



联合国



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执行蒙特利尔议定书  
多边基金执行委员会  
第四十三次会议  
2004年7月5日至9日，日内瓦

根据第 42/12(c)号决定采取的行动：  
对氟氯化碳生产部门淘汰协定的中期评价

一. 背景

1. 执行委员会第四十二次会议审议了关于 CFC 生产部门淘汰协定中期评价的报告 (UNEP/OzL.Pro/ExCom/42/12)。该报告介绍了于 2004 年 1 月前往中国、朝鲜民主主义人民共和国和印度考察的评价工作团所作出的结论和建议。
2. 监测和评价高级干事说明，在印度，虽然从适于销售的净产量角度来衡量，CFC 产量一直未超过容许产量的最高限量，但从总产量来看，则略高于最高限量。
3. 在讨论这一问题及其他问题之后，执行委员会，除其他事项外，决定：  
“请印度政府与世界银行合作，按所谓的总产量来计划和核查印度的 CFC 容许产量，审察为确定协定的基准所作计算，并将其结论向第四十三次会议作出报告”。  
(第 42/12(c)决定)。
4. 秘书处于 2004 年 6 月 3 日收到印度政府环境林业部臭氧单位与世界银行共同编制的一份报告，将提交执行委员会第四十三次会议。报告附于本件之后。

## 二. 评论

5. 由臭氧单位和世界银行共同编制的报告在结论下面第一段中指出：

*“基于根据 SRI International 制定的 1998 年 CFC 产量审计报告编制调查表，1999–2002 年每个企业的 CFC 产量预测与可适于销售的净数量预测相同。此外，SRI International 的报告中所收入的历史产量数据也是以净产量为基础。印度在制定 CFC 生产淘汰部门计划时即以 SRI International 使用的这一方法为依据。因此，印度的 CFC 生产淘汰计划协定所用基准是根据可适于销售的净产量制定。”*

6. 不过，实际上 SRI 并没有收集可适于销售的净产量数据，只是同其他第 5 条国家一样，以下列方式在印度来获取 CFC 生产数据：它请各公司根据生产记录簿提供最近一年实际使用原材料(CTC、HF 等)和 CFC 实际产量的数据，而生产记录簿是以对日池窑的测量为基础的。然后将这些数据与这类生产的标准投入产出比率加以比较。如与国际平均数值有偏差，就要对此作出解释。对经济模式的所有进一步的计算和预测都使用了现为总产量数据的这些数据。对于回溯至 1991 年的历史记录，各公司向 SRI 提供了数据，按照最近的解释，这些数据就是净产量数字，尽管过去只是称之为产量。按照印度政府的说法，这些数据也是根据第 7 条所报告的数据。就 SRI 所分析的一年(1997 年)来说，毛产量和净产量的数字是一样的，这很难说明问题，因为其他年份的差额据称都是净产量数字；因此，根据第 7 条提交的数字应当与 SRI 报告和世界银行提出的项目文件中的数据相称，但多数年份的数据并不相称(见附件一表)。

7. 项目文件或协定以及最初的两份核查报告中也没有使用可适于销售的净产量概念。这一概念于 2001 年 1 月提出，是在 2000 年核查报告导言中第一次提到的。根据审计小组组长提供的信息，核查报告中报告的 1999 和 2000 年产量是可适于销售的净产量，当时只是称之为产量。只有 2001、2002 和 2003 年才在核查报告中明确提到可适于销售的净产量，但也正是在这几年中，总产量才开始超过协定所规定的最高容许产量。

8. 所附报告第三段内容如下：

*“基于臭氧业务专家组专家的评论意见，任何 CFC 生产设施都不可能完全避免减产情况。不过，所有 CFC 生产商为了达到最大值产量和经济效益，历来都将这种减产减少到最低限度。还要指出的是，大多数 CFC 生产设施并不对总产量或减产进行物理测量，因为就多数情况而言，这一做法是不实际的，它不可能获得准确的测量值”。*

9. 按照现行行业标准，要避免所有操作和填充损失，实际上是不可能的，因为 CFC 本身所具有气态特点，在用软管填充小气罐时很难控制气体泄漏问题。不过，通过管道来填充较大的气罐，基本上可以不发生此种泄漏，中等的气罐(1 吨装)如果使用软管填充，可配置后吸入系统，以大量回收所挥发的 CFC。采用最佳做法可将填充损失降低到大约

0.3%，墨西哥就是一例，而印度的平均损失率在 0.5% 至 1% 之间不等，不时会更高，但有一家公司报告损失率大幅降低。

10. 测量用大型日池窑填充的 CFC 容量，尽管并不一定都是过磅称重，但实际上最后的 100 公斤是不准确的，因而大多数公司就将 CFC 转装入较小的气罐，这种气罐通常是安放在某种形式的称重装置上，比如应变仪测压盒。这就可以在填充到小气罐(大部分的损失都发生在这一过程中)之前，获得总产量的较为准确的数字。每个公司都保存有此种记录，以便对车间进行日常监测，并跟踪装填和操作造成的损失，争取将损失减少到最小。甚至对于报告称其没有与发送所用气缸分开的最后储存罐，因此无法提供总产量数字的公司来说，情况也并无不同。即使在这种情况下，只要刻度准确，对日池窑的测量准确率误差也会在 1% 以下。然后再将这些总产量数据与应用平均投入产出比率计算所用原材料时获得的数据加以比较，以期查明有无偏差。此外，如果实际上总产量和操作及填充损失不可能、也没有测量到，如上述报告有关段所述那样的话，2001 至 2003 年的核查报告又如何能够提供印度四家 CFC 生产商中的三家生产商的此种数字呢？又如何能够以第四家生产商的平均损失率为 1.5% 这一假定来计算呢？评价工作团在对印度 CFC 生产商进行考察期间，查看了各公司所出示记录簿上的总产量记录，并与管理部门讨论了填充损失问题。

### 三. 结论

11. 收到印度政府和审计小组组长提供的有关 1999、2000 和 2001 年核查报告的进一步资料之后，秘书处建议执行委员会考虑：

- (a) 注意到印度政府环境林业部臭氧单位与世界银行共同编制的报告；
- (b) 对以下问题作出澄清，即，印度政府准备与世界银行合作按总产量还是净产量来计划和核查印度的 CFC 容许产量。

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**INDIA**  
**CFC PRODUCTION**

Year	A7 Data (ODP Tonnes)	CP Data (ODP Tonnes)	Technical Audit/World Bank Project Document (ODP Tonnes) <sup>(1)</sup>	Difference (ODP Tonnes)	Maximum Allowable Production as per Agreement (Metric Tonnes)	Verified Actual Gross Prod. (Metric Tonnes)	Production in Excess of Agreement (Metric Tonnes)	Verified Net Saleable Prod. (Metric Tonnes) <sup>(3)</sup>	Difference Gross-Net (Metric tonnes)
(1)	(2)	(3)	(4)	(5) = (4)-(2)	(6)	(7)	(8)	(9)	(10) = (9)-(7)
1991	N/A	N/A	4,730	N/A					
1992	6,096.8	N/A	6,044	-52.8					
1993	11,438.8	N/A	11,412	-26.8					
1994	16,646.0	N/A	16,666	20.0					
1995	21,779.6	N/A	21,678	-101.6					
1996	22,459.6	N/A	22,458	-1.6					
1997	23,658.0	N/A	23,659	1.0					
1998	20,012.8	20,012.0							
1999	22,498.6	22,498.6			22,588.0			22,411.0	
2000	20,403.8	N/A			20,706.0			20,407.0	
2001	18,689.2	N/A			18,824.0	18,939.0	115.0	18,691.0	-248.0
2002	<sup>(2)</sup> 16883.72	16,883.7			16,941.0	17,078.0	137.0	16,890.0	-188.0
2003	N/A	N/A			15,058.0	15,104.0	46.0	15,015.0	-89.0
2004					13,176.0				
2005					11,294.0				
2006					7,342.0				
2007					3,389.0				
2008					2,259.0				
2009					1,130.0				
2010					0.0				

N/A = Not available

<sup>(1)</sup> Data in SRI's Technical Audit and the Project Document presented by the World Bank (Table 2.3 on p.8) match fully, except that SRI reported the data for the Indian business and administrative year (April to March) for the following calendar year. Figures have been transformed into ODP tonnes in order to make the data comparable to A7 data in column 1.

<sup>(2)</sup> One company produced 35.3 MT of CFC-113, which means 28.2 ODP tonnes; some of it is used as feedstock for CFC-113a.

<sup>(3)</sup> For 1999 and 2000 only one figure for production was reported in the verification reports which, according to the team leader, was net production.



REPORT AS PER THE EXECUTIVE COMMITTEE  
DECISION 42/12 PARA. (C)

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THE WORLD BANK

Submitted to the 43<sup>rd</sup> Meeting of the Executive Committee

June 1, 2004





## Introduction

At the 42<sup>nd</sup> Meeting of the Executive Committee, the Senior Monitoring and Evaluation Officer submitted the report on the intermediate evaluation of CFC production sector phase-out agreements for the consideration of the Executive Committee. This report was prepared on the basis of findings and recommendations resulting from the evaluation mission to China, the Democratic People's Republic of Korea, and India. The general findings of this report indicate that the process of phase-out is sustainable and on track to achieve the full elimination of CFC production planned for the end of 2000.

With regard to the CFC production sector phase-out project in India, the report pointed out that although CFC production in India had stayed under the maximum allowable level when measured in terms of net saleable production, it had been slightly above the maximum in terms of gross production. The World Bank clarified that as the concept of net production may have been used to calculate the baseline for India, it was important to verify the effects before changing to the concept of gross production. Moreover, the current level of production loss was only about one per cent.

Based on the findings of the report and discussions made during the meeting, the Executive Committee decided to request the Government of India, in cooperation with the World Bank, to plan and verify allowable CFC production in India as so-called gross production, to review the calculations made to establish the baseline for the agreement, and to report to the 43<sup>rd</sup> Meeting of the Executive Committee on their findings (Dec. 42/12 (c)).

In response to the above decision of the Executive Committee, the Government of India and the World Bank, therefore, undertook the review of the 1998 CFC production audit report prepared by SRI International, an independent verification agency contracted by the Multilateral Fund, other related documents, and the principle used by the Government of India for reporting its annual production of Annex A, Group I chemicals to the Ozone Secretariat as per Article 7 of the Montreal Protocol. The World Bank also sought an expert opinion on this issue. Findings of the review undertaken by the Government of India and the World Bank are described in this report.

## Findings

Based on the questionnaires for the preparation of the 1998 CFC production audit report developed by SRI International, the projection of CFC production of each enterprise for the period 1999 – 2002 is the same with the projection of the net saleable quantity. In addition, historical production data included in the report of SRI International is also based on net production. This methodology employed by SRI International was used as a basis for the development of the CFC Production Phase-out Sector Plan for India. Therefore, the baseline for the agreement for the CFC Production Phase-out Plan for India was developed on the basis of net saleable production.

As required by Article 7 of the Montreal Protocol, the Government of India has always reported its annual production of Annex A, Group I chemicals based on net production to the Ozone Secretariat. It was also confirmed by all CFC producers in India that the production data submitted to the Government is the net saleable production quantity as stated in the excise records and their accounting statements.

Based on the comments of our OORG experts, any CFC production facilities would not be able to completely avoid production loss. However, this loss has always been minimized by all CFC producers in order to maximize their production and financial efficiency. It was also pointed out that physical measurement of gross production or loss was not done by most CFC production facilities as in most cases it was not practical and not possible to obtain accurate measurement.

It is important to point out that because of the difficulties in obtaining accurate measurement of gross production or loss as mentioned by the expert, CFC producers in India were able only to provide their best estimates and some were unable to provide any data.

The net saleable production quantity has been used as a basis for verifying the production of each CFC producing enterprise in India since the first year of the implementation of the CFC Production Phase-out Sector Plan. The issue of gross production that was recently raised by the auditing firm should not be misconstrued as a change in the reporting practice of the industry and/or the Government of India.

### **Conclusion**

Given the annual production targets stipulated in the agreement are based on the net saleable production level and the practical constraints in measuring and reporting accurate data on gross production, the Government of India and the World Bank find that the current practice of using net production for reporting to the Ozone Secretariat as per Article 7 of the Montreal Protocol for distribution of production quota and for reporting to the Executive Committee, should be maintained.

For all future reports, only the production quantity defined as net production will be presented as this is the basis for evaluating India's compliance with the agreement between the Executive Committee and India for the CFC Production Phase-out Sector Plan.