDM**

### *2.1 The purpose of the CDM*

Article 12, paragraph 2 identifies three purposes of the CDM, which are given equal weight in the Protocol.<sup>80</sup> The CDM will help the Annex I parties comply with their emissions reduction targets while simultaneously allowing for developing countries (non-Annex I parties) to achieve sustainable development and contribute to the goals of the Protocol.

### *2.2 The operation of the CDM*

Usually the company or other entity in the Annex I countries takes part in an eligible CDM project in a non-Annex I developing country. The hosting countries have the power to regulate such projects. In the later section I will discuss how China has implemented this with regulations. The projects will generate “certified emission reduction” (CER) credits that may be counted toward the emission reductions obligations of the country to which the company or entity belongs to or be traded with other companies or countries which have the responsibility to reduce the GHG emission. Through this mechanism the Annex I countries or their company can lower the cost of reducing GHG emissions; in return, the host developing countries can obtain environment-friendly technology and investment. Both parties participating in the CDM projects will theoretically benefit and contribute to the long-term goal of counteracting global climate change.

Operation of the CDM requires carrying out a number of distinct steps. They include: (i) project identification; (ii) assessment of a project’s net GHG emissions reduction; (iii) assessment

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<sup>78</sup> <http://cdm.ccchina.gov.cn/>

<sup>79</sup> <http://cdm.ccchina.gov.cn/>

<sup>80</sup> Article 12, paragraph 2 in Kyoto Protocol

--To assist non-Annex I countries in achieving sustainable development.

--To assist non-Annex I countries in contributing to the ultimate objectives of the FCCC as described in Article 2(to stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner).

--To assist Annex I countries in achieving compliance with their quantified emissions limitation and reduction commitment under Article 3 of the Protocol.

of a project's economic and social effects; (iv) project financing; (v) creation and certification of CERs through project implementation, with monitoring and independent verification of project performance; and (vi) distribution of development benefits as well as CERs from the project.<sup>81</sup>

There are also various requirements for participation in the CDM differing for industrialized countries and developing countries. There are three common requirements for CDM projects: (a) Participation in a CDM project activity is voluntary. (b) Parties participating in the CDM shall designate a national authority for the CDM. (c) A Party not included in Annex I may participate in a CDM project activity if it is a Party to the Kyoto Protocol.<sup>82</sup> Industrialized countries participating the CDM projects must also meet the following eligibility requirements: (a) it is a party to the Kyoto Protocol; (b) Its assigned amount has been calculated and recorded; (c) It has in place a national system for the estimation of anthropogenic emissions by sources and anthropogenic removals by sinks of all greenhouse gases not controlled and the requirements in the guidelines decided thereunder; (d) It has in place a national registry and the requirements in the guidelines decided thereunder; (e) It has submitted annually the most recent required inventory, and the requirements in the guidelines decided thereunder, including the national inventory report and the common reporting format. (f) It submits the supplementary information on assigned amount and the requirement in the guidelines decided thereunder and makes any additions to, and subtractions from, assigned amount and the requirements in the guidelines decided thereunder.<sup>83</sup>

### **III The existing disputes and some questions of CDM**

Many people thought that we should take the externalities of CDM projects into consideration. Most people focus on the positive externalities which are connected with climate change, but there are many issues about how to implement the CDM; in the other word, there are many issues about how to design the CDM. The CDM refers to government and non-government entities of both industrialized and developing countries, distribution of benefits between the two kinds of countries, the authority of developing countries over the CDM projects in their boundaries, and sanctions for misrepresentation or misuse of CERs.<sup>84</sup> Many scholars in developed countries have discussed many issues about the uncertainty and the externalities of the

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<sup>81</sup> Establishing and Operating the Clean Development Mechanism, Michael Toman, Resources for the Future\* September 2000 • Climate Issues Brief No. 22

<sup>82</sup> UNFCCC. Report of the Conference of the Parties on its Seventh Session – Part Two: Action Taken by the Conference of the Parties[Z], FCCC/CP/2001/13/Add.2.

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<sup>84</sup> Establishing and Operating the Clean Development Mechanism, Michael Toman, Resources for the Future\* September 2000 • Climate Issues Brief No. 22

CDM. The methodological and technical challenges of CDM projects include, among other things, guaranteeing equity, technology additionality, financial additionality, determining the baseline and pricing CER credits

1、 *Equity*: The CDM is a market-based mechanism which allows and persuades the private entities to invest in the CDM projects. This is important, but it also has its drawbacks. Private investment in developed countries will likely only go where the risks are the least and the possibilities for profit-making are the greatest, including the larger developing countries with existing private investment and some other colonies.<sup>85</sup> So many investors may choose China or India as the hosting countries rather than some Africa countries, with the exception of South Africa. This can not avoid the equal distribution in different areas. Some people may suggest that CDM is designed to facilitate market preferences, and equity is not its aim. But some scholars are worried that the lack of clear obligations with regard to geographic distribution will have a negative effect, especially on African nations, with the exception of South Africa.<sup>86</sup> And in my opinion, that is an inherent drawback which the Protocol can not solve by itself, so we should consider other external mechanisms or systems to avoid that drawback.

2、 *Technology additionality*: Pursuant to the decisions of the COP, only the hosting developing countries have the power to decide whether the CDM project accords with the sustainable development in their countries;<sup>87</sup> however, scholars in developing countries believe that CDM should promote the substantial transfer of technology. So, the scholar in developing countries always stress on the necessary of the technology transfer additionality.<sup>88</sup> Nevertheless industrialized countries insist on that the necessary of the technology transfer lies on the market rather than a compulsive requirement. Technology transfer additionality currently requires the industrialized countries afford the environment friendly technologies which are more advanced than the same kind commercial technologies in hosting countries.<sup>89</sup>

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<sup>85</sup> See Nelson, *An African Dimension to the Clean Development Mechanism: Finding a Path to Sustainable Development in the Energy Sector*, 32 Denv. J. Int'l L. & Pol'y 615, 619 (2004), at 633. quote from a secondary source: Anita M. Halvorssen, *the Kyoto Protocol and developing countries-the Clean Development Mechanism*

<sup>86</sup> See Nelson, *supra* note 2, at 633. quote from a secondary source: Anita M. Halvorssen, *the Kyoto Protocol and developing countries-the Clean Development Mechanism*

<sup>87</sup> Decision 17/CP.7 of the Marrakesh Accords stipulates "it is the host Party's prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development."

<sup>88</sup> See Zheng Zhaoning, Pan Tao, Liu Shunde, *Promoting advanced energy technology transfer through CDM*, *Energy Conservation and Environmental Protection*, 2003, No.6

<sup>89</sup> See *Additionality Approach on Clean Development Mechanism*, Dun Maosheng, Liu Deshun, *Shanghai Environmental Sciences*, Vol.22, No. 4, April 2003

3、 *Financial additionality*: Can the financing of international and international and regional financial institutions be used for CDM projects? Scholars in developed and developing countries have different answers to that question. Scholars in developed countries stress that the developing countries lack money, and the money from those financial institutions is suitable for helping the developing countries. But scholars from the developing countries have the absolutely opposite attitude. They believe that funds from international financial institutions should be used for common projects, but the money spent for CDM should come from the developed countries because they will benefit from the CERs.

Scholars in developed countries also insist that the alternative projects among different kinds of energy can be included in the CDM projects, such as a gas power taking place of the coal-burning power. However, they have not adequately explained problems about uncertainties of consequences. For instance, if we use one new kind of energy in one region, the energy used in this region may shift to another region; or if we now use a new alternative energy, maybe later it can be instead by another kind.<sup>90</sup> So, on the whole, the alternative energy projects may not necessarily generate the desired emission reduction. Some phenomena were found that in a CDM project if we use gas or petrol instead of coal to get the emission reduction, the clean-coal technology will lose the market.<sup>91</sup> Which is more suitable for sustainable development for developing countries?

4、 *Determining baseline*: Another question that needs to be answered concerns the baseline<sup>92</sup> for renewable energy. Many countries encourage companies to use renewable energy instead of regular energy (just like fossil fuel energy), but how to measure the baseline? If we adopt renewable energy projects as the baseline, there will be no emission reduction at all; if we adopt regular energy project as the baseline, how does one justify the choice? Many scholars have suggested that we can choose synthetical baseline<sup>93</sup> composed of the renewable energy projects

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<sup>90</sup> <http://www.co2-china.com/shownews.asp?id=1477>(bu)

<sup>91</sup> See Criteria and Indicators for Appraising Clean Development Mechanism (CDM) Projects, by Steve Thorne, Energy Transformation, Cape Town, South Africa and Dr. Emilio Lèbre La Rovere, Federal University of Rio de Janeiro, Brazil, HELL INTERNATIONAL—56, rue de Passy, 75016 Paris-France

<sup>92</sup> About the emission baseline, there are many methods to fix on it, such as “top-down baselines”, “business-as-usual baselines” and “forward-looking, bottom-up baselines”. See Criteria and Indicators for Appraising Clean Development Mechanism (CDM) Projects, by Steve Thorne, Energy Transformation, Cape Town, South Africa and Dr. Emilio Lèbre La Rovere, Federal University of Rio de Janeiro, Brazil, HELL INTERNATIONAL—56, rue de Passy, 75016 Paris-France

<sup>93</sup> synthetical baseline: a method to get a baseline at the base of cost-benefit analysis of all technologies in the markets whether used in renewable energy or regular energy fields. It reflects average level of one country’s technology. Some scholars suggest we can choose 75% of the all level to calculate the baseline, or choose the 25% of the advanced technology level to determine the

and the regular energy projects and this suggestion has been identified by many people. But different countries have different situations, such as in Brazil in which renewable energy has a big proportion.<sup>94</sup> So if the synthetic baseline was adopted in Brazil even if most advanced gas power were built, they would increase the emission. This would defy logic. Finding a sound and acceptable baseline measure is an urgent problem. Associated problems are questions about how often to update the base line and so on.

5、 *Pricing the CER credits*: How to fix the price of CERs? While the Kyoto Protocol is clear that only that project that result in emissions reduction should qualify, it does not specify itself how this reduction is to be measured. Nowadays much discussion has focused on the incremental cost methodology. This method can exclude commercial projects and approach-commercial projects. But any participant will take the commercial interests into consideration and the potential of the CDM projects that most international agency put before the public is based on the premises that the CDM projects are operating in a commercial fashion. What's more, the technology that developing countries would like to introduce must be capable of replication and proliferation. This also requires that the technology be economically efficient. In short, to promote the sustainable development in developing countries, there need the commercial CDM projects and approach-commercial CDM project.

#### **IV The implementation of CDM in China and some projects ratified in China**

China has already established regulations for CDM projects and issued the Measures for Operation and Management of Clean Development Mechanism Projects in China. As of November 2005, 18 projects have been approved in china.<sup>95</sup> They must comply with a number of eligibility requirements: (a) project activity should promote the transfer of environmentally sound technology; (b) project developer shall be wholly china-owned or China-controlled enterprises; (c) CDM project developer shall submit to the Designated National CDM Authority, CDM PDD, a certificate of its enterprise status, as well as general information of the construction project and descriptions and project financing.<sup>96</sup> To introduce the investment and advanced technology the government of china actively promotes the implementation of CDM projects. China is regarded as the largest potential market for CDM in the world.<sup>97</sup> To develop the potential market into a real

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baseline.

<sup>94</sup> The proportion of renewable energy in Brazil reaches to 41%. See <http://finance.sina.com.cn/review/observe/20050414/18311518722.shtml>

<sup>95</sup> <http://cdm.ccchina.gov.cn/NewsInfo.asp?NewsID=498>

<sup>96</sup> the Measures for Operation and Management of Clean Development Mechanism Projects in China, <http://cdm.ccchina.gov.cn/UpFile/File579.PDF>

<sup>97</sup> Opening Address by Mr. Khalid Malik, UN Resident Coordinator & UNDP Resident

market, a lot of work needs to be done in aspects such as improving the interim management measures, approval procedures and related policies.

## **V Some problems need to be considered in China**

Until now, most of the news and articles about the operation of CDM in China found in the books、 periodicals or on the internet suggest that the CDM in China will have a bright future, and bring many benefits. And less articles or news refer some potential problems of the CDM in China. Some scholars have already analyzed some problems in the SO<sub>2</sub> emission trading in the USA, which provides some indications about the operation of CDM in China. The following analysis is based on an analysis of the Measures for Operation and Management of Clean Development Mechanism Projects in China.

1. The priority areas for CDM projects in China are energy efficiency improvement, development and utilization of new and renewable energy, and methane recovery and utilization.<sup>98</sup> As of November 20<sup>th</sup>, 2005, the Chinese government had approved 18 projects, which focus on renewable energy such as the hydroelectricity and wind power electricity.<sup>99</sup> There are also several projects addressing the methane recovery and HFC-23 decomposing.<sup>100</sup> The common characteristic of these projects is that they can produce obvious economic benefits in a relatively short time. Under Kyoto Protocol, other kinds of projects that can produce CERs, such as planting trees, are also permitted. But this kind and similar kind of CDM projects<sup>101</sup> for increasing the capacity of absorbing CO<sub>2</sub> require long-term investment and cost recovery based on a long term view. How does one calculate CERs for these kinds of projects and how does one differentiate them from the others (such as some CDM projects improving energy efficiency to reduce CO<sub>2</sub> emissions) in examining and approving procedure? Perhaps the Chinese government can formulate some preferential policies to encourage investment in these kinds of CDM projects.

2. The purpose of Chinese government participating in CDM projects is to realize the industrial innovation through the introduction of investment and technology. At the same time, it produces emission reductions that mitigate global warming. According to the Measures for Operation and

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Representative, on the China International Conference on the Clean Development Mechanism, Thursday, 20 October 2005,

<sup>98</sup> Article 4, in the Measures for Operation and Management of Clean Development Mechanism Projects in China, <http://cdm.ccchina.gov.cn/UpFile/File579.PDF>

<sup>99</sup> <http://cdm.ccchina.gov.cn/NewsInfo.asp?NewsId=498>

<sup>100</sup> <http://cdm.ccchina.gov.cn/NewsInfo.asp?NewsId=498>

<sup>101</sup> These kinds of projects are also called carbon sequestrations projects.

Management of Clean Development Mechanism Projects in China, revenue from the transfer of CERs shall be owned jointly by the government of China and the project owner through the royalties.<sup>102</sup> If the government of China were to concentrate only on the revenue the quantity and scale of the CDM projects could not be limited effectively. Although foreign investors receive the desired certified emission reductions credits, with the rapid development of commercial projects and a great deal of investment, China might emit more greenhouse gases than before in the CDM was permitted.

3. In a global CDM market, the buyers will have significant impact on the price of CERs. Nowadays, the World Carbon Fund, the World Bank and others have financial advantages over the sellers and can largely decide the price of CERs.<sup>103</sup> Thus as the potential biggest seller, China should consider formulating some mechanism to prevent the buyers from monopolizing the price. According to the “Measures for Operation and Management of Clean Development Mechanism Projects in China”, the project owner must submit the document including price information when the project is submitted to National Development and Reform Commission (NDRC) for approval.<sup>104</sup> If the project owner fails to find a foreign buyer when the project is submitted for NDEC approval and hence is unable to provide CER price and other relevant information, then the PPD must specify that CERs, generated by the project must be transferred to the national account of China.<sup>105</sup> Such credits are not to be transferred from the national account of China unless approved by NDEC.<sup>106</sup> In fact, China government hardly ratifies a CDM project if the CER price is less than a fixed price.<sup>107</sup>

The requirement is designed to prevent buyers from driving down the price. According to article 12 in the Kyoto Protocol, each party involved in CDM projects does so on a voluntary basis.<sup>108</sup> Thus, the government may limit the price of CERs to prevent buyers from driving

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<sup>102</sup> Article 24, in the Measures for Operation and Management of Clean Development Mechanism Projects in China, <http://cdm.ccchina.gov.cn/UpFile/File579.PDF>

<sup>103</sup> See the Trading of CERs and its analysis from law aspect, Pan Yue, Energy in China, Vol.27 No. 10 Oct. 2005

<sup>104</sup> Article 15, paragraph 1(4), in the Measures for Operation and Management of Clean Development Mechanism Projects in China, <http://cdm.ccchina.gov.cn/UpFile/File579.PDF>

<sup>105</sup> See Interim Measures for Operation and Management of Clean Development Mechanism Projects in China, article 15, paragraph 2.

<sup>106</sup> See Interim Measures for Operation and Management of Clean Development Mechanism Projects in China, article 15, paragraph 2.

<sup>107</sup> Interview with an official in the central government of China. The particular price is not provided here because until now government of China hasn't issued the price limitation.

<sup>108</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, Article 12 (5) Emission reduction resulting from each project activity shall be certified by operational entities to designated by the Conference of the Parties serving as the meeting of the Parties to this protocol, on the basis of:

(a) Voluntary participation approved by each Party involved.\*\*\*



down the price; however, this could also influence the global CDM market and affect the competition for CDM projects in China. Thus, economist and specialists in the CDM field in China have urged the setting of limits on transferability of CERs as an important issue.

4. Another issue should be taken into consideration is also about the pricing of the CERs. The government of china must be careful on unilateral projects, and in a unilateral project the project owner must specify that CERs to be generated by the project in the document which should be submitted and the CERs must be transferred to the national account of China, and should not be transferred from the national account of China unless approved by NDEC.<sup>109</sup> If more unilateral projects were ratified in China, and a lot of CERs deposited in national account of China, what can ensure the price of the CERs from going down and the CERs able to be traded off. There is a big risk in it for the government of China..

5. In the Kyoto Protocol , industrial countries in Annex I have the legal bounding targets that are to reduce their overall emissions of GHGs by at least 5.2% at 1990 levels in the period between 2008 and 2010.<sup>110</sup> So the CDM projects are restricted by time. If a project will last several years and maybe go beyond 2010, the project owners perhaps give up the project; that is the durative of the CDM. In the beginning, this problem maybe doesn't exist, but later it perhaps gives rise to similar and relevant problems.

6. The Kyoto Protocol does not require developing countries to reduce their emission of the greenhouse gases, and the developing countries believe that the global climate change is primarily due to the past GHG emissions of industrial countries. At present, we don't known whether in subsequent climate change agreements developing countries such as China will have to take on obligations to reduce the emissions of greenhouse gases. If China will have that responsibility in the future, it is likely that after operating so many CDM projects, the cost of implementing future emissions reductions will be significantly higher than current cost of implementing CDM project.

## **VI Conclusion**

The CDM will be an effective tool for increasing Chinese national capacity to mitigate climate change by facilitating their switch to clean technologies and energy efficiency. However, major questions remain as to whether the CDM will succeed as “credible” mechanisms that can offer adequate environmental safeguards in issuing CERs, while also remaining attractive to

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<sup>109</sup> See Interim Measures for Operation and Management of Clean Development Mechanism Projects in China, article 15(2).

<sup>110</sup> The 1997 Kyoto Protocol to the Framework of Climate Change Convention.

investors.

The executive board initially set a high standard for the procedures and modalities of the CDM to help guarantee the credibility of the CER. Domestic preparations, systems and procedures for hosting or investing in CDM project activities are still underway. Currently, there is a huge need for Annex I Parties to assist in capacity-building, especially to promote the establishment of the CDM verification procedures in developing countries.

In summary, the CDM looks to be a promising tool for assisting industrialized countries in fulfilling their Kyoto Protocol commitments, while assisting developing countries achieve sustainable development. The CDM will provide developing countries with an opportunity to move toward a sustainable energy development path, while offering public and private investors opportunities to develop profitable climate change mitigating technologies.