PUBLIC POLICY, MITIGATION AND ADAPTATION TO CLIMATE CHANGE IN SOUTH AMERICA

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OVERVIEW OF APPROVED CDM PROJECTS IN BRAZIL: PARTICIPATION OF NATIONAL ECONOMIC SECTORS AND GAPS

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ABSTRACT

This article evaluated the performance of Brazil in developing project activities suitable to CDM, based on Project Design Documents (PDD) submitted to Interministerial Commission on Global Climate Change – ICGCC (Comissão Interministerial de Mudança Global do Clima - CIMGC, in Portuguese), the Brazilian Designated National Agency (ADN). Through the PDDs the performance of the country in developing CDM projects in the different scopes determined by the Convention were verified, and a history of what has been done was reported as well as the opportunities in new project activities.

Keywords: Clean development mechanism, Public policies, Mitigation of climate change in Brazil.

INTRODUCTION

The United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992, is an international convention whose main objective is to stabilize greenhouse gases (GHG) concentration in the atmosphere in a level that avoids dangerous interference in the climatic system. In 1998, the Kyoto Protocol detailed how country Parties of the Convention could achieve their objectives, establishing limits for emissions to a group of countries that shall reduce their emissions in the commitment period 2008-2012. For facilitating the accomplishment of this obligation, the Protocol also created flexibility mechanisms which allow the trade of emission reduction among Parties and the implementation of actions or projects by different countries together, even if it does not have obligation of reduction (case of the developing countries). In that way, the Clean Development Mechanism (CDM), one of flexibility mechanisms of Kyoto Protocol, allows countries with limits of emissions and the ones without limits to joint efforts in developing projects that mitigate emissions. The objective is to help developing countries to promote sustainable development and improve their industrial processes in the same time that helping developed countries to achieve their obligations with the Convention.

Although being not obligated to reduce emissions, Brazil has conditions to significantly mitigate greenhouse gases through combating deforestation and forest burning and changing “climatic outdated” technologies. Industry emits GHGs from fossil fuel combustion and in industrial processes. Fossil fuel combustion is the second main contributor to carbon dioxide (CO_2) emissions in Brazil, the first is forest and land use (BRASIL, 2004). Industry is not the main responsible for GHG national emissions, but represented 38% of final energy consumption in 2006, 37% of this energy being originated from fossil fuels (BRASIL, 2007). As climate change effects get worse, the use of renewable alternative energy sources, such as wind, sun and biomass, would become a profitable activity as mitigation costs get bigger than the costs of these new technologies. Besides improving the country image internationally, emission control can impact positively the economic sectors opening access to financial sources, improving prices from insurance companies and making the company more valuable in the international market. The generalized use of the CDM represents an opportunity for Brazil to develop a sustainable development policy in the climate area. This mechanism helps in disseminating the use of technologies climatically healthy and increase financial capacity by attracting resources to make projects of cleaner industry processes viable, which could not be possible without this mechanism. As a result, energy and industry sectors in a country that does not have obligations, as Brazil, can explore the climate as a business opportunity, increasing its benchmarking in an international competitive market.

METHODS

Until July 2008 it was analyzed 204 PDDs submitted to ICGCC. These documents are available in electronic page of Brazilian AND, as determined by UNFCCC. All analyzed projects were organized in worksheets containing a set of characteristics, such as scope, scale, quantity of certified reduction, methodology used, among others. The evaluation of potential of CDM projects was also based in information of associations, such as UNEP; UNIDO (2003); BRASIL (2004); BEN (2007), and other relevant secondary sources cited along the text.

RESULTS

SITUATION OF PROJECT ACTIVITIES IN ICGCC AND UNFCCC

Among projects submitted to ICGCC, 186 were approved, 10 were approved with reservation, 7 are being revised and 1 was not evaluated yet. At that moment, 142 Brazilian project activities were already registered in UNFCCC, 39 were validated,1 is under correction, 2 are being reviewed, 1 was withdraw, 16 were rejected and 3 were not evaluated yet, totalizing 70% of acceptance (Figure 1).

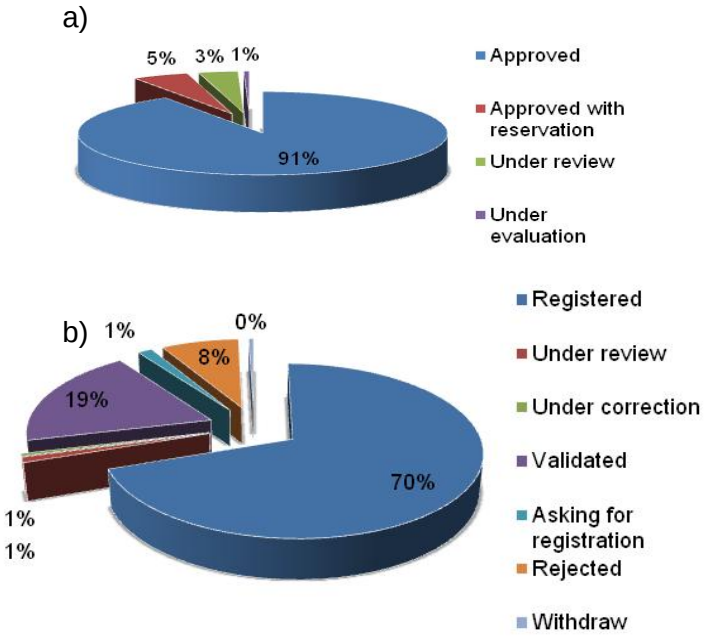


Figure 1 - Situation of project activities analyzed in ICGCC (a) and UNFCCC (b)

METHODOLOGY APPLIED IN CDM PROJECTS[1]

Some projects have more than one activity suitable for CER calculation, what is expressed through combined methodologies. Important to emphasize is that the methodologies are being constantly improved so it is necessary to verify the most recent versions when elaborating the PDD. Figure 2 shows the distribution of PDDs per methodology applied.

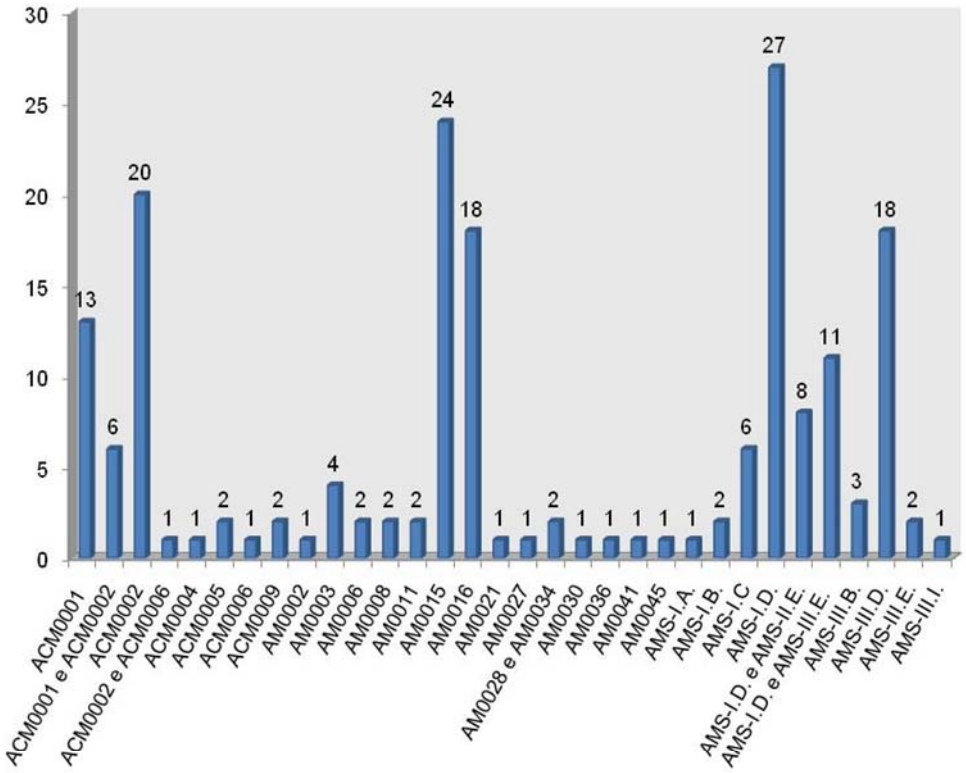


Figure2 - Distribution of CDM project activities per methodology applied

Until July 2008, the most practiced methodology was AM0015, with 24 projects. This methodology was replaced for ACM0006 - Consolidated methodology for grid-connected electricity generation from biomass residues. Both are distinguished in the graph because of the moment when project activities were approved by CIMGC. Together they totalize 25 projects. This project activity refers

1 The methodologies are designated bay UNFCCC as follows: AM – Approved Methodology, ACM – Approved Consolidated Methodology and AMS - Approved Methodology for Small Scale. The description of all methodologies can be found in UNFCCC site (UNFCCC, 2008).

to co-generation with sugar cane bagasse, usually obtained by modernization of boilers or construction of new generation plant.

The most used small scale methodology is AMS-I.D. - Grid connected renewable electricity generation. A total of 46 project activities used this methodology, 8 of them combining it with AMS-II.E. - Energy efficiency and fuel switching measures for buildings and 11 with AMS-III.E. - Avoidance of methane production from biomass decay through controlled combustion. In the case of AMS-II.E., projects were about efficiency in energy consuming in supermarkets. AMS-III.E. refers to projects of energy generation from waste biomass of different industries.

The third methodology most practiced is ACM0002 - Consolidated methodology for grid-connected electricity generation from renewable sources, which is the same as AMS-I.D. Grid connected renewable electricity generation. Both sum 66 projects, one of them about wind power.

AM0016, replaced by ACM0010 - Consolidated methodology for GHG emission reductions from manure management systems and AMS-III.D. - Methane recovery in animal manure management systems totalize 36 projects. Both refer to improve animal wastes management through replacing aerobic lagoons and differ from each other only because of scale. ACM0001 - Consolidated methodology for landfill gas project activities, with 13 project activities, refers to recovery and flare of CH_4 in landfills and deserves attention because the first project presented to UNFCCC was from Nova Gerar Brazilian landfill, which proposed this methodology.

SCALE

Figure 3 shows CDM projects according to scale. Proportion between scales in Brazil is likely world numbers registered in UNFCCC, but in the beginning most of the projects were large what is different now. It is possible to note that along the years the numbers changed and since 2007 there are more small scale projects.

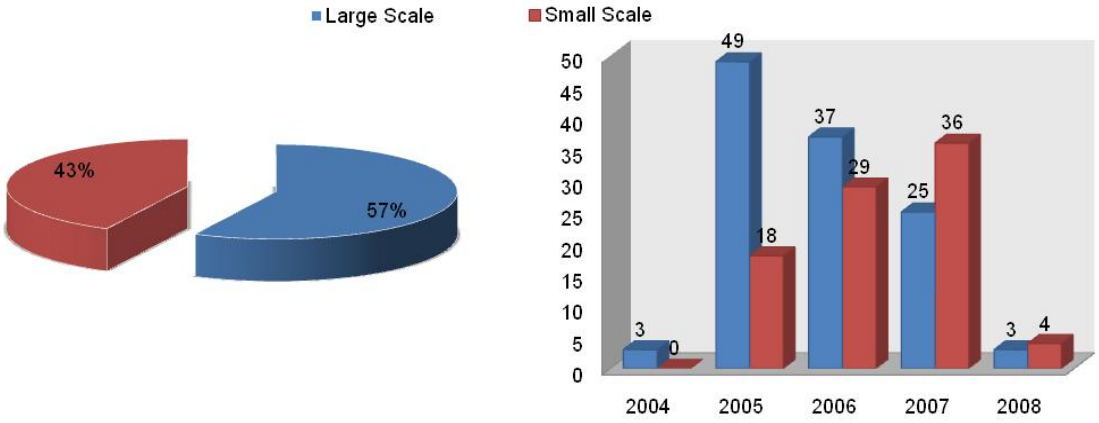


Figure 3 - Distribution of total project activities in relation to scale and submission through time

Although in total numbers there are still more large scale projects, it can be noted that small scale ones have a considerable potential.

QUANTITY OF CERTIFIED EMISSION REDUCTIONS

In this analysis the first 7 years of emission reduction for projects with possibility of renovation and the 10 years for those defined as such were considered and those projects rejected by UNFCCC were excluded. Figure shows distribution of CERs per scope and total estimated for projects analyzed and the relation between quantity of projects and CERs.

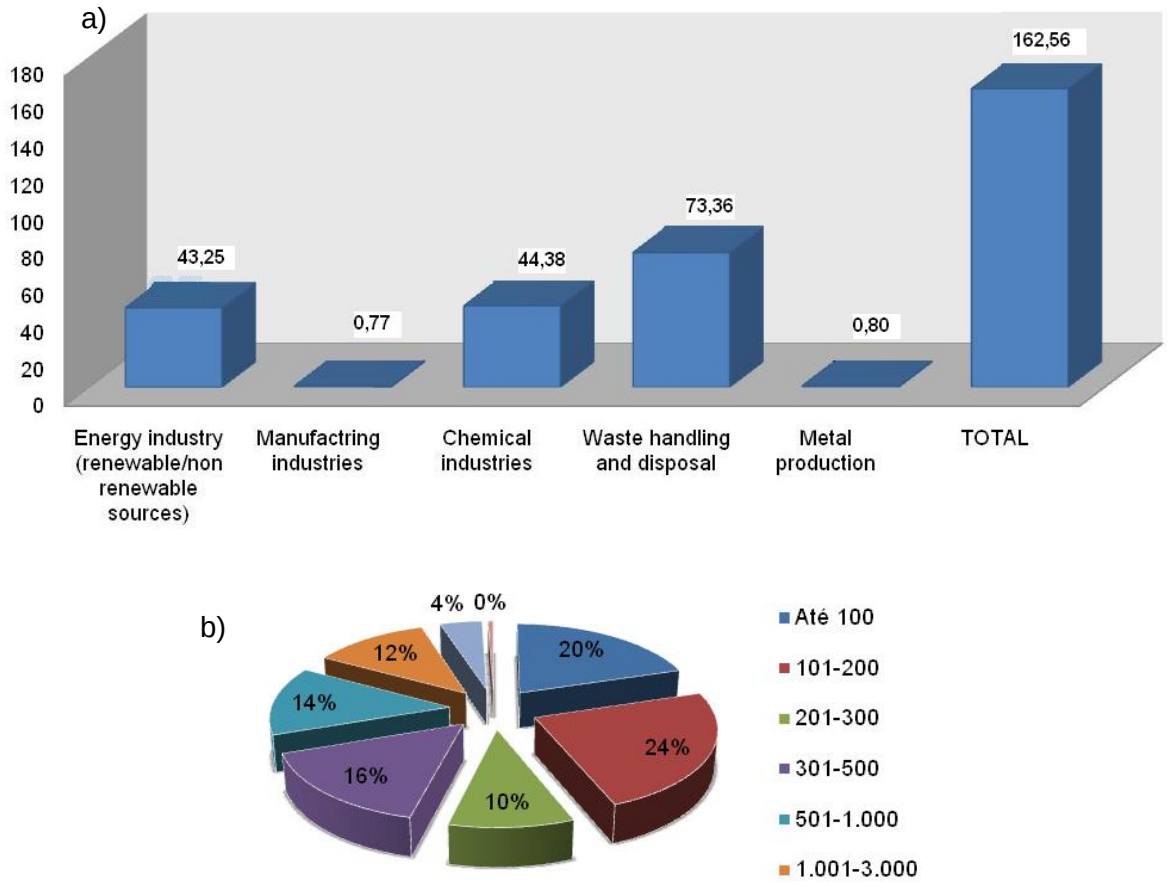


Figure 4 - Total emissions avoided (CERs) by scope (million tons of CO_2) (a) and projects per quantity of emission avoided (thousand tons of CO_2) (b)

Most projects, 44%, do not overtake 200,000 ton in CERs. However four big projects are responsible for almost 40% of Brazilian reduction. One, from Rhodia, estimates reductions of 40,000,000 tons CO_2 (the only one with reductions above 10,000,000 tons) and three project activities of landfill gas capture and burn and recovery for power generation sum more than 20,000,000 tons CERs. Among these only one was not yet registered, but is already validated and approved by ICGCC.

SCOPE

Scopes are classified according to a list defined by UNFCCC which categorizes project activities in relation to a type of economic sector. Then the scopes defined by UNFCCC, used in this work, are: 1. Energy industry (renewable/non renewable sources); 2. Energy distribution; 3. Energy demand; 4.

Manufacturing industries; 5. Chemical industries; 6. Construction; 7. Transport; 8. Mining/mineral production; 9. Metal production; 10. Fugitive emissions from fuels (solid, oil and gas); 11. Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride; 12. Solvent use; 13. Waste handling and disposal; 14. Afforestation and reforestation; 15. Agriculture. Figure 5 shows the distribution of Brazilian project activities among scopes until July 2008.

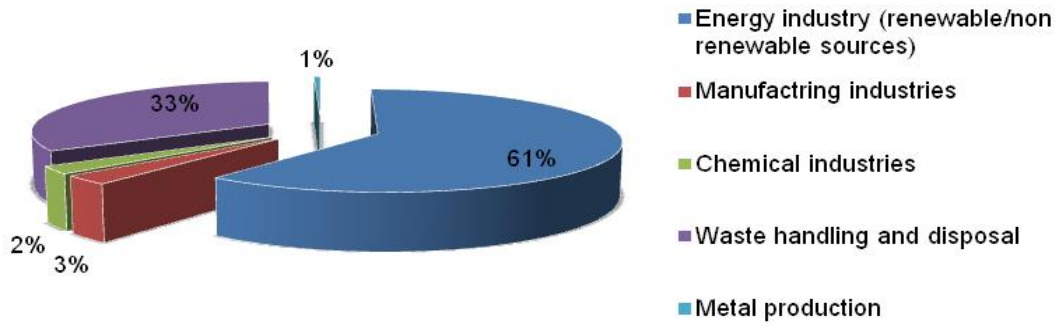


Figure 5 - CDM Project activities according to scopes

Most of Brazilian project activities are from scopes energy industry (renewable/non renewable sources) and waste handling and disposal, 61% and 33% respectively, such as world statistics in UNFCCC – 55% and 20% respectively. Interesting to note that although scope 1 have a great number of projects, contributes to avoid 43.25 million tons CO_2eq, 27% of total avoided emission. However chemical industries, scope 5, which represents only 3% of Brazilian projects, contributes also to 27% of emission reduction. Waste handling and disposal has 68 projects and potential do reduce up to 73.36 million tons CO_2eq, approximately 45% of total avoided emission. It is important to highlight that world statistics include other scopes not explored in Brazil, such as afforestation and reforestation, agriculture, energy demand, fugitive emissions, etc. This reinforces Brazilian possibilities to increase participation in CDM projects.

CDM PROJECT ACTIVITIES PER FEDERAL STATE

Figure 6 shows the occurrence of CDM projects according to the State of Brazil. It can be noted that the development of project activities is concentrated principally in states from Southeast/South axis, excepting Goiás and Mato Grosso. São Paulo has most projects, followed by Minas Gerais, Rio Grande do Sul, Santa Catarina, Paraná e Rio de Janeiro. Among the 69 projects from São Paulo, only 18 were elaborated in association with other States, what is not usual as most

projects from this group of States cited above was resulted from interstate partnerships.

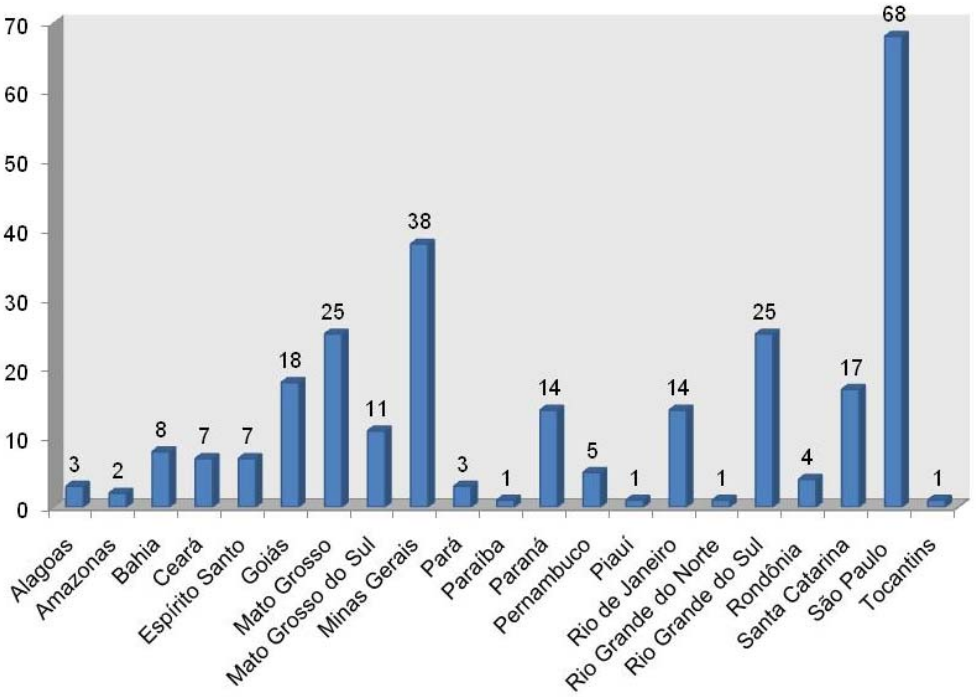
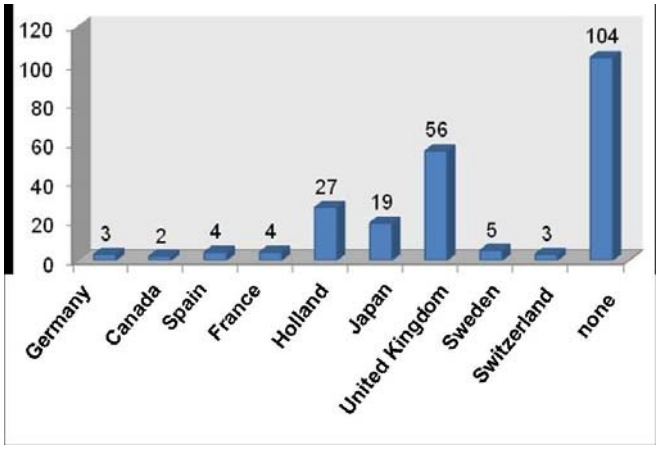


Figure 6 - Number of CDM project activities per federal State

ANNEX I PARTIES TO THE CONVENTION PARTNERSHIPS

Developed countries are the most interested in potential credits generated by CERs obtained by developing countries with CDM, so in Figure 7 it was evaluated the participation of Annex I Parties in Brazilian CDM project activities. The principal partners of Brazilian projects are orderly United Kingdom, Netherlands and Japan. Although 101 project activities have support of some Annex I Party, others 103, almost 50% of Brazilian projects, does not, which may means that these projects does not have potential buyers for their CERs yet.

a)



b)

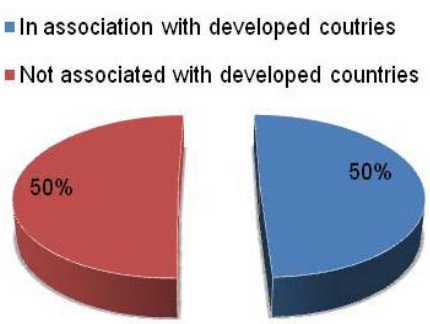


Figure 7 - Number of project activities with or without participation of Annex I Parties to the Convention (a) and proportion between projects with or without this participation (b)

DISCUSSION AND CONCLUSION

Evaluating business opportunities coming from climatic change discussions, the present study identified the potential of several industry sectors in Brazil for the implementation of CDM projects. Analyzing project activities approved by ICGCC it was verified that there are still many sectors that are not explored in the country. Projects involving energy and wastes are the most common and there is still a wide space for developing activities in other scopes with potential interesting for Brazil, such as agribusiness and forest services. Opportunities are already increasing to specific types of project activities, but Brazil has also a considerable potential to present new modalities of activity through other methodologies not explored yet by the country.

The development of new technologies, climatically healthy, and the effective involvement in transferring technology between developed and developing countries have capital role to the increase in number of CDM projects in Brazil and other developing countries. Other contribution could be the development of some mechanisms to spread these technologies, making them more accessible to Brazilian productive sectors. It is also necessary the development of more suitable conditions to these sectors. As example these conditions could be improved by improving rules and regulations or even removing some legal barriers reducing the excess of administrative procedures. CDM project activities could have a distinctive treatment, especially tax rules for stimulating external investments and negotiations with CERs. Brazilian Mercantile and Future Exchanges could narrow

the distance among investors and project proponents in order to stimulate and make viable partnerships that could become real CDM projects.

Introduction of climatic variable in national innovation program is proper but it must be put on practice effectively. In that sense, the creation of a data base with potential technologies would be very important, such as the systematization of baseline and monitoring methodologies from UNFCCC in a database in Portuguese. These would favor technicians from a range of industrial sectors and institutions in researching the best options of technology for GHGs emission reduction. Using or proposing new methodologies and technologies may help industries to improve their processes and especially may lead to a paradigm change.

According to UNFCCC statistics, until July 2008 from 180,325,947 CERs were already issued from the 189,739,177 requested in the world. However, only 17.7% of total estimated emission reductions of all Brazilian project activities already registered by UNFCCC had the CERs issued. Also India, country with more CDM projects registered, has only 25.78% from CER requested already issued. It means that there is a gap between the request and the issue of CER in UNFCCC that must be considered and must be clear to project proponents. Other important contribution to facilitate project activities in Brazil and other countries is the wide dissemination of important decisions from UNFCCC Executive Board-EB. For example, the possibility of grouping small projects in programs or national plans for submission as a CDM Program of Activities was approved this year by UNFCCC EB and will help small activities that have potential for emission reductions but not financial condition to be implemented separately. Information of this kind must be available to Convention Parties as soon as possible and in an easy language. In specific case of Brazil, it is necessary to formulate and disseminate these and other mechanisms for stimulating CDM as soon as possible in order to take advantage of the first period of Kyoto Protocol, where the country does not have emission reduction goals.

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