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环 境 规 划 署

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执行蒙特利尔议定书
多边基金执行委员会
第五十七次会议
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**总结可以公开获得的信息，说明清洁发展机制运作的
有关内容以及作为可计入额度的 HCFC-22 产量**

导言

1. 执行委员会要求基金秘书处编写一份文件，总结可以公开获得的信息，来说明京都议定书清洁发展机制运作的有关内容以及作为第一步可计入额度的 HCFC-22 产量（第 56/64 号决定 c 款）。本文件系根据该项要求编写而成。有关清洁发展机制的更详细说明，见 UNEP/OzL.Pro/ExCom/57/64 号文件附件二。这份文件概述了第 5 条国家的氟氯烃产量、清洁发展机制下的氢氟碳化物削减项目以及多边基金供资情况，意在补充说明附件一所载、列明了各种氟氯烃/氢氟碳化物削减项目的表格，其中，这些项目或是已在清洁发展机制委员会那里登记，或是正在接受清洁发展机制的审查。

2. 削减 HFC-23 的排放量可以获得数百万的碳信用额度，销毁 HFC-23 则是一种相对较廉价的办法，根据清洁发展机制，这种做法也可获得信用额度。利用清洁发展机制的信用额度，先前的 HFC23 排放源（即 HCFC-22 生产商）可以大幅调整生产 HCFC22 的费用。尽管并非每个生产商的产量都一定能享受清洁发展机制的惠益，但一般而言，与无法受益者相比，有资格获得信用额度是一项非常重要的商业优势。

3. 截至 2009 年 2 月 10 日，清洁发展机制执行委员会为共计 1,390 个已登记项目颁发了超过 2.5 亿个“经核证的减排量”信用额度（核证减排量），每个核证减排量相当于 1 吨的二氧化碳。这些都是在只有两年多的时间里颁发的。到 2012 年，已登记的清洁发展机制项目可能会生成约 14.5 亿个核证减排量。¹ 按照每个核证减排量平均 12.6 美元（或 10 欧元）计算，这一数额的市值达 183 亿美元（或 145 亿欧元）。²

4. 表格中所用的每个核证减排量 12.6 美元是二级市场的价格。它只表明了市场价格的大致情况，并未准确反映氢氟碳化物项目开发者享受的核证减排量价格。碳信用额度的价格起伏不定，因此很难预测收入情况。价格通常会随着矿物燃料市场、天气状况（温度）和经济趋势的改变而改变。当前的价格是 2008 年夏峰值价格的一半左右。一级市场（即由项目开发方与买方签订合同）的价格通常低于二级市场。一级市场的合同经常涉及尚未颁发的核证减排量，因此，价格将受到各种风险因素的影响，如主办国管制程序的可预测性、合同条款和项目类型。³ 第一个京都承诺期将于 2012 年结束，2012 年以后的不确定性使得碳市场变得更加难以预测。

¹ www.cdm.unfccc.int。

² OTC，点碳公司于 2009 年 1 月 22 日发布的经纪人报价，见 www.pointcarbon.com。

³ 世界银行表示，2007 年和 2008 年初，核证减排量在一级市场的价格为 8 至 13 欧元，其中，处于初期筹备阶段的项目以大约 8 至 10 欧元的价格成交，拥有现代技术的已登记项目，如具有存储备选方案的氢氟碳化物项目，则是以 11 至 13 欧元的价格成交，见《2008 年碳市场的现状和趋势》，Karan Capoor 和 Philippe Ambrosi，世界银行，第 32 页。2008 年间，价格大幅上涨，但在 2008 年末、2009 年初，价格开始下滑，截至本文件定稿前，价格仍在继续下滑。根据 IDEACarbon 截至 2009 年 2 月 12 日的的数据，一级市场上，核证减排量的平均价格为：2008 年 11.61 欧元，2009 年初，9.25 美元。

5. 拥有氟氯烃生产设施的第 5 条国家有：中国、印度、墨西哥、委内瑞拉和阿根廷。就生产能力、工厂数量和氟氯烃产量而言，中国（其次是印度）是主要的生产国。在中国，约有 13 到 19 家 HCFC-22 生产商，⁴2007 年的产量略低于年产 500,000 吨。除委内瑞拉外，所有这些国家都有已登记的清洁发展机制项目，并正在因为销毁氟氯烃而获得信用额度。

6. 颁发的核证减排量（1.3 亿个）中，一多半来自附件一⁵所列、已登记的 HFC-23 削减项目，它们每六周到两个月就会需要大量的信用额度。⁶仅中国就从这些项目中获得了 9,000 万个的核证减排量。

7. 多边基金一直在为这些清洁发展机制项目主办国的氟氯化碳淘汰活动供资，按照计划，中国以外的几乎所有工厂⁷都是周期生产车间，中国也有一家未获得多边基金资助的周期生产车间。多边基金的付款情况如下：中国，1.5 亿美元（无周期生产车间），不包括加速淘汰协定与氟氯化碳、四氯化碳和哈龙生产协定以及氟氯化碳泡沫塑料行业协定共有的供资（1,000 万美元）；印度，8,517 万美元（四个氟氯化碳厂都是周期生产车间）；阿根廷，1,060 万美元（一个周期生产车间）；墨西哥，3,185 万美元（两个周期生产车间）；委内瑞拉，1,650 万美元（一个周期生产车间，但无清洁发展机制项目）。阿根廷、中国和印度的最后拨款尚未支付（将于 2009 年完成）。

8. 附件一表明所涉车间的年度氟氯烃总产量为 313,495 公吨；通过这些项目实现的 HFC-23 年度总削减量为 81,208,905 公吨；颁发的核证减排量共计 129,556,696 个，根据信用额度计入期的延长情况不同，估计市值在 76 亿美元到 198 亿美元之间（每个核证减排量 12.6 美元）。这些数字都是在这些项目的整个周期内统计的，项目周期远远超出了 2008-2012 年的承诺期。⁸

9. 以下是关于清洁发展机制、氟氯烃生产和多边基金资助的简要调查得出的几点主要结论：

- (a) 无论是执行委员会为附件一所列国家淘汰氟氯化碳生产核准的 2.9412 亿美元，还是可用于淘汰氟氯烃的资金，都无法与从清洁发展机制项目那里获得的极大量供资相提并论；
- (b) 除委内瑞拉外，周期生产车间得到多边基金资助的所有国家都获得了清洁发展机制信用额度；

⁴ 中国氟氯烃工厂的数量估计在 13（专家提供）到 19（国家环保总局）家。

⁵ 清洁发展机制下已登记的 18 个氢氟碳化物销毁项目中，一个由大韩民国主办，该项目未被列入附件一。

⁶ 与清洁发展机制下的氟氯烃生产有关的 HFC-23 减排活动的机会应当与附件一所列项目及大韩民国开展的一个项目大致相当，除非京都议定书各缔约方决定宣布新的氟氯烃工厂合格。

⁷ 特殊情况指的是印度一家制造聚四氟乙烯和生产氟氯烃用作原材料的工厂。

⁸ 预计在 2012 年之前，来自所列项目的核证减排量总数大约在 5 亿个。

- (c) 印度继续享受多边基金为氟氯化碳生产淘汰活动提供的资助，与此同时，这些周期生产车间还会获得清洁发展机制信用额度；
- (d) 迄今，中国是清洁发展机制信用额度的最大受益者，为 HFC-23 减排颁发的核证减排量中，中国拿到了 70%，不过中国没有得到多边基金资助的周期生产车间。

建议

10. 谨建议执行委员会注意到 UNEP/OzL.Pro/ExCom/57/62 号文件所载报告：“总结可以公开获得的信息，说明清洁发展机制运作的有关内容以及作为可计入额度的 HCFC-22 产量”。

Annex I

HFC-23 PROJECTS RELATED TO HCFC PRODUCTION REGISTERED WITH THE CDM BOARD*

Project Title	Host Country and Host Country Participants	Other Parties	Original PDD Date/ Date Registered by CDM Board	HCFC 22 Production (annual) in metric tonnes	HFC Annual Reductions in Metric tonnes of CO ₂ e	Crediting period	CERs issued	Estimated market value (OTC) as of 22-01-09 (USD 12.6 per CER)	MLF Projects
Project for GHG emission reduction by thermal oxidation of HFC 23 in Gujarat, India. SWING PLANT	India (Gujarat Fluorochemicals Ltd.)	Switzerland, Japan, Netherlands, Italy, UK (Ineos Fluor Holdings Limited, Sumitomo Corporation, EDF Trading Ltd, Enel Trade S.p.A., Noble Carbon Credits Ltd)	14/11/2003 08/03/2005	20,700	3,000,000	10 years	18,293,674 01/10/2005- 30/09/2008	378 million	IND/PRO/45/INV/390 ExCom 29 (1999) approved a total of \$82 mil. for the CFC production phase-out in India (4 plants), of which \$76 mil. has been disbursed.
Project for GHG Emission Reduction by Thermal Oxidation of HFC23 in Jiangsu Meilan Chemical CO. Ltd., Jiangsu Province, China	China (Jiangsu Meilan Chemical CO. Ltd.)	NL, Spain, Italy, Denmark, Japan, Canada, UK, Finland, Norway, Sweden, Switzerland, Germany, France (International Bank for Reconstruction and Development)	01/07/2004 04/06/2006	30,000	8,411,432	7 years (Renewable)	15,952,466 01/12/2006- 31/08/2008	7 years: 740 million 21 years: 2.2 billion	CPR/PRO/27/INV/356 ExCom 27 (1999) approved \$150 mil. for the entire CFC production phase-out in China, of which \$142.5 mil has been disbursed. No swing plants financed by the MLF in China.
GHG emission reduction by thermal oxidation of HFC 23 at refrigerant (HCFC-22) manufacturing facility of SRF Ltd. SWING PLANT	India (SRF Ltd.)	UK, Germany, NL, Italy, France, Switzerland (ICEAP, Shell, Climate Change Capital Carbon Fund, EDF Trading, Barclays, KfW, Solvay Fluor, Rabobank, Goldman Sachs, BNP Paribas, Citigroup, CER Investments 1, Nuon Energy, Enel Trade S.p.A., Noble Carbon Credits)	01/07/2004 24/12/2005	11,145	3,833,566	10 years	13,527,318 01/07/2004- 30/06/2008	483 million	IND/PRO/45/INV/390 ExCom 29 (1999) approved a total of \$82 mil. for the CFC Phase-out in India (4 plants), of which \$76 mil. has been disbursed.

* or in the COM pipeline as of 22 January 2009

Project Title	Host Country and Host Country Participants	Other Parties	Original PDD Date/ Date Registered by CDM Board	HCFC 22 Production (annual) in metric tonnes	HFC Annual Reductions in Metric tonnes of CO ₂ e	Crediting period	CERs issued	Estimated market value (OTC) as of 22-01-09 (USD 12.6 per CER)	MLF Projects
Quimobásicos HFC Recovery and Decomposition Project SWING PLANT	Mexico (Quimobasicos S.A. de C.V.)	Japan, NL, UK, Switzerland (Electric Power Development Co., Ltd., EcoSecurities Group Plc., Goldman Sachs International, Electrabel SA, EcoSecurities Group Plc)	01/07/2004 14/06/2006	7,570	2,155,363	7 years (Renewable)	4,120,101 14/06/2006- 29/06/2008	7 years: 189 million 21 years: 567 million	MEX/PRO/47/INV/128 ExCom 40 (2003) approved a total of \$31.85 mil. for the CFC Phase-out in Mexico (two plants), of which all has been disbursed.
HFC23 Decomposition Project of Zhejiang Juhua Co., Ltd, P. R. China	China (Zhejiang Juha Co., Ltd.)	Japan (JMD Greenhouse-Gas Reduction, JGC Corp., Marubeni Corp., Daioh Construction)	01/07/2004 03/03/2006	16,000	5,789,682	7 years (Renewable)	13,173,993 01/08/2006- 31/10/2008	7 years: 511 million 21 years: 1.5 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
Shandong Dongyue HFC23 Decomposition Project	China (Shandong Dongyue Chemical Co. Ltd.)	Japan, UK (Mitsubishi Corp., Nippon Steel Corp., Natsource Europe Ltd.)	01/07/2004 13/03/2006	36,476	10,110,117	7 years (Renewable)	16,059,798 01/01/2007- 31/08/2008	7 years: 882 million 21 years: 2.6 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
Project for HFC23 Decomposition at Changshu 3F Zhonghao New Chemical Materials Co. Ltd, Changshu, Jiangsu Province, China	China (Changshu 3F Zhonghao New Chemical Materials Co. Ltd.)	NL, Spain, Italy, Denmark, Japan, Canada, UK, Finland, Norway, Sweden, Switzerland, Germany, France (International Bank for Reconstruction and Development)	01/07/2004 08/08/2006	40,000	10,437,249	7 years (Renewable)	20,135,976 22/12/2006- 25/09/2008	7 years: 920 million 21 years: 2.8 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.

Project Title	Host Country and Host Country Participants	Other Parties	Original PDD Date/ Date Registered by CDM Board	HCFC 22 Production (annual) in metric tonnes	HFC Annual Reductions in Metric tonnes of CO ₂ e	Crediting period	CERs issued	Estimated market value (OTC) as of 22-01-09 (USD 12.6 per CER)	MLF Projects
Destruction of HFC-23 at refrigerant (HCFC-22) manufacturing facility of Chemplast Sanmar Ltd. SWING PLANT	India (Chemplast Sanmar Ltd.)	Switzerland, UK (Sempra Energy Europe Limited (SEEL), Vitrol SA)	01/07/2004 16/02/2007	1,695	539,163	10 years	871,503 16/02/2007- 30/09/2008	68 million	IND/PRO/45/INV/390 ExCom 29 (1999) approved a total of \$82 mil. for the CFC production phase-out in India (4 plants), of which \$76 mil. has been disbursed.
Project for HFC23 Decomposition at Zhejiang Dongyang Chemical Co., Ltd., China	China (Zhejiang Dongyang Chemical Co., Ltd.)	Italy, Switzerland, UK, NL (Enel Trade S.p.A.)	01/07/2004 27/10/2006	18,000	3,656,598	7 years (Renewable)	5,870,517 01/11/2006- 27/03/2008	7 years: 322million 21 years: 966 million	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
Project for HFC23 Decomposition at Limin Chemical Co., Ltd. Linhai, Zhejiang Province, China	China (Limin Chemical Co., Ltd.)	Italy, Switzerland, NL, UK (Enel Trade S.p.A.)	01/07/2004 27/10/2006	26,000	4,783,753	7 years (Renewable)	5,795,396 01/01/2007- 31/03/2008	7 years: 420 million 21 years: 1.3 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
HFC23 Decomposition Project at Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China	China (Zhonghao Chenguang)	Italy, Switzerland, UK, NL (Enel Trade S.p.A.)	01/07/2004 01/05/2007	18,000	2,065,533	7 years (Renewable)	2,065,282 01/05/2007- 30/04/2008	7 years: 182 million 21 years: 546 million	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
Frio Industrias Argentinas S.A ("FIASA") Hydro-fluorocarbon 23 ("HFC23") Capture, Storage and Decomposition Project. SWING PLANT	Argentina (Frio Industrias Argentinas S.A.)	Spain (Endesa Generación S.A., Comercio Internacional Proserdi S.L.)	01/07/2004 10/03/2007	4,087	1,434,143	7 years (Renewable)	197,933 15/10/2007- 31/12/2007	7 years: 126 million 21 years: 378 million	ARG/PRO/44/INV/141 ExCom 38 and 53 (2002 & 2007) approved a total of \$10.6 mil. for the CFC phase-out in Argentina (1 plant), of which \$9.6 mil. has been disbursed.

Project Title	Host Country and Host Country Participants	Other Parties	Original PDD Date/ Date Registered by CDM Board	HCFC 22 Production (annual) in metric tonnes	HFC Annual Reductions in Metric tonnes of CO ₂ e	Crediting period	CERs issued	Estimated market value (OTC) as of 22-01-09 (USD 12.6 per CER)	MLF Projects
GHG emission reduction by thermal oxidation of HFC 23 at Navin Fluorine International Ltd (NFIL), Surat, Gujarat, India. SWING PLANT	India (Navin Fluorine International Ltd.)	UK, Japan, Switzerland, France (INEOS Fluor Limited (IFL), E.ON UK plc, Sumitomo Corporation, BHP Billiton Marketing AG ; Mercuria Energy Trading SA, NATIXIS)	28/07/2006 30/03/2007	7,992	2,802,150	10 years	3,250,142 01/05/2007- 30/06/2008	353 million	IND/PRO/45/INV/390 ExCom 29 (1999) approved a total of \$82 mil. for the CFC phase-out in India (4 plants), of which \$76 mil. has been disbursed.
No.2 HFC-23 Decomposition Project of Zhejiang Juhua Co., Ltd. P. R. China	China (Zhejiang Juha Co., Ltd.)	UK, Switzerland, (British Gas Trading Limited, Deutsche Bank AG, Oz Carbon Trading (Lux), Morgan Stanley, (Climate Change Capital China Ltd., Climate Change Capital Carbon Fund 2)	01/07/2004 05/04/2007	13,708	4,809,631	7 years (Renewable)	5,909,168 06/04/2007- 30/06/2008	7 years: 427 million 21 years: 1.3 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
Changshu Haike HFC 23 Decomposition Project	China (Changshu Haike Chemical Co.Ltd.)	UK (EDF Traiding Ltd.)	28/07/2006 15/02/2008	18,106	3,473,385	7 years (Renewable)	1,093,047 01/05/2008- 30/06/2008	7 years: 308 million 21 years: 924 million	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
China Fluoro HFC23 abatement project in China	China (China Fluoro Technology Co.Ltd.)	Japan, UK, Switzerland (Mitsui & Co. Ltd., Sumitomo Corp., The Tokyo Electric Power Co. Inc., Climate Change Capital Carbon Fund II, Climate Change Capital Carbon Managed Account, Bear Stearns International Ltd., Climate Change Capital China Ltd.)	28/07/2006 14/09/2007	12,285	4,248,092	7 years (Renewable)	3,240,382 14/09/2007- 30/06/2008	7 years: 375 million 21 years: 1.1 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
GHG emission reduction by thermal oxidation of HFC 23 at refrigerant (HCFC-22) manufacturing facility of HFL Ltd. (HCFC as feedstock.)	India (HFL Ltd., SRF Ltd.)	N/A	28/07/2006 14/11/2008	1,265	442,310	10 years	N/A	56 million	Not a swing plant.

Project Title	Host Country and Host Country Participants	Other Parties	Original PDD Date/ Date Registered by CDM Board	HCFC 22 Production (annual) in metric tonnes	HFC Annual Reductions in Metric tonnes of CO ₂ e	Crediting period	CERs issued	Estimated market value (OTC) as of 22-01-09 (USD 12.6 per CER)	MLF Projects
Yingpeng HFC23 Decomposition Project	China (Yingpeng)	Italy, Ireland (Enel Trade S.p.A., Infinity Clean Air Development)	28/07/2006 Review requested, not registered.	25,000	7,865,277	7 years (Renewable)	N/A	7 years: 693 million 21 years: 2.1 billion	See above for CDM project at Jiangsu Meilan Chemical CO. Ltd., China.
Quimobásicos HFC Recovery and Decomposition Project SWING PLANT	Mexico (Plant #2 of Quimobásicos S.A de C.V)	N/A	28/07/2006 Under validation, not registered.	5,466	1,351,461	10 years	N/A	170 million	MEX/PRO/47/INV/128 ExCom 40 (2003) approved a total of \$31.85 mil. for the CFC phase-out in Mexico (2 plants), of which all has been disbursed.
Total:				313,495.0	81,208,905		129,556,696	10/7 years: 7.6 billion 10/21 years: 19.8 billion	