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执行蒙特利尔议定书
多边基金执行委员会
第三十八次会议
2002 年 11 月 20 日至 22 日，罗马

项目提案：中国

本文件载有基金秘书处关于下列项目提案的评论和建议：

泡沫塑料

- 在泡沫塑料行业淘汰 CFC-11 的全行业计划(2003 年度执行方案) 世界银行

哈龙

- 2003 年度方案：哈龙行业 世界银行

加工剂

- 在加工剂行业淘汰 ODS 的全行业计划 世界银行

化工生产

- 2003 年度方案：化工生产行业 世界银行

制冷

- 全行业最后淘汰 ODS 计划：家用制冷和家用制冷压缩机 意大利/工发组织

清洗

- 中国清洗行业 ODS 淘汰计划 2002 年度执行进度报告和 2003 年度执行方案 开发计划署

项目评价表
中国

行业： 泡沫塑料 本行业的 ODS 消费量（1999 年）： 19,162 ODP 吨
次级行业成本效益阈值： 不适用

项目名称:

(a) 在泡沫塑料行业淘汰 CFC-11 的全行业计划 (2003 年度执行方案)

项目数据	多次级行业
	聚氨酯泡沫塑料行业计划
企业消费量（ODP 吨）	19,162.00
项目影响（ODP 吨）	2,500.00
提议的项目期限（月）	12
原申请经费数额（美元）	12,570,000
最后项目经费（美元）：	92,200,000
增支资本费用(a)	76,027,400
酌处资金(b)	
增支经营费用(c)	13,935,959
项目费用总额（a＋b＋c）	115,300,000
地方所有权（%）	100%
出口比重（%）	0%
申请经费数额（美元）	12,570,000
成本效益值（美元/公斤）	5.03
对应出资是否已经确认？	
国家协调机构	国家环保总局
执行机构	世界银行

秘书处的建议：	
建议供资额（美元） 项目作用（吨 ODP） 成本效益值（美元/公斤） 执行机构支助费（美元）	
多边基金的费用总额（美元）	

* 项目影响、持续时间和申请经费数额仅以相应的数据和 2003 年执行方案所需资金为依据。

** 项目费用总额是根据不同的数据计算，因此与(a+b+c)有出入。项目费用总额不包括估计为 350 万美元的技术援助费用。

项目说明

中国聚氨酯泡沫塑料行业淘汰计划的 2003 年度执行方案和 2002 年度执行方案进度报告

背景

1. 执行委员会第三十五次会议于 2001 年 12 月核准了中国聚氨脂泡沫塑料行业的 CFC 淘汰协定，核准的经费总额为 5,384.6 万美元。执行委员会在同一次会议上还核准了 2001 年 12 月至 2002 年 12 月期间的第一次执行方案，并为将在 2002 年开展的活动核准了 994 万美元的经费（外加 886,600 美元的支助费用）。淘汰计划规定了中国聚氨酯泡沫塑料行业 CFC-11 消费量的年度控制目标，并规定了 2002 至 2009 年的相应供资数额。

2. 根据该协定，中国在 2003 年的全国 CFC-11 消费量不得超过 15,500 吨，聚氨酯泡沫塑料行业的 CFC-11 消费量则不得超过 13,830 吨。2003 年的淘汰目标为 2,500 吨。

3. 在发放商定的资金之前必须确认：

- 已经达到了为上个年度商定的所有淘汰目标和消费量限制；
- 已经核实，根据年度执行方案进行了为上个年度规划的各项活动；
- 已经签署的 CFC 淘汰合同至少将淘汰本年度合同目标的 50%和上个年度合同目标的 100%。

4. 必须至少对 15%的改造活动进行现场视察，以便对效绩进行核实，这些活动至少应淘汰年度执行方案中的一定 CFC 消费量。

5. 中国政府还同意，保证对淘汰情况进行准确的监测，并根据其在《蒙特利尔议定书》和协定下承担的义务提供定期报告。在协定下提供的消费量数据应该与中国根据《蒙特利尔议定书》第 7 条上报臭氧秘书处的数据保持一致。

2003 年度执行方案

6. 世界银行提交了 2003 年度执行方案（本文件所有该方案的副本），以供执行委员会第三十八次会议审议。该文件分为两个部分：

- 2002 年度方案的执行情况（A 部分）
- 2003 年度执行方案（B 部分）

7. 此外，世界银行提交了一份关于 2002 年度方案所资助企业 CFC-11 消费情况的核查报告。

2002 年度方案的执行情况

8. 上述报告介绍了中国政府为发起该全行业计划的执行工作所进行的准备活动。这些活动包括：挑选一个国内执行机构来协助国家环保总局对全行业计划、培训班和执行手册的编制工作实行管理。

9. 该报告还介绍了为了支持淘汰计划的执行工作而可以得到加强的现行政策措施、技术援助活动和在企业一级进行的工作，主要是为了签署 CFC 淘汰合同所进行的工作。报告保证，将在 2002 年底之前达到 2002 年方案规定的消费量限度、淘汰目标和合同目标，并将把 994 万美元的年度赠款分配给各家聚氨酯泡沫塑料企业，以供用于改造工作。

企业进行的活动

10. 世界银行报告说，中国将开始对泡沫塑料企业进行改组，以便实现淘汰目标。预计将在 2002 年度方案中举办 3 至 4 个改组项目。国家环保总局已经签署了两个合同，其淘汰量在 2000 吨的合同目标中占 1,188 吨。预计将在 2003 年中期之前签署淘汰剩余的 812 吨的合同。世界银行已经核查了同中国政府签订了淘汰合同的那一组企业的 CFC-11 消费量，这些消费量为 552 吨，占消费量淘汰目标的 25%。世界银行还表示，预计将在 2002 年度方案中列入 3 至 4 组企业。因此，已经签订了合同的一组企业占协定所规定企业的 25%。下文概述了所提交的一份核查报告，该报告可供索取。

2002 年度方案核查报告

11. 以下概述了世界银行提交的核查报告。

12. 2002 年的报告介绍了对 7 家企业在 1997 至 2001 年期间的生产状况进行核查的结果，核查的依据是企业拥有的必要生产设备和对泡沫塑料化学品的消费情况。该报告提供资料介绍了各家企业所使用的所有化学品的价格，但发泡剂化学品、CFC-11 和二氯甲烷的价格除外，将对这 7 家企业进行改组，由 Chengdu Jinjiang Polyurethane Foam Plant 作为其中的主要公司。根据被全行业计划作为基准数据的 1997 至 1999 年期间平均消费量，经过核实，这些企业的 CFC-11 消费量总共为 552 吨。

13. 该报告显示：

(a) 在核查的 7 家企业中，4 家企业在 1997 至 2000 年期间从事泡沫塑料生产，然而，在 2001 年，其中一些公司出于各种原因停止了泡沫塑料生产。一家公司（Chendgu Quianjin）已经破产，其资产自 2001 年以来被法院下令冻结。第二家公司，即 Chengdu Dongzikou，已根据同 Chengdu Jinjiang 公司达成的协定拆除了泡沫塑料生产车间，从 2001 年以来停止了泡沫塑料生产。第三家公司，即 Duocai 公司，没有充分利用其生产能力；

(b) 作为在 Chengdu 项目下进行的改组工作的一部分，Chengdu Jinjiang 公司购买了 Dongzikou 公司的基准设备，目前正在同区法院谈判，以购买 Qianjin 公司的基准

设备，并已经同 Duocai 公司合并。此外，该公司拥有一家企业并与 3 家其他公司建立了一个合资企业。在执行本项目之后，Chengdu Jinjiang 公司将负责处置这 7 家企业中的所有基准设备，并保证不使用任何 ODS；

(c) 对 7 家企业的所有基准设备进行了核实，并证明其可以使用。世界银行可提供基准设备的照片；

(d) 该报告确认，参加这个项目的所有 7 家企业都同时使用 CFC-11 和二氯甲烷。广泛使用二氯甲烷的原因是，这种物质的价格大大低于 CFC-11。在软质泡沫塑料生产中仍然使用 CFC-11，因为各公司宣称，这种泡沫塑料的质量较高或需要较高的质量。所有 CFC-11 都是从同一个本地公司购买的，又都是从同一家意大利公司进口。

(e) 核查团对所提供的 1997 至 1999 年期间购买 CFC-11 的记录表示满意。核查团因此认为，将通过本项目淘汰的 552 吨 CFC-11 消费量已经核实。然而，这些企业提供的 2000 和 2001 年 CFC-11 记录不能充分令核查团满意。30%以上的购买交易没有收据，28%的交易收据被发现非常反常；

(f) 该报告开列了所使用的所有泡沫塑料化学品的价格，但 CFC-11 和二氯甲烷的价格不包括在内。不提供这些主要化学品的价格看来很不正常。

2003 年度执行方案

14. 根据 2003 年度方案，应该向中国发放 1,257 万美元的经费，并向世界银行提供 1,115,300 美元的支助费用。中国应该遵守 15,500 吨 CFC-11 的全国消费量限制，遵守 13,830 吨的聚氨酯泡沫塑料行业消费量限制，并达到 2,500 吨的淘汰目标。

15. 2003 年度方案中的活动包括政策措施、政府措施、企业活动和技术援助。政策措施和政府措施主要是在其他已经核准并正在进行的活动，例如化工生产行业计划中采取的措施、体制建设措施或现有的法规措施，所有这些措施都会在实现聚氨酯泡沫塑料行业计划所规定的目标方面发挥作用。

16. 预计将通过确定参加 3 至 4 个大型地区性项目的企业来达到 2,500 吨的淘汰目标。预计将在 2003 年中期之前签署至少 50%的 CFC-11 淘汰合同，并在 2004 年中期之前签署另外 50%的合同。

17. 计划举办 6 项技术援助活动，包括进行 2002 年效绩稽核和编制一份关于聚氨酯泡沫塑料行业替代技术的手册。此外则是继续进行在 2002 年度方案中发起的活动。

其他活动

上报数据

18. 秘书处在编写本文件时得到的资料显示，中国尚未向臭氧秘书处上报 2001 年的产量

和消费量数据。中国也没有向基金秘书处上报经过细分的消费量数据。秘书处请世界银行说明中国的数据报告状况，如果可以得到中国当前的 CFC 消费水平数据，则应将其提交秘书处。在编写本报告时，秘书处尚未得到任何答复。

秘书处的评论和建议

评论

19. 根据作为基准来计算聚氨酯泡沫塑料行业计划供资水平的 CFC-11 消费量，即 1997 至 1999 年的消费量，符合聚氨酯泡沫塑料行业淘汰计划中规定的核实消费量的条件。7 家企业在 2001 年总共消费 502 吨 CFC，低于其经过核实的 1997 至 1999 年 552 吨的消费量。经过核实的 552 吨消费量则与行业计划中的消费量一致，后者为 551.97 吨。

20. 中国尚未履行根据《议定书》第 7 条向臭氧秘书处上报产量和消费量数据的义务。尽管协定并没有具体规定 2001 年的 CFC 消费量限制，但提供这样的数据将进一步保证，中国正在 CFC 淘汰活动中取得进展。在将来，如果不及时上报这些数据，在聚氨酯泡沫塑料行业计划之下对中国效绩进行的评价和其他相关的行动将受到限制。

建议

21. 谨提议执行委员会根据以上提供的说明，考虑发放 12,570,000 美元的经费，并发放 1,115,300 美元作为世界银行的支助费用，以供执行中国聚氨酯泡沫塑料行业淘汰计划的 2003 年方案。

22. 还提议执行委员会请中国政府根据协定的规定向臭氧秘书处报告 2001 年的产量和消费量数据，并在今后尽量争取按时履行这一义务，即，在每个报告年度的 9 月 30 日之前提交数据，并努力争取向基金秘书处上报经过细分的消费量数据，以便使其能够根据协定的规定核查国家和行业一级的 CFC-11 消费量。

项目评价表
中国

行业： 哈龙 本行业的 ODS 消费量（2000 年）： 14,780 ODP 吨
本行业的 ODS 产量（2000 年）： 16,214 ODP 吨
次级行业成本效益阈值： 不适用

项目名称：

(a) 2003 年度方案：哈龙行业

项目数据	哈龙库
企业消费量（ODP 吨）	不适用
项目影响（ODP 吨）	2,292 (消费量) 和 1,992 (产量)
提议的项目期限（月）	12
原申请经费数额（美元）	5,900,000
最后项目经费（美元）：	
增支资本费用(a)	
酌处资金(b)	
增支经营费用(c)	
项目费用总额（a＋b＋c）	5,900,000
地方所有权（％）	100%
出口比重（％）	0%
申请经费数额（美元）	5,900,000
成本效益值（美元/公斤）	不适用
对应出资是否已经确认？	不适用
国家协调机构	国家环保总局
执行机构	世界银行

秘书处的建议：	
建议供资额（美元） 项目作用（吨 ODP） 成本效益值（美元/公斤） 执行机构支助费（美元）	
多边基金的费用总额（美元）	

项目说明

23. 根据执行委员会核准的中国哈龙行业淘汰计划（第 23/11 号决定），中国申请发放第六笔 590 万美元的经费，以供执行 2003 年度方案。中国将利用这笔经费把哈龙 1211 的产量减至不超过 1,990 长吨的上限，将其消费量减至不超过 1,890 长吨的上限。将把哈龙 1301 的产量保持在 600 长吨上限之下，把其消费量保持在 150 长吨的上限之下。世界银行提交的申请附上了年度方案中的详细资料，年度方案则载于基金秘书处的网站（www.unmfs.org）。2003 年度方案包括以下活动：

(a) 把 157 万美元用于购回配额，因此减少哈龙 1211 的产量；

(b) 把 170 万美元用于关闭和改造 10 至 15 家灭火器制造工厂；

(c) 把 240 万美元用于改造 8 至 10 家哈龙 1211 灭火系统制造厂；

(d) 把 23 万美元用于技术援助活动，以便支持哈龙淘汰方案并保证遵守当前的消防规定。

24. 中国政府将根据前 5 个年度方案取得的经验，继续为淘汰哈龙进行和改进关闭/改造合同的招标活动。中国将继续实行可交易的产量配额办法，并通过逐渐使关于必要用途的定义严格化，加强禁止为非必要用途安装新的哈龙灭火器的规定。中国政府将采取以下方式，以支持在地方一级执行对非必要用途的禁令：通过新闻媒体、布告等手段来确保向潜在的消费单位宣传禁令的详细规定；由地方政府的消防局和环境保护局定期对消费单位进行检查，并向公安部和国家环境保护总局（国家环保总局）提交定期报告；对哈龙的销售实行更为严格的控制措施。

25. 通过结合采用生产配额、招标制度和行政措施，将向企业提供赠款来进行关闭和改造生产设施的活动。

26. 为 2003 年规划的技术援助活动包括：制定气雾剂灭火装置一般技术条件的全国标准；对参加淘汰活动的人员进行培训；对 2002 年度方案的效绩进行稽核。

秘书处的评论和建议

评论

27. 第 23/11 号决定为中国哈龙淘汰项目规定了截至 2010 年底的削减产量和消费量时间表。2003 年度方案中开列的削减量符合该时间表的规定。

技术稽核

28. 世界银行连续第三年委托进行了独立的技术稽核。现备有技术稽核报告的副本，以供执行委员会成员索取。

主要稽核结果

29. 通过技术稽核确认，中国的哈龙 1211 和 1301 的产量和消费量都大大低于为 2001 年确定的目标。中国哈龙 1211 的产量比协定所允许的上限少 199 长吨，哈龙 1301 的产量则少 405 长吨。

第 34/9(i)号决定的执行情况

30. 中国政府和世界银行通知执行委员会第三十四次会议，有可能无法实现为淘汰消费量规定的目标，执行委员会则在第 34/9(i)号决定中注意到，中国和世界银行已商定根据中国哈龙行业计划纠正出口问题的措施，并商定减少哈龙计划中为 2001 年规定的配额，减少数量相当于将根据独立技术稽核确定的 2000 年超过规定的全国消费量。2001 年经过减少的哈龙 1211 产量也低于商定的数量减去 2000 年超过规定的数量。通过技术稽核还确认，已经建立了一个出口配额制度，以便防止再次发生由于出口减少而致使中国未能达到 2000 年消费量目标的情况。

哈龙 1211 价格的下降、储存和哈龙循环/哈龙库

31. 技术稽核显示，哈龙 1301 的价格已经从 8.48 美元/公斤减至 6.37 美元/公斤，哈龙 1211 的价格是 3.08 美元/公斤。世界银行随后指出，哈龙 1211 的价格降至 2.84 美元/公斤。稽核人员指出，鉴于产量低于允许的上限，这表明需求有所降低。但是，较高的价格有助于在中国保持对替代物质的使用和进行哈龙库活动，并有助于减少全世界的哈龙 1211 和 1301 的供应。

32. 技术稽核人员还指出，储存的哈龙 1211 已经从 1999 年的 117.6 长吨增加到 720.5 长吨，并在 2001 年增加到 1,041.1 长吨。世界银行指出，该机构了解的情况是，生产厂家在当前的存量是：哈龙 1211 为 1,070 长吨，哈龙 1301 为 691 长吨。

33. 鉴于 2002 年工作方案中包括举办收集、再循环和回收二手哈龙的示范项目，秘书处向世界银行指出了价格的不断下降和储存的不断增加。世行表示，将把哈龙再循环和哈龙库活动作为试点，以确定在当前的生产和需求水平上继续任何这样的活动在经济上是否可行。然而，世行表示，由于中国和全球对哈龙的需求都已全面下降，有可能加快淘汰中国哈龙生产的速度。该机构表示，它将在下次监督考察期间向中国提出这个问题，看看该国是否对加快哈龙生产淘汰速度感兴趣。

关于 2005 年灭火器生产的规定

34. 第 23/11(e)号决定规定，在 2005 年，中国应生产出 350 万台 CO_2 或类似灭火器。该决定指出，如果没有达到这项规定，将要求退换多边基金的资金，并根据每一台少生产的 CO_2 或类似灭火器 3.08 美元的费率确定退还数额。秘书处通过审查提交的报告和原来的计划，发现 CO_2 灭火器的生产能力至少为每年 683,000 台，其中包括 1995 年的 83,000 台产量和新增加的 600,000 台 CO_2 灭火器缸体的生产能力。

35. 世界银行表示，第 23/11 号决定指的是，将于 1998 至 2005 年底期间内在销售中取代哈龙 1211 灭火器的 CO_2 或类似灭火器的总数。世行表示，除了秘书处查明的年度生产能力之外，多边基金项目已经使每年的生产能力增加了 200,000 台。世界银行和中国计划在 2003 至 2004 年期间进行一次普查，以确定 1998 年以来生产的 CO_2 或类似灭火器的数量。

机构费用

36. 第 23/11(j)号决定指出，执行年度方案的机构费用将由执行委员会和所涉执行机构商定。在以前各年度，这笔费用包括技术稽核费用。世行此次申请的机构费率为 10%，费用数额为 590,000 美元。

37. 秘书处向世行指出，执行委员会为中国 CFC 生产行业年度工作方案批准的机构费率为 7%。世行答复说，鉴于以下原因，如果费率低于 10%，将无法执行哈龙行业计划：世行正在进行每年一次的哈龙行业技术稽核并支付稽核费用；必须把全行业计划经费的 3%支付给作为国内执行机构的中国政府，这是一笔固定费用。

38. 世界银行为 2002 年计划得到的支助费用的费率为 10%（以年度计划的 370 万美元经费为基础计算，为 370,000 美元）。

建议

39. 谨提议执行委员会：

(a) 核准中国哈龙计划的 2003 年工作方案，其商定经费数额为 5,900,000 美元。

(b) 考虑为世界银行核准 7%的机构费用（413,000 美元），其中包括技术稽核的费用。

项目评价表
中国

行业： 加工剂 本行业的 ODS 消费量（1999 年）： 3,808 ODP 吨
次级行业成本效益阈值： 不适用

项目名称:

(a) 在加工剂行业淘汰 ODS 的全行业计划

项目数据	工艺改造
企业消费量（ODP 吨）	3,952.00
项目影响（ODP 吨）	3,952.00
提议的项目期限（月）	12
原申请经费数额（美元）	79,800,000
最后项目经费（美元）：	
增支资本费用(a)	
酌处资金(b)	
增支经营费用(c)	
项目费用总额（a＋b＋c）	129,200,000
地方所有权（%）	100%
出口比重（%）	0%
申请经费数额（美元）	79,800,000
成本效益值（美元/公斤）	32.69
对应出资是否已经确认？	
国家协调机构	国家环保总局
执行机构	世界银行

秘书处的建议：	
建议供资额（美元） 项目作用（吨 ODP） 成本效益值（美元/公斤） 执行机构支助费（美元）	
多边基金的费用总额（美元）	

项目说明

背景

40. 世界银行向第三十七次会议提交了一个在中国的加工剂行业淘汰 ODS 的全行业计划。为该计划提出的目标如下：

(a) 根据第 X/14 号决定核准的 25 种 ODS 加工剂用途的当前消费量，制订一份与该决定保持一致的行业计划，以便逐步淘汰中国的 ODS 加工剂消费量；

(b) 利用多边基金提供的资助并按照时间表在该行业淘汰 ODS；

(c) 制订政策并建立一个监测和管理制度，以便保证以最具有成本效益的方式完成全部淘汰活动。

41. 该计划拟议总共淘汰 3,202 ODP 吨 CTC 和 17.2 ODP 吨 CFC-113，经费总额为 11,541 万美元，成本效益值为 38.2 美元/公斤。

42. 该计划指出，还有 5,762 ODP 吨 CTC 的应用据中国认为属于加工剂用途，但第 X/14 号决定没有将其作为加工剂列入。因此，没有把这个消费量包括在计划之中。

43. UNEP/OzL.Pro/ExCom/37/32 号文件所载秘书处的评价附有提交执行委员会的行业计划全文。

44. 秘书处在其评论中指出，所提交的全行业计划没有规定须履行《议定书》的控制措施，即在 2005 年之前把 CTC 消费量减少 85%。执行委员会迄今为止尚未向一个包含了违约成份的方案提供资金。执行委员会在第 37/20 号决定中除其他外，决定在缔约方大会作出任何决定之前：

(a) 决定在缔约方大会通过实施委员会解决了违约问题之前，执行委员会不应核准为不履行《蒙特利尔议定书》控制措施的国家提出的项目提案；

(b) 请秘书处和世界银行以及有关的执行委员会成员继续就中国的加工剂项目进行工作，解决技术性问题并商定合格的增支费用，以便在解决了违约问题之后把该项目提交将来的某次会议审议。

当前的情况

45. 2002 年 9 月 26 日，秘书处从世界银行收到一份题为《中国：加工剂行业计划，履约前景》的文件（本文附有该文件）。这份文件提出了一项经过修改的行业计划，中国在该计划之下表示，将在 2005 年实现把 CTC 消费量削减 85%的目标。经修改的行业计划提出的费用总额为 12,920 万美元（增加了 1,380 万美元），提议的第一期经费数额为 7,980 万美元，用于开展 2003 年的活动。

46. 中国表示，为了履行该国在《蒙特利尔议定书》下的义务，将通过以下方式在加工剂行业淘汰 CTC：

(a) 中国将在 2005 年 1 月之前把作为加工剂消费的 CTC 供应量减少 85%，并从此保持这一减少量。

(b) 假设于 2003 年从多边基金得到资助，将要求 CR、CP-70 和 CSM 次级行业中所有符合资助条件的企业最迟在 2004 年 12 月底之前签署改造合同或关闭合同。

(c) 还将通过一个配额制度在 2010 年之前限制每年的 CTC 消费量。

(d) 中国将与此同时建立一个 CTC 生产的配额制度，以保证使作为原料和加工剂消费的 CTC 供应符合《蒙特利尔议定书》的规定。（前提是，最迟将在 2004 年之前核准 CTC 生产行业计划）。

(e) 中国政府将建立一个对 CTC 生产厂家和加工剂企业进行企业一级监测的系统，以保证全国 CTC 消费量符合《蒙特利尔议定书》的规定。

47. CR 和 CP-70 生产厂家将改用水基技术，这是所了解的唯一在全球范围内应用的无 CTC 替代技术。这项改造工作将花费 3 至 4 年的时间，因此，各企业最早也要到 2006 年才能完成改造工作。在改造期间，各企业必须暂时关闭其生产设施，以待完成改造工作。提案列入了关闭生产设施所引起的费用（见文件的表四）。

48. 由于现在还不知道任何 CSM 和医药产品 Ketotifen 的替代技术，这些生产中的 CTC 淘汰活动将采取控制排放的办法。对于 CSM，排放控制措施的执行预计将至少需要 3 年的时间。中国的理解是，必须把排放量降低至将由执行委员会确定的“微不足道”的水平。该文件表示，如果这包括在 2010 年之前进行更多的淘汰，并对中国引起任何额外的增支费用，中国将保留为这种淘汰申请更多资金的权利。

49. 中国在计算增支费用时再次把企业符合资助条件的截止日期定为 1999 年 1 月 1 日，并指出，这一截止日期符合缔约方大会第 X/14 号决定。

秘书处的评论和建议

评论

50. 中国在经过修订的项目提案中提供了 1997 — 2002 年期间的 CTC 消费量数字。表一开列了这些数字：

表一：中国的 CTC 消费量和产量数据 (长吨)

年份	产量	进口数	出口数	用于 CFC 生产的原料	加工剂		消费量
					第 X/14 号决定(开列的 25 种用途)	中国提出的其他用途 [1]	
1997	34780	32679	105	60761	2909	4511	2082
1998	31900	45975	31	64782	2707	5387	7675
1999	30036	53226	23	53534	2986	5224	24481
2000	48193	26092	61	48227	3593	5952	20045
2001[2]	58320	1	2	44108	3952	6547	7664

注 1： 在缔约方大会通过一项决定之前，将把这些用途作为原料用途处理。

注 2： 假设在 2001 年用作加工剂的 CTC 消费量（开列的 25 种用途以及中国提出的其他用途）与 2000 年相比增加了 10%。

51. 秘书处请世界银行提供资料，说明在表中开列的 CTC 消费量中，1999 年 21,493 长吨和 2000 年 16,452 长吨的原来没有注明的用途。由于这个消费量，该项目提案看来不符合第 37/20 号决定关于履约的要求。必须把《议定书》所确定的总 CTC 基准消费量减少 85%，然而，该提案仅淘汰加工剂的消费量。

52. 秘书处还指出，《蒙特利尔议定书》对原料的定义包括在产品制造或装卸过程中排放的数量、可能在最后产品中包含的数量、以及在制造除 CFC 以外的其他化学品时所使用的原料数量。正如加工剂行业所显示的那样，这些数量可能很大。已经请世界银行在考虑到这些问题之后澄清表 1 开列的数量。

53. 经过修订的项目提案在第 11 段提到一个新的费用类别，即暂时关闭生产设施的费用。以前从未请求多边基金为此提供补偿，这些费用可能不属于增支费用。此外，第 13 段提到，将保留提交提案以便为该行业申请进一步补偿的权利，但在全行业淘汰计划的提案中不应这样做。

54. 秘书处还指出，第 15 段提到的估计数尽管经过了初步的讨论，但没有得到秘书处的任何认可。事实上，秘书处曾表示，初次提交的提案所载资料无法成为确定增支费用的依据。

55. 关于消费量，世界银行同意，在 1999 和 2000 年，中国国内出现了大量确切数量不明的 CFC。 这两年没有对 CTC 的进口实行任何限制，中国自己的理解是，这些 CTC 是赶在 2001 年禁止进口 CTC 之前囤积的存量。这些存量既可能被用作原料，也能够被派作尚且没有为任何过程进行稽核的用途，并有可能继续作为原料，以供以后的年度消费。世界银行指出，把加工剂消费量减少至 15%的水平是一个保守的办法，看来符合第 37/20 号决定。

56. 世界银行还指出，由于进口是来自第 2 条国家，中国和世界银行把数据同全球范围内

上报的 CTC 产量和出口量进行了核对。能够得到的资料有限，但是看来，各出口国在出口 CTC 时所依据的假设是，将把这些出口用作原料，而不是用于消费。

57. 关于上报的 CTC 数据，世界银行表示，所上报的用于 CFC 生产的 CTC 消费量是以 CFC 生产厂家的 CTC 实际消费量为依据，并在对 1998－2001 年期间 CFC 产量进行的稽核中得到核实。1998 年以前的 CTC 消费量是根据 CFC 生产稽核结果推算出来的。加工剂行业的 CTC 消费量数据是以进行的普查为依据，反映了普查所涉公司实际购买和使用的 CTC 数量。

58. 关于全行业计划的范围，世界银行表示，全行业计划仅涉及 CTC 的加工剂用途，并不是中国为了达到 85%的全面 CTC 履约目标而可能采取的所有措施。

59. 关于暂时关闭生产设施问题，世界银行承认，以前从未请求多边基金为这项费用提供补偿，这些费用可能不能作为增支费用。之所以提出这些费用，是为了提议一个可以选择的解决办法，以便能够就此举行谈判。

60. 关于排放控制措施可能引起的额外费用，世界银行同意，提出的申请不是一个全行业淘汰计划提案所应该提出的。然而，提议采用这个办法是为了使中国能够继续下一步工作，同时使执行委员会能够为排放水平确定基准。

61. 根据第 37/20 号决定，秘书处同中国政府的代表在蒙特利尔和北京举行了讨论。秘书处请求回答以下问题：所上报的受控加工剂用途的消费量（例如上文表一为 2000 年开列的 3,593 长吨）是否代表应该在第 7 条下报告的所有受控用途的总消费量。中国政府无法确认情况确实如此。在这问题得到澄清之前，无法确认提议的全行业计划是否将使中国能够履行在《蒙特利尔议定书》下承担的义务。

62. 为了把讨论推向前进，秘书处提出了一个方式，即，把为加工剂行业中的已核准项目所确定的成本效益作为依据，来计算淘汰加工剂消费量的合格增支费用。中国无法接受这一办法，提出的理由是，为制造需要向每一个运行中企业提供的 CP-70 和 CR 而进行技术转让的费用很高。

63. 中国通知秘书处，该国希望在罗马恢复关于清洗行业计划的讨论。

建议

64. 待定。

中国 CFC 生产行业 2003 度方案

项目说明

65. 《中国化工生产行业协定》规定，应该向执行委员会在每一年举行的最后一次会议提交下一年的年度方案，世界银行提交了执行该协定的 2003 年度方案（见附件），并有一项谅解是，根据《协定》，如果 2002 年度方案的执行情况令人满意，将于 2003 年在执委会举行的第一次会议上核准该年度方案的经费。

66. 提交的年度方案包括两个部分：

(a) 第一部分是中国自该全行业淘汰协定于 1999 年获得核准以来执行该协定的情况，包括说明截至 2002 年 7 月在 2002 年方案的执行过程中取得的进展。总结报告的要点如下：

(i) 从 1999 年至 2001 年，通过执行《中国化工生产行业淘汰协定》，CFC 生产工厂已从 1999 年的 37 个减至 2001 年的 7 个，CFC 产量已从 50,351 ODP 吨减至 2001 年的 36,200 ODP 吨。正在执行中的 2002 年度方案将把产量进一步减至 32,900 ODP 吨。2002 年头 6 个月的 CFC 产量据报告为 18,738 ODP 吨，相当于政府所颁发配额的 56%。与以前的年度方案不同的是，当前的年度方案是通过结合采用行政措施和可以交易的产量配额来执行，原因是，由于生产厂家减少，而市场需求仍然存在，剩下的厂家关闭生产的动机比以前减弱。总结报告开列了 2002 年的厂家名称、CFC 产品、生产能力和工厂现状（已关闭或是仍在从事生产）。世界银行将对 2002 年度方案的执行成果进行核查，并就此向 2003 年的第一次执行委员会会议提出报告。

(ii) 关于 2002 年度方案的进度报告再次列举了中国政府已经颁布的政策性管制措施，例如：《关于执行 CFC 产量配额制度的通知》，国家环保总局以及国家石油化工管理局于 1999 年 5 月 31 日颁布；《关于加强 ODS 进出口管理的通知》，2000 年 4 月颁布；《关于 ODS 进出口控制机制的通知》，1999 年 12 月颁布。然而，值得强调指出的是国家环保总局于 2001 年 12 月颁布的《对 CFC 生产企业进行现场监督的规定》。根据这套规定，国家环保总局将指定剩余的 CFC 生产厂家的专业技术人员担任监督员，派驻其他厂家进行全年的相互现场监督。这个办法于 2002 年 1 月开始采用，以成为一个切实有效的监督机制。

(iii) 就技术援助方案的执行情况提交了最新说明，在该方案计划举办的 32 项活动中，一共开展了 22 项。除了对海关官员和效绩稽核人员进行培训这样的传统活动之外，总结报告还介绍了在对 ODS 替代物质生产进行的研究中采取的具体举措，这些替代物质的例子包括：环戊烷、HCFC-141b 和土壤熏蒸中的甲基溴替代物质。报告还介绍了建设中的 HFC-134a 生产设施的最新情况。

(b) 世界银行所提交文件的第二部分介绍了 2003 年方案的各组成部分，其中包括政策性措施、生产企业应该削减的产量以及技术援助活动。关键的组成部分是削减产量配额，其中规定在 2003 年把产量削减 2,900 ODP 吨，以便达到《协定》所规定的目标，即，全国 CFC 产量在 2003 年不得超过 30,000 ODP 吨。中国将继续结合招标、分配产量配额和行政措施来执行这些削减规定。

67. 世界银行提交的年度方案根据《协定》，开列了中国 18 个 HCFC 生产厂家的名单。根据报告，2002 年度方案所载名单上的一个企业，Jiangsu Changshu Refrigeration Plant，已经关闭和拆毁，但在名单上增加了一个在 2002 年建造的工厂，即 Zhonghao New Chemical Materials Co. Ltd。

68. 世界银行提交的年度方案请求发放 1,300 万美元，以用作 2003 年度方案的执行经费，并提议用其中 1,200 万美元为各企业减少 CFC 产量提供补偿，用 100 万美元进行技术援助活动以及同环境规划署合作，对地方主管部门进行政策培训（第 34/37 号决定）。世界银行请求在第三十九次会议上发放与 2003 年工作方案有关的支助费用。

建议

69. 秘书处建议执行委员会核准中国 CFC 生产设施关闭方案的 2003 年工作方案，先不发放申请的经费，以待世界银行就 2002 年度方案的执行情况向第三十九次会议提交一份令人满意的核查报告。

70. 秘书处还建议执行委员会审议为了执行 2002 年度工作方案将向世界银行支付的支助费用水平，并在审议时考虑到批准了 2002 年度工作方案的第 36/47 号决定，其中指出：“核准在今后年内把世界银行的年行政费率定为 7%，直至执行委员会另外作出决定”。

项目评价表
中国

行业： 制冷 本行业的 ODS 消费量（1999 年）： 15,953.80 ODP 吨
次级行业成本效益阈值： 家用制冷 13.76 美元/公斤

项目名称：

(a) 全行业最后淘汰 ODS 计划：家用制冷和家用制冷压缩机

项目数据	家用制冷
	家用制冷和家用制冷压缩机
企业消费量（ODP 吨）	1,099
项目影响（ODP 吨）	1,099
提议的项目期限（月）	54
原申请经费数额（美元）	21,920,943
最后项目经费（美元）：	
增支资本费用(a)	
酌处资金(b)	
增支经营费用(c)	
项目费用总额（a＋b＋c）	7,360,530*
地方所有权（%）	100%
出口比重（%）	0
申请经费数额（美元）	4,300,000*
成本效益值（美元/公斤）	19.95
对应出资是否已经确认？	是
国家协调机构	国家环保总局
执行机构	工发组织、意大利

秘书处的建议：	
建议供资额（美元） 项目作用（吨 ODP） 成本效益值（美元/公斤） 执行机构支助费（美元）	
多边基金的费用总额（美元）	

* 项目费用总额和申请数额都包括意大利政府的双边活动，其费用为 1,800,000 美元。

项目说明

行业背景

CFC（附件 A 一类）消费和淘汰概况

中国根据第 35/57 号选择采用备选办法 1 作为起点，其数量是：	**4,745.0**	ODP 吨
- 截至第三十八次会议符合资助条件的剩余 CFC 消费量（根据第 35/57 号决定，条件 B）	3,508.7	ODP 吨
- 向第三十八次会议提交经费申请的所有 CFC 项目产生的影响	2,500.0	ODP 吨
- 在核准提交第三十八次会议的项目后符合资助条件的剩余 CFC 消费量	1,008.7	ODP 吨

制冷行业概况

- 上报的 1999 年制冷行业 CFC 消费量*	15,953.8	ODP 吨
- 执行中的制冷项目应该淘汰的 CFC 数量	7,410.4	ODP 吨
- 向第三十八次会议提交经费申请的制冷项目对剩余的 CFC 消费量产生的影响	1,099.0	ODP 吨

* 根据上报基金秘书处的数据。

71. 根据第 35/48 号决定，中国符合资助条件的剩余 CFC 消费量（起点）据估计为 4,745 ODP 吨。从那时以来，执行委员会第三十五、三十六和三十七次会议又核准了若干项目，是符合资助条件的剩余消费量减至 3,508.7 ODP 吨。

72. 工发组织向第三十七次会议提交了一份在家用制冷和压缩机行业淘汰 ODS 的计划，其中提议对中国剩余的家用制冷和压缩机制造厂家进行改造，使其采用非 ODS 技术。中国请求允许其灵活地运用为该行业提供的经费来执行一个合理化计划，包括关闭这些行业中的一些企业。这个项目提案的总影响将是实现 1,099 ODP 吨的淘汰量。对家用冰箱制造厂家 Guizhou Haier 的改造是作为意大利提交的双边项目列入行业计划，其淘汰量为 181 ODP 吨。

73. 提交执行委员会第三十七次会议的 UNEP/Ozl.Pro/ExCom/37/32 号文件英文本第 12 至 16 页详细介绍了中国家用制冷和压缩机行业以及该全行业计划。

74. 该全行业计划将由将由中国的本国机构根据执行委员会与中国政府达成的协定在工发组织的监督下执行。为了能够由本国执行该计划，提案请求提供管理费用。根据计算，执行机构支助费率为 11%。双边项目（对 Guizhou Haier 进行的改造）将由工发组织代意大利政府执行。

秘书处的评论和建议

评论

75. 秘书处在 UNEP/Ozl.Pro/ExCom/37/32 号文件中对该全行业计划发表了初步评论。秘书处发现了若干与基准设备和消费量数字、生产能力安装日期以及合格的资本费用和经营费用有关的问题。在执行委员会第三十七次会议之前召开的项目审查小组委员会会议无法解决这些问题。秘书处、工发组织、意大利政府和中国政府当时商定，把该提案推迟到执行委员会第三十八次会议审议。

76. 秘书处同中国政府、意大利政府和工发组织就秘书处在审查中提出的所有问题进行了进一步广泛的讨论。在讨论中意识到，根据第 35/48 号决定及其以后的有关决定，中国符合资助条件的剩余 CFC 消费量为 3,508.7 ODP 吨。因此，可以在符合资助条件的剩余消费量的范围内解决数据出入问题。

77. 随后商定，为了淘汰中国家用制冷和压缩机行业的消费量（1,099 ODP 吨），将根据最近核准的全行业和全国淘汰计划的平均成本效益（6.47 美元/ODP 公斤）来确定投资部分的增支费用水平。根据这个办法计算，赠款总额为 7,360,530 美元，其中提供包括 250,000 美元的项目管理费用，以便可以在工发组织的援助下由本国执行这个项目。全行业计划规定了本国机构和工发组织的作用和职责。秘书处告知工发组织，根据关于其他全行业计划的协定，投资部分的机构支助费率应该是 9%，本地项目管理部分的费率应该是 5%，因此计算得出的机构支助费用总额为 952,448 美元。

78. 一共将在 3,508.7 ODP 吨剩余的全国 CFC 总消费量（在第三十七次会议上确定）中淘汰 1,099 ODP 吨，从而把符合资助条件的剩余消费量减至 2,409 ODP 吨。

79. 该全行业计划请求允许中国政府灵活地运用所分配的资金。将使用提供的资金对冰箱制造和压缩机次级行业的若干由中国政府挑选的企业进行改造，并为根据中国的家用冰箱和密封式压缩机制造业合理化计划关闭剩余的企业提供补偿。

80. 正在同工发组织、中国政府和意大利政府进行最后的讨论，以便：

(a) 起草一份中国政府与执行委员会之间的协定（与过去为全行业 CFC 淘汰计划提交的协定保持一致），以供执行委员会第三十八次会议审议；

(b) 商定以每年分期支付的方式分发 7,360,530 美元资金的提案；

(c) 完成与工发组织就该机构执行这项计划的支助费用进行的讨论；

(d) 编制从核准项目之日至 2003 年底的第一次执行方案。

81. 经费分期支付办法和上述两项文件的草案在完成之后，将刊登在秘书处为第三十八次会议建立的网站上，并在执行委员会及其小组委员会开会之前提交执行委员会成员。

建议

82. 谨提议执行委员会根据以上评论审议在家用制冷和家用制冷压缩机行业最后淘汰 ODS 的全行业计划。

关于执行中国清洗行业计划 2003 年度方案的报告

项目说明

背景

83. 开发计划署代表中国政府提交了《中国清洗行业 ODS 淘汰计划 2002 年执行进度报告》，以及提议的 2003 年执行方案，供执行委员会审议。这份进度报告概述了 2000 年 3 月核准第一期资金以来取得的进展，摘要介绍了迄今根据 2002 年执行计划开展的活动，还载有 2001 年淘汰目标执行情况稽核报告。

84. 2000 年 3 月执行委员会第三十次会议核准了关于中国清洗行业 ODS 淘汰的《协定》，总费用为 5,200 万美元。在这次会议上，执行委员会还核准了 2000 年 4 月至 2001 年 12 月的第一个执行计划，供资 675 万美元(加 10％支助费用)，用于 2000 年将开展的活动。

85. 在第三十三次会议，开发计划署提出一份临时进度报告，并申请为 2000-2001 年度方案第二次按计划付款 6,955,000 美元 (加 10％支助费用)。该报告表示，已经采取补救行动，确保实现第一个年度计划确定的所有淘汰目标。执行委员会第 33/46 号决定核准了申请的资金，并提出中国应达到的有关正丙基溴的条件，对于正丙基溴的生产一直是按照提交第三十二次会议的第一个执行计划修正案提供资金。

86. 执行委员会第三十五次会议审议并核准了 2002 年度执行方案 (第 35/51 号决定)。然而，委员会指示说，在付款之前，中国和开发计划署必须达到商定的条件，按年编制特定企业用作免除管制原料和加工剂的 CTC 数量清单。

2002 年进度报告

<u>发放为 2002 年方案核准的资金</u>

87. 本文件附有 2002 年进度报告。报告 D1 节 (第 9 页，英文本，下同)提供了一个清单，按企业列出 2000 年用作加工剂的所有 CTC。使用的总量低于协定规定的 5,500 ODP 吨的最高额。开发计划署告知，中国已经履行《协定》规定的义务，开发计划署可以着手支付核准的资金。

<u>年度执行方案报告</u>

88. 开发计划署采用的报告格式是按活动类型提供资料。B 节介绍了 2000 年(B1 节)、2001 年(B2 节)和 2002 年(B3 节)ODS 淘汰活动的详细情况。第 5 页表 1 列出每年 ODS 削减合同的细节摘要。第 4 页和第 5 页 B3 节概述了 2002 年期间签订合同过程中取得的经验和遇到的问题。报告表示，2002 年预计 CTC 淘汰合同大约短缺 34ODP 吨。报告还说，2002 年 6 月颁布了从 ODS 生产来源控制 ODS 消费的条例。

89. 报告 C 节回顾了根据第一个（2000 年和 2001 年）执行方案和 2002 年执行方案规定开

展的技术援助活动。报告说，按照第一个执行方案的修正案为正丙基溴生产转拨的 200 万美元尚未支出。

控制目标

90. 报告 D 节讨论了《协定》具体规定的控制目标。D1 节表示，正如向执行委员会第三十六次会议汇报的那样，中国达到了《协定》规定的 2001 年 CFC-113、TCA 和 CTC 的消费量限额。D2 节说，中国达到了《协定》对 2002 年限额的各项要求（见表 3）。D2 节还载有《协定》规定的企业一级报告用作原料和加工剂的 CFC-113 和 CTC 消费量资料。报告说，除 CFC-113 以外，规定的限额已经达到。至于 CFC-113，原料使用是 655 ODP 吨，而规定的限额是 10 吨。

核查和稽核

91. 报告 E 节题为“2001 年淘汰目标执行情况稽核结果”。报告中说，开发计划署把《中国清洗行业计划》列入其 2001 年和 2002 年定期年度管理和财务稽核，这项工作由中华人民共和国国家审计局进行。稽核内容为：

(a) 财务活动和控制；

(b) 管理结构是否适当；

(c) 设备的使用和控制；

(d) 监测评价和报告；

(e) 项目执行率。

92. 第 12 页至 15 页的 E2 节是结论。稽核员特别指出，淘汰合同无法实现 18 个月的执行时间；一些企业把核准的资金用于未经许可的目的，例如用作顾问费；对于企业淘汰问题未作任何评论，因为在稽核时（2002 年 7 月），16 个企业中没有一个执行完毕。

93. E3 节说，开发计划署还委托进行了一次独立技术稽核。这次技术稽核是由开发计划署国际和国家行业专家于 2002 年 8 月在执行完毕的三个企业进行的。稽核结论都是正面的，见第 15 页和第 16 页。

开发计划署继续担任执行机构

94. 报告 F 节说，国家环境保护总局和开发计划署商定，在项目剩下的时间内，开发计划署应继续担任执行机构。

效绩指标

95. 进度报告 H 节表示，中国已经实现修正的 2000-2001 年第一个执行方案表 5 中的各项

执行指标（最初是作为文件 UNEP/OzL.Pro/ExCom/32/30/China 的附件提出的）。

2003 年度执行方案

96. 2003 年年度执行方案将淘汰 600 ODP 吨 CFC-113、78 ODP 吨 TCA 和 55 ODP 吨 CTC。进行企业一级的淘汰活动，较大企业将通过“ODS 削减合同”，中小型企业则采取凭单办法。为了在 2004 年年底之前完成 2003 年方案规定的淘汰活动，2003 年 ODS 削减合同将在 2003 年年初开始竞标，将在 2003 年 6 月前签订 ODS 削减合同。中小型企业的凭单将在 2003 年 10 月前签发。在 2004 年年底之前完成这些活动将有助于实现 2005 年的淘汰目标。

97. 该方案包括继续进行目前正在执行的技术援助活动。除了企业一级的淘汰活动和必要的政策框架，采取联合行动将有利于顺利、有序地淘汰溶剂消费，实现《协定》规定的年度淘汰目标。作为清洗剂的 CTC 消费将于 2004 年年底之前彻底淘汰。

98. 中国政府和开发计划署请求第三十八次会议核准中国清洗行业计划 2003 年年度方案，以便执行委员会未来的会议审议发放 2003 年经费 5,755,000 美元及机构支助费用。

99. 2003 年年度执行方案全文作为附件载于开发计划署 2002 年 进度报告（附后）。

秘书处的评论和建议

评论

<u>发放 2002 年方案核准资金</u>

100. 作为发放 2002 年方案核准资金必不可少的资料，开发计划署提供了 2000 年使用 CTC 作为加工剂的 17 家企业清单，显示加工剂 CTC 总消费量为 3,232 吨。秘书处请开发计划署澄清显示的消费量，因为提交第三十七次会议的中国加工剂行业计划第 2 章 (UNEP/OzL.Pro/ExCom/37/22 号文件附件)显示总消费量为 3,593 吨。

101. 加工剂行业计划还显示（表 2.1），另有 21 家企业消费 CTC，根据 X/14 号决定，其应用现阶段不符合作为加工剂的资助条件。然而，这些应用也是免除管制的用途，按照《清洗行业协定》，应在企业一级作为原料上报。这些企业每家的消费量清单，未列入提供的资料，其总额为 5,867 ODP 吨。

102. 在原料总额(54,674 ODP 吨)中加上 5,867 ODP 吨，不会突破《协定》66,000 ODP 吨的限额。然而，在提供企业一级的补充资料之前，似乎尚不符合发放 2002 年执行方案核准资金的条件。

2002 年 进度报告

103. 关于 2002 年 ODS 削减合同，进度报告 B3 节第 2 段说，为实现规定的 CFC-113 消费量削减，中国将公布控制消费量的条例，因为难以吸引投标者接受削减合同。然而，进度

报告下一段说，35 个投标企业中标，达到了 CTC 消费量的目标水平。请开发计划署澄清这两句话明显的矛盾之处，提供详细情况，说明看起来是发放 CFC-113 消费量配额的时间安排和办法的。

104. 进度报告 B3 节（第 5 页）说，2002 年签订削减合同应淘汰 CTC 数量比年度计划确定的目标少 33.69 吨。请开发计划署说明计划采取的补救行动，并更详细地解释和证实 B3 节最后一段（第 5 页）。该段说，据信许多消费 CTC 企业自己承担费用进行淘汰，因此 CTC 消费量将达到淘汰目标。

105. 关于实现 2001 年的控制目标，同 2000 年的情况一样，规定提供同样水平的有关使用免除管制原料和加工剂消费 CTC 企业的资料。中国再次提供了企业一级有关核准加工剂消费量的资料，但是未提供加工剂行业计划所列需要算作原料用途的另外 21 家企业的资料。必须提供这些资料，才能认为遵守了协定的条款。已请开发计划署澄清这个情况，同时确认原料数字与世界银行上报的化工生产行业数字完全相同。

106. 关于执行情况稽核，注意到虽然进度报告 E 节的标题是“2001 年淘汰目标执行情况稽核结果”，但是没有提供《协定》明确规定的 2001 年国家消费量限额稽核的任何资料。表 3 (第 10 页)提供了 CFC-113、TCA 和 CTC 2001 年国家消费量的三个数字，显示与《协定》规定该年的限额相同(分别为 2,700、613 和 110 ODP 吨)。稽核报告似乎没有核实这些数字。请开发计划署澄清这个问题。

107. 此外还注意到，主要的执行情况评价职能是由中国国家审计局承担的，而开发计划署的‘独立’评价限于三名清洗行业专家对三个企业进行技术稽核。

2003 年年度执行方案

108. 2003 年年度执行方案建议了一系列与先前年度执行方案相同的淘汰合同。先前的方案似乎有两个问题。第一个是，执行时间似乎从 18 个月延长到两年（如中国国家审计局执行情况稽核报告所述）。第二个问题是，2002 年进度报告说似乎难以找到足够的企业接受合同（CFC-113 合同仍有疑问，CTC 合同已经证实）。请开发计划署在建议中评价 2003 年提议活动方面这种情况的影响。

109. 国家统计局执行情况稽核报告还显示，有若干行政问题需要解决，包括：加强培训和增加对提供给企业资金使用情况的监督，以及调整削减合同，使之反映所提供资金使用方面的变化。请开发计划署说明，2003 年方案如何解决这个问题以及执行情况稽核中提出的其他有关问题。

110. 2003 年的活动将包括完成 2001 年签订的淘汰合同（如有任何其他推延）及 2002 年签订合同的执行工作。这些目标似乎未列为 2003 年执行方案的工作。此外，计划 2002 年完成的所有项目预期应实现的实际淘汰总额，以及通过偿还凭单计划实现的实际淘汰总额，应该列为执行目标。数字见 2003 年方案表四（执行指标），请开发计划署澄清这些数字是不是计划来自完成的合同和凭单的实际淘汰数额。

111. 关于政策行动，（E 节表三和表四）请开发计划署澄清将采取的行政措施，以确保国家一级的 CFC-113、TCA 和 CTC 消费量分别保持在 1700、580 和 55 ODP 吨的商定限额内。万一未实现 2002 年削减合同的淘汰数额（例如，如果计划 2002 年停止消费的一些企业由于项目拖延而在 2003 年继续消费），就需要采取这些措施，同时会有超过 2003 年计划消费量的可能。这份进度报告已显示项目执行有可能推延。由于需要确保中国履行协定规定的消费量义务，似乎至关重要的是要规定供应管理安排。

建议

112. 除非开发计划署向项目审查小组委员会提出任何意见，建议执行委员会考虑是否向第三十九次会议重新提交 2003 年年度执行方案，并补充 2002 年进度报告，处理未决问题。

THE CFC-11 POLYURETHANE FOAM SECTOR

IN CHINA

2003 ANNUAL PROGRAM

SEPTEMBER 12, 2002

TABLE OF CONTENTS

Introduction

1. In accordance with the Executive Committee's approval of the "Agreement for the China CFC-11 PU Foam Sector" (UNEP/Ozl.Pro/ExCom/35/19, Decision and Annex), China is hereby requesting release of the **second tranche of US$12.57 million** for the implementation of the 2003 Annual Program. With this funding, China's CFC-11 consumption in the PU foam sector will be limited to a **maximum of 13,830 ODP MT** by the end of 2003. Details of the 2003 annual program are provided in Section B.

2. ***China's CFC-11 phaseout obligations in the PU foam sector .*** Within the Sector Plan, China agreed to the following control targets for CFC-11 consumption in the PU foam sector.

Table 1. Control Targets for CFC-11 Consumption in the PU Foam Sector and Annual Grant

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Annual National CFC-11 consumption limit	17,200	15,500	13,100	10,400	7,700	4,130	3,800	300	0	
Annual CFC-11 consumption in PU foam sector	14,143	13,830	11,666	9,646	7,164	3,821	3,553	102	0	
Annual CFC-11 phaseout targets in PU foam sector	2,000	2,500	2,500	2,500	600	551				10,651
Total annual funding	9,940	12,570	10,903	3,320	2,676	1,767	1,767			53,846

Part A

Implementation Status of the 2002 Annual Program

Phaseout Targets

1. By the end of 2002, national CFC-11 consumption target will be limited to 17,200 MT through the control of CFC-11 production in the CFC Production Sector being implemented, and the control of net import. At the same time, CFC-11 consumption in the PU foam sector will not exceed 14,143 MT through the completion of individual investment projects that were approved by ExCom and funded by the MLF in the past three to four years. For 2002, the CFC-11 phaseout targets in PU foam sector is 2,000 MT. All contracts for these 2,000 MT of CFC-11 will be signed in 2002, 50% of which will be phased out by the end of 2004 and another 50% by the end of 2005. It is envisaged that the annual grant of US$9.940 million will be allocated to PU foam enterprises to convert from CFC-11 foam production to non-CFC foam production and for technical assistance activities.

Initiation Activities.

2. Since approval of the Sector Plan, China has initiated the following activities to ensure that it will be able to sign contracts with enterprises with a total CFC phaseout amount of at least 2,000 MT in 2002.

a. ***Implementation mechanism***. A domestic implementation agency (DIA) was selected through a bidding process. The DIA will assist SEPA in the day to day management of the Sector Plan. Due to the large number of the PU enterprises in the sector, the small size of the enterprises, and the geographical spread of PU enterprises in the country, China believes that industrial restructuring is more effective to convert small CFC foam production to non-CFC production and this modality will be used whenever appropriate. At the same time, SEPA will select beneficiary enterprises through a competitive selection process, i.e. through public awareness activities, invitation to prospective enterprises to apply for grant fund, award grants to enterprises with the best proposals based on project proposals, evaluated by the SEPA project team.

b. ***Development of a Project Implementation Manual (PIM).*** A PIM has been developed. This laid out the implementation modality agreed with the World Bank, role and responsibilities of different stakeholders, and management, monitoring and evaluation of the program. This is a first draft and it will be revised whenever necessary. 300 copies were printed and almost all of these were distributed to stakeholders during different workshops discussed below.

c. ***Public awareness activities***. After approval of the Sector Plan, advertisements were placed in the China Plastics magazine, China Environment Newspaper, Ozone Actions in China, and Plastic industry internet website with details on the Foam Sector Plan, implementation modality, country commitment, the necessity of phaseout, related phaseout activities, and invitation to PU foam activities to participate. All these were also promoted in different workshops.

d. ***Seven training workshops were undertaken***. Since the approval of the Sector Plan, SEPA has conducted seven workshops for provincial and local environmental protection agencies, local sector bureaus, and PU foam enterprises. Agenda for all workshops were: policy instruments for the CFC-11 PU foam sector, Foam Sector Plan, PIM, substitute technology, and invitations to all foam enterprises to participate in the phaseout.

i The first workshop was held in Zhengzhou, Henan, in February 2002;

ii The second workshop was held in Shenzhen, Guangzhou, in April 2002;

iii The third workshop was held in Xinjiang in April 2002;

iv The fourth workshop was held in Jinan, Shangdong, in June 2002 for rigid foam enterprises;

v The fifth workshop was held in Nantong Jiangsu, in June 2002 for flexible foam enterprises;

vi The six workshop was held in Changzhou, Jiangsu in July 2002 for rigid foam enterprises; and

vii The seventh workshop was held in Lanzhou, Gansu for rigid foam enterprises in July 2002.

e. ***Start of a PU website.*** A website was developed in the SEPA project office with contents on the PU Foam Sector Plan, the PIM, policy measures, current phaseout activities, and substitute technology for enterprises to view over the internet. This activity was carried out in the past six months, and is in the initial stages of development. The web-site is available at *www.sino-pu.com.*

Policy Measures and Government Actions to support phaseout.

Ban on new construction of CFC-11 foam production. In November 1997, SEPA and other ministries have promulgated a " Circular on ban on establishment of new production sites for production and consumption of ODS" and was effective in January 1, 1998. The ban requires that:

a. all regions not to build, enlarge or renovate ODS-based production facilities

b. environmental bureaus not to approve environmental impact assessment reports for these projects,

c. governmental planning, and economic and trade administrations at all levels not to approve these production facilities to be set up or put in use.

3. However, this Ban has not monitored closely and may not be effective as it supposes to be. Realizing the importance of increasing awareness of the general public of this Notice and the ODS phaseout program, SEPA has been emphasizing this Notice in all the workshops that it has organized in the past six months. These have helped increased understandings of the local government offices, enterprises, and other stakeholders.

4. **Production control of CFC-11.** The key policy instrument of this program is the regulation promulgated for the introduction and implementation of an annual tradable quota system, entitled "Circular on Implementing the Quota System for CFC Production", by the State

Environmental Protection Administration (SEPA) and the State Administration of Petroleum and Chemical Industry (SAPCI) on May 31, 1999. Under this Circular, CFC production by substances is strictly controlled by the Government. From a total number of nine CFC-11 producers and a total of CFC-11 production of 22,684 MT in 1999, only three CFC 11 producers remain in 2001 with a total CFC-11 production of 14099 MT. With this control mechanism and the export and import control discussed below, national CFC-11 consumption is under control.

5. **Export and import control of ODS.** In addition to the continued implementation of the CFC Production Quota System which controls production of CFC-11, a study on options for export/import management for halons and CFCs, which would help China to monitor trade in CFCs and prevent illegal CFC trade, was completed in July 1999. A "Circular on Control Mechanism of Import and Export of ODS" and a "Circular on Strengthening Management of ODS Import and Export" were promulgated on December 3, 1999 and in April, 2000. The mechanism is implemented by the Management Office of ODS Import-Export Control jointly administered by SEPA, the General Administration of Customs (GAC), and the Ministry of Foreign Trade and Economic Cooperation (MOFTEC), and helps China to monitor trade in ODS and eliminate illegal ODS trade. Two batches of *Export/Import Control List of ODS in China* have been promulgated in January 2000 and January 2001 respectively. Among other ODS controls, import of CFC-11 is regulated by a permit system administered by the MOFTEC.

6. Control of import is essential to ensure that the national consumption does not exceed the agreed target. A CFC-11 import quota system has therefore been established to control import of CFC-11. Import of CFC-11 now requires an import license from the Management Office of ODS Import-Export. The quota available for year 2002 is 2,000 tons.

7. **Consumption control of CFC-11 in other sectors.** Together with the PU foam sector plan, the tobacco sector plan and the industrial and commercial refrigeration sector plan are also under implementation. The domestic refrigeration sector plan is being considered by the ExCom. Thus, CFC-11 consumption for these sectors are under control on an annual basis under each sector plan. Consequently, the foam sector is able to limit its national CFC-11 consumption limit to the agreed targets.

8. **Government actions to support the CFC-11 phaseout activities**. Some local Governments (such as Shanghai and Beijing) have required the use of HFC 141b for insulation in some of their construction projects; thus eliminating the use of CFC-11 foam for insulation. The Ministry of Science and Technology has conducted some research on CFC- 11 substitutes.

Enterprise Activities.

9. **Reduction contracts signed and to be signed.** There will be three to four restructuring projects in the 2002 annual program. These projects will comprises about 26 PU foam enterprises in different provinces of China. The status of implementation of enterprise activities are as follows:

a. ***Chengdu and Henan flexible foam projects for 1,188 MT.*** These two projects were prepared in 1999 and were originally submitted for funding as umbrella projects in the 32nd ExCom meeting in December 2000. Later on, they were incorporated into the 1st implementation plan of the Sector Plan (the 2002 annual program). SEPA has signed two

contracts with these enterprises in August 2002. The Chengdu Project will phaseout 552 MT of CFC-11 in seven enterprises and the Henan Project will phaseout 636 MT of CFC-11 in eight enterprises. Under these two projects, a total of 1,188 MT of CFC-11 consumption will be eliminated by the end of 2004 (Table 1).

b. ***Preparation status of the remaining projects in the 2002 annual program for 812 MT.*** As of August, three to four restructuring projects are being considered for inclusion in the annual program, but only one or two will be selected. Project evaluation is underway and final selection is expected to be by October 2002. One to two contracts are expected to be signed for 812 MT before mid-2003. These two projects are expected to be completed before the end of 2005.

10. **World Bank verification of CFC-11 consumption in signed reduction contracts (Table 1).** In August 2002, the Bank has verified and confirmed that CFC-11 consumption in the Chengdu project which consumed a total of 552 MT. This is one of the three to four contracts in the 2002 annual program. This Chengdu Project constitutes about 25% of the 2000 MT phaseout targets, and 25% of the contracts signed (if there are four contracts).

Technical Assistance Activities.

11. **Technical assistance (TA) activities**. TA activities envisaged under the Sector Plan concentrate on strengthening: (a) the overall institutional framework for phaseout; (b) substitute chemical development; (c) management, monitoring & evaluation capabilities of participating institutions; (d) skills of enterprise managers involved in CFC-11 consumption phaseout activities; and (e) information exchange. These are all essential to the success of the phaseout. All terms of reference and detailed work programs will be agreed with the World Bank before implementation. Most of these activities are expected to be completed within two years. Proposed 2002 TA activities include:

a. F-02-TA1 – *Equipment for MIS in the Foam Sector*. A MIS is under development for the foam sector. It will be an important management tool for the SEPA foam project team to manage sector phaseout effectively. Considering that the project will last until 2010, the voluminous data involved, and the management tables that will be necessary, it is important to develop the MIS early and properly, and have the necessary equipment to run the system efficiently. Equipment proposed include desktop and portable computers, printers, portable and other data management systems, digital cameras, etc..

b. F-02-TA2 – *Technical investigation*. Selection of substitute technology is one of the most important elements in the implementation of the Sector Plan. China intends to develop a guide book for local PU foam manufacturers. Technical investigation is planned for local experts to visit equipment suppliers whose equipment use substitute chemicals in other countries and see how these substitutes could be applicable to China. The investigation team will go to Europe and the United States to (i) visit the enterprises using LCD and equipment manufacturers in order to study the application method of LCD equipment, (ii) study variable pressure foaming process for the box foam substitute, (iii) visit related chemical companies and equipment suppliers so as to study the development and current situation of PU rigid substitute technology; and (iv) collect standards of substitutes produced.

c. F-02-TA3 – *Establishment of a PU Foam Sector ODS phaseout Action Web Site.* The SEPA foam team has already started development of a website, which needs to be completed as soon possible, and will need daily maintenance and improvement. Public awareness and training are two key activities to help smooth execution of PU foam phaseout. The China foam team believes that with the advance of the internet and with the size of the country, a foam website will be the most effective tool in wide dissemination of information to all stakeholders instantly and any update will be available to all interest parties promptly as well. The objective of establishing a website is to deliver foam sector information to as many enterprises as possible over a widespread distribution, on the following:

i Knowledge related to ozone layer production, the Montreal Protocol, China Country Program for ozone layer production, China ODS and CFC-11 phaseout schedule, ODS policies, local and international ODS phaseout news, particularly on CFC-11;

ii Introduction of the foam sector plan, PIM, project preparation and implementation procedures;

iii Provisions of standard format of project application form, enterprise questionnaire, project proposal, and contract;

iv Introduction of various important policies issued during foam sector plan implementation;

v Experiences of demonstration projects;

vi Report on project progress;

vii Introduction of substitute technology and promotion in their application;

viii Notification of working and training workshops, report on workshop; and notification of project bidding; and

ix Report on implementation status of conversion projects.

This is the proposed list of contents in the PU foam website. It will need to be updated and improved continuously over the life of the project to 2010.

d. F-02-TA4 – *Consultant services*. The China ozone unit will recruit three groups of local consultants.

i The first group of consultant will assist prospective enterprises in the preparation of project proposals. They will visit the enterprises, verify data and documentation provided by the enterprises, provide visit report to the China ozone visit, helped draft project proposals and project feasibility study;

ii The second group of consultants is responsible for the assessment of project proposals and submit evaluation reports to the ozone unit; and

iii The third group of consultants is to provide technical assistance during implementation of conversion projects. Services include review of bidding document and participation of bid evaluation, supervision of project progress.

e. F-02-TA5 – *Preparation for the Revision of Existing Standard of PU foam*. Some of the existing standards for PU foam are for CFC-11 as a foaming agent. Since there is no

national product standards for products using non-CFC-11 as foaming agents, foam enterprises are faced with difficulties in non-CFC product acceptance which affect their market share and expansion. This prevents substitute products to be used more widely. This TA will review the existing standards for PU foam in China, and serve as preparation for future revision of standards for PU foam. Work involves to

i collect, categorize and analyze the existing standards for PU foam , and to collect standard for non-CFC foam standards in other countries for references;

ii visit enterprises with non-CFC foam products, conduct studies on non-CFC products and their production situation with a view of laying foundation for the amendment of new standard;

iii exchange views with sector authorities and experts, institutions which drafted the existing standards, and enterprises; and

iv propose an action plan for a revision of existing standard and establishment of new standard.

f. F-02-TA6 – *A Research on IOC Management for Rigid Foam Chemicals*. This TA will propose a proper compensation of IOC for rigid foam conversion. Most Chinese rigid foam enterprises will buy pre-blended poloyol after conversion. If pre-blended poloyol is insufficient after conversion and if price differences between CFC poloyol and 141b poloyol is substantial, there is a risk of reverting to using CFC-11 poloyol after conversion. As most rigid foam enterprises are small, and there are a lot of them which are spread all over the country, it is difficult for the ozone unit to monitor them after conversion. Thus it is important to develop a non-CFC pre-blend chemical market in China, and together with appropriate policies and technical assistance to enterprises, China can ensure that the conversion is sustainable. Scope of work includes :

i Investigation, categorization, and analysis of chemical use in the rigid foam producing enterprises, utilization of IOC in individual projects, and study of the non-CFC chemical markets,

ii Analysis on the feedback to the questionnaire and findings from the investigation; and

iii Final report on a proposed compensation method on rigid foam chemicals.

g. F-02-TA7 – *Training*. The training objectives are to : (i) promote the foam sector plan to PU enterprises; (ii) familiarize enterprises with the application and implementation process, and encourage enterprises to participate; (iii) familiarize selected experts on the process and the requirements of the sector plan; and (iv) train enterprises included in the annual program so that the enterprises understand implementation schedule and their responsibilities; and (v) improve management capability of ozone unit and DIA staff. There will be three workshop to be organized: (i) The first one is for staff in the foam team in the ozone unit, local experts, prospective beneficiaries in the 2002 annual program; (ii) The second workshop is for potential beneficiary enterprises for the 2003 annual program; and (iii) the third workshop is for the DIA, procurement agency, general contractor, and enterprises which have signed reduction contracts.

h. F-02-TA8 – *International forum on Phasing Out CFC-11 in PU Foam Sector in China*. The foam sector is the largest ODS consuming sector in China and accounts for one third of

national ODS consumption. There are about 1,100 foam enterprises producing foam with CFC-11. Most of them small enterprises, spread all over China, not well managed, backward in terms of technology, and less capable of further development. These lead to difficulties to complete phaseout in the foam sector. Thus an international forum is planned in 2003. Technology suppliers and equipment suppliers from other countries and all domestic stakeholders will be invited to this forum. The objectives are to: (i) introduce and promote the general policy framework of CFC phaseout and the foam sector plan; (ii) introduce the application process of sector plan projects, and project management requirements of the MLF and the World Bank; and (iii) introduce the 2002 annual program and tasks for the future years, and to invite enterprises to actively apply for grant fund; and (iv) introduce advanced CFC substitution technologies adopted in other countries, promote exchange, and cooperation on substitution technologies and equipment suppliers between domestic and international enterprises.

i. F-02-TA9 – *Survey of water (CO_2) foam technology*. Since the ODP of HCFC-141b is 0.11 and HCFC is a transitional phaseout technology, it is also limited in application due to its flammable and explosive characteristics, China will decrease the application of HCFC 141b when suitable alternative technology is available. Even the ODP of CO_2 foam is zero and the cost of conversion with water blowing technology is comparatively lower, the operation is safer, yet its application in the past is limited due to the relatively higher thermo-conductivity and its products could not match those of CFC-11 products. With the progress of ODS phaseout and with the revisions of standards of foam products in the next few years, it is critical that to explore alternative technology, like the CO_2 foam technology. The scope of this study include: (i) conduct a survey of the application of the CO_2 foam technology, and compare the cost, product quality and investment among different alternatives; (ii) review current demand and forecast future market demand. Review technical requirements in the fields of furniture, decoration finishes, sound insulation, packaging, integral skin and pipe-in-pipe products; (iii) collect product samples for examination and testing; and (vi) complete a report with a proposal on the application of water blowing technology in the China foam sector.

The above TA activities are summarized in the Table 2 below.

Table 2. 2002 Annual Program Technical Assistance Activities

(Amount in US$ million)

Technical Assistance Activities (all TORs have been agreed with the Bank)				
TA#	Activities	Funding [1/] (US$ Million)	Performance Indicators	Key Dates
F-02-TA1	Equipment for MIS in the Foam Sector	0.034	1. List of equipment with specification confirmed 2. Procurement signed 3. Equipment delivered 4. All equipment being in use	1. 4Q2002 2. 4Q 2002 3. 1Q 2003 4. 2Q2003
F-02-TA2	Technical investigation	0.030	1. Detail work plan completed 2. Recruitment of technical investigation team 3. Completion of technical evaluation 4. Final report of technical investigation	1. 4Q2002 2. 1Q2003 3. 3Q2003 4. 4Q2003
F-02-TA3	Establishment of a PU Foam Sector ODS phaseout Action Web Site	0.024	1. Recruitment of consultants to work on the site 2. Completion of all information retries	1. 3Q2002 2. Throughout 2002
F-02-TA4	Consultant services	0.073	1. Recruitment of consultants	1. Throughout 2002/2003
F-02-TA5	Preparation for the Revision of Existing Standard of PU foam	0.015	1. Forming the work team 2. Complete data collection and analysis 3. Proposal for standard revision	1. 4Q2002 2. 3Q2003 3. 4Q2003
F-02-TA6	A Research on IOC Management for Rigid Foam Chemicals	0.020	4. Recruitment of consultants 5. Complete investigation and analysis 6. Final report	1. 4Q2002 2. 3Q2003 3. 4Q2003
F-02-TA7	Training	0.039	1. Conduct all workshops	1. Throughout 2002
F-02-TA8	International forum on Phasing Out CFC 11 in PU Foam Sector in China.	0.179	7. Complete all arrangement for the forum 8. End of the forum 9. Final report on the forum	1. 1Q2003 2. 2Q2003 3. 3Q2003
F-02-TA9	Survey of water (CO_2) foam technology	0.048	1. Complete work plan 3. Complete survey and testing 4. Final report on CO_2 study	1. 4Q2002 2. 3Q2003 3. 4Q2003
TOTAL		0.462		

[1/] These are estimated costs. After bidding for TA contractors and consultants, these costs will be adjusted to reflect contractual amounts for each TA. All TA activities are expected to be completed on schedule.

PART B

2003 ANNUAL PROGRAM

Phaseout Objectives

12. The phaseout objectives of the 2003 Annual Program are to ensure that : (i) the national CFC 11 consumption limit of 15,500 MT will not be exceeded; (ii) the CFC-11 consumption limit of 13,830 MT will not be exceeded; and (iii) the CFC-11 phaseout target of 2,500 MT in PU foam sector has been met. China is requesting the release of the **second annual tranche** of **US$12.57 million** as agreed in the Sector Plan for phaseout of CFC-11 consumption in the PU foam sector to achieve these objectives. It is envisaged that the US$12.57 million will be allocated to PU foam enterprises to convert from CFC-11 foam production to non-CFC foam production and for technical assistance activities.

Program Activities During the Year

13. ***Policy and government actions***. In 2003, the following government actions will continue to support program activities and are considered necessary for the success of total CFC 11 phaseout in the PU foam sector in China.

a. ***Ban on new construction of CFC-11 foam production*.** The Notice has been effective since 1997 and will remain effective. Continue public awareness activities on the sector phaseout plan will help effective implementation of this Notice.

b. ***Production control of CFC-11*.** The regulation on Tradable Production Quota has been under implementation since 1999 and will continue. Production of CFC-11 will be under control.

c. ***Export and import control of ODS***. The Management Regulation on Export/Import Control of ODS, promulgated in December 1999 by SEPA in collaboration with Ministry of Foreign Trade and Economic Cooperation (MFTEC) and General Administration of Customs (GAC), covers all ODS as well as related equipment and facilities that produce or consume ODS. ODS Export/Import quota and permit systems have been adopted, and all enterprises wishing to export or import ODS must hold both a quota issued by SEPA and MFTEC, as well as specific export/import permits. GAC supervises exports and imports of ODS. China has also promulgated the Export/Import Control List of ODS in China, the First Group in January, 2000, and the Second Group in January 2001 . Under this regulation, China has introduced quota and permit requirements exports and imports of CFC-11.

d. ***Consumption control of CFC-11 in other sectors*.** All other sector plans will continue implementation and CFC-11 in those sectors will be contolled.

e. ***Substitute development.*** Government will continue support development of substitutes and research for non CFC chemicals for foam production. And

f. ***Institutional strengthening.*** Government will hold workshops and training sessions to improve knowledge and capabilities of CFC-11 foam enterprises in the use of substitute and understanding of substitute technologies.

g. ***CFC-11 Production Quota.*** China will limit the production quota for CFC-11 to ensure it is consistent with the overall CFC-11 consumption limit established in this sector plan.

14. **Enterprise activities**. SEPA will identify PU foam enterprises with total CFC-11 consumption amounting to 2,500 MT. A minimum of 50% of the reduction contracts are expected to be signed by mid-2003, and another 50% to be signed not later than by mid-2004. Based on the current preparation status, SEPA expects three to four large regional projects to be included in the 2003 annual program.

15. **Technical assistance (TA) activities**. The following activities are proposed for 2003:

a. **F-03-TA1-*Training of personnel involved in implementation of phaseout activities***. To implement the phaseout plan effectively, it is necessary to train staff and raise awareness of the: (i) CFC 11 foam manufacturers; (ii) local environment protection agencies and sector bureaus, and (iii) audit agencies. Training is also needed for enterprises to understand all policies related to CFC 11 consumption phaseout, and the sector plan implementation mechanism. This type of training will need to be repeated every year in the first few years of implementation. This activity is expected to be completed in 2003.

b. **F-03-TA2-*PU foam products standard revision***. Revision of existing foam products standard based on the final report from the technical assistance activity (F-02-05) in the 2002 annual program. This activity is expected to be completed by the end of 2004.

c. **F-03-TA3-*The 2002 performance audit***. A yearly performance audit is required under the Foam Sector Plan. The 2002 Performance Audit will be carried out in April of 2003. The activity will be completed by end of June 2003.

d. **F-03-TA4-Website improvement and management**. The foam website will continue to be improved and managed. This activity will be completed by the end of 2003.

e. **F-03-TA5-*A manual on substitute technology in the PU foam sector***. A manual will be prepared on substitute technology in the PU foam sector in China based on the experience in the past 10 years in foam conversion and a review of substitute technologies that are suitable for and applicable in China. And

f. Other TA activities that are necessary for effective phaseout may be developed during the year.

16. The above policy and government actions, enterprise-level and technical assistance activities are summarized in Table 3 below.

Table 3. World Bank Verification of Eligibility and CFC 11 Phaseout Amounts in August 2002

Name of Enterprises	Date of establishment	CFC-11 Consumption				Verified
		1997	1998	1999	1997-99	
Chengdu Industrial Restructuring PU Flexible foam project – The Chengdu Jinjiang Foam General						
Duocai Co. Ltd.	1993	67	74	88	76.33	Verified
Huiyu Co. Ltd.	1994	76	86	95	85.67	Verified
Hongyang Foam	1994	68	75	84	75.67	Verified
Liuli Foam	1991	70	75	96	80.33	Verified
Qianjin Foam	1992	69	81	87	79.00	Verified
Dongzikou Foam	1989	78	71	89	79.33	Verified
Chongqing Jinjiang Foam	1994	57	71	99	75.67	Verified
Total		**485**	**533**	**638**	**552**	
Henen Industrial Restructuring PU Flexible Foam Project						
Yanshi Foam Plant	1994	82	85	91	86.17	
Zhengzhou Development Zone Foam Plant	1994	78	73	87	79.33	
Huixian Zijinshan Foam Plant	1994	77	82	94	84.33	
Yiyang Jinjiu Foam Plant	1993	73	89	94	85.33	
Luoyang Jinling Foam Plant	1999	81	93	88	87.33	
Wuzhi Fuli Foam Plant	1992	73	60	88	73.67	
Shangqiu Foam Plant	1994	58	79	89	75.33	
Shangqiu Yongfeng Foam Plant	1995	60	59	77	65.33	
Total		**582**	**620**	**708**	**636.67**	

Table 4. The 2003 Annual Program

(Amount in US$ Million)

CFC-11 control targets			
Control targets in 2003	**CFC-11 in MT ODP**	**Performance Indicators**	**Key Dates**
National CFC 11 consumption limit	15,500	1. Government confirming that two national CFC 11 consumption limits for 2002 are met. 2. Remaining 2002 annual program ODS reduction contracts amounting to at least 812 MT of CFC 11 to be signed. 3. ODS reduction contracts amounting to at least 1,250 MT of CFC 11 in the 2003 annual program to be signed before mid-2003. 4. Implementation of TA activities to help phaseout.	1. June 2003 2. June 2003 3. June 2003 4. Throughout the year
National CFC 11 consumption limit in PU Foam Sector	13,830		
CFC 11 phaseout targets in PU foam sector	2,500		

Policy Measures			
Measures	Funding	Performance Indicators	Key Dates
1. Ban on new construction of CFC-11 foam production	Incl .in training TA	1. Training workshops to be held for local government officers and all stakeholders	1. Throughout the year
2. Tradable production quota for CFC producers	n.a.	1. Establish 2003 annual CFC 11 production quota 2. Issue annual production quota to CFC 11 producers for 2003	1. Feb. 2003 2. Feb. 2003
3. Import/export trade management	n.a.	1. Implement the import/export trade management mechanism.	1. January 2003-December 2003
4. Consumption control of CFC-11 in other sectors	n.a.	1. Other CFC 11 sectors will continue implementation as per their sector plans	1. January 2003-December 2003

Enterprise activities			
	Funding (US$ million)	Performance Indicators	Key Dates
Conversion of CFC-1 PU foam enterprises	12.330	1. Training workshops to be held to invite participation of prospective enterprises for 2003 and 2004 annual programs 2. Project proposals prepared and evaluated 3. To determine grant funds after project evaluation 4. Selection of enterprises to be included in the annual program 5. 50% of the 2003 AP Reduction contracts signed 6. Implementation of projects start	1. Jan.-August 2003 2. Throughout the year 3. Throughout the year 4. Throughout the year 5. Throughout the year 6. Throughout the year

Table 4. 2003 Annual Program (cont.')

(Amount in US$ million)

Technical Assistance Activities				
TA#	Activities	Funding [1/] (US$ Million)	Performance Indicators	Key Dates
F-03-TA1	Training of Personnel Involved in Implementation of Phaseout Activities	0.06	1. TOR to be agreed with the Bank 2. Workshops to be conducted.	1. 1Q2003 2. Throughout 2003
F-03-TA2	PU Foam Products Standard Revision	0.04	1. TOR to be agreed with the Bank 2. Start process in recruiting consultant firm 3. Recruitment of consultant firm 4. Review standard proposal 5. Standard proposal completed	1. 1Q2003 2. 2Q2003 3. 2Q2003 4. 4Q2003-1Q2004 5. 3Q2004
F-03-TA3	The 2002 Performance Audit	0.03	1. TOR to be agreed with the Bank 2. Training of auditors 3. Audit 4. Completion of audit	1. 1Q2003 2. 1Q2003 3. 2Q2003 4. June 30, 2003
F-03-TA4	Website Improvement and Management	0.04	1. TOR to be agreed with the Bank 2. Appointment of consultants 2. Website management & improvement	1. 1Q2003 2. 1Q2003 3. Throughout 2003
F-03-TA5	A Manual on Substitute Technology in the PU Foam Sector	0.03	1. TOR to be agreed with the Bank 2. Recruitment of consultants 3. Work plan completed & formation of work team 4. Review of draft manual 5. Final draft manual completed	1. 1Q2003 2. 1Q2003 3. 2Q2003 4. 2Q2004 5. 3Q2004
	TA to Be Determined	0.04		
Subtotal		0.24		
Total for phaseout activities		**12.570**		

[1/] These are estimated costs. After bidding for TA contractors and consultants, these costs will be adjusted to reflect contractual amounts for each TA. All TA activities are expected to be completed on schedule.

THE HALON SECTOR

2003 ANNUAL PROGRAM

August 23, 2002

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The Halon Sector
2003 Annual Program

BACKGROUND

1. In accordance with the Executive Committee's approval of the Sector Plan for Halon Phaseout in China (UNEP/Ozl.Pro/ExCom/23/68), China is hereby requesting release of the sixth tranche of US$5.9 million for implementation of the year 2003 Annual Program. With this funding, China's halon 1211 production will be reduced to a maximum of 1,990 MT and its consumption to a maximum of 1,890 MT in 2003. The halon 1301 production will remain within the agreed maximum of 600 MT and, consumption will remain within the agreed maximum of 150 MT in 2003. Details of the annual program are in Part B.

2. After the approval of the China Halon Sector Strategy at the 23rd meeting of the ExCom and release of funds for the first (1998) Annual Program, China began implementation of the Halon Sector Strategy. Since the start of the program, China has developed supporting policies and regulations. From the initial number of 14 Halon plants, 12 halon 1211 production plants have been closed and dismantled completely, and production and capacity has been reduced at the 2 remaining halon 1211 production plants. Out of a total of 72 halon fire fighting extinguisher manufacturers originally identified as potential beneficiaries, 7 enterprises have signed contracts to close their extinguisher production, and 35 enterprises have signed contracts to convert their manufacturing lines for fire extinguishers from halon to non-ODS extinguishers. 37 of the 42 enterprises have completed their closure/conversions projects, and the rest are presently implementing their conversions. Four additional equipment manufacturers were located and were found to be operating without valid licenses, and were shut down in 2001 by administrative measure without any funding,. Out of a total of 22 originally identified halon fire fighting systems manufacturers, four enterprises have signed contracts to convert their manufacturing of halon fire extinguishing systems from halon to non-ODS extinguishing systems; three of these have been completed, and one is implementing its conversion. There are currently 30 remaining fire extinguisher manufacturing enterprises and 18 fire extinguishing system enterprises who have not started conversion. A total of 36 technical assistance activities have been taken up, including activities for strengthening implementation capacity, and preparation of standards to ensure quality and reliability of halon substitute fire extinguishers and fire extinguishing systems. 24 out of these projects have been completed.

3. The national production level of halon 1211 allowed for 2002 is 2,654 MT, a reduction of 663 MT from the allowable production level of 3,317 MT in 2001. Compared to the actual production level of 11,644 MT in 1997, (the baseline year), the total production reduction of halon 1211 by the end of 2002 will be at least 8,990 MT. Production of halon 1301 for 2002 has been reduced to a maximum of 600 MT, a reduction of 18 MT from 1997 levels. The 2001 annual production was well below these allowed maximum levels. A detailed implementation status is provided in Part A.

4. As far as the other halons are concerned, halon 1202 is generated as a by-product during the production of halon 1211. According to information provided by the three largest

halon 1211 producers, the amount of halon 1202 generated averages between 20 and 30 kg per ton of halon 1211 produced. This halon 1202 is neither vented, nor sold, but is recycled into halon 1211 production. A ban on sales of halon 1202 in the market has been promulgated by the Ministry of Public Security (MPS). China is confident that, based on its regulations and monitoring, there is no halon 1202 sold in the market. China has never produced halon 2402, and has never had plans to do so. In accordance with national regulations, a new halon 2402 production facility would require a new production license, and such a license can no longer be obtained because of a ban on setting up new halon production facilities or expanding existing halon production facilities.

5. These phaseout results have been achieved through close cooperation between the State Environmental Protection Administration (SEPA), the Ministry of Public Security (MPS), China National Chemical Construction Corporation (CNCCC) and the concerned enterprises. The experience from the implementation has confirmed the necessity of strong policy enforcement and monitoring of the halon phaseout program. Because of the number and geographical distribution of the enterprises involved, the success of the program depends to a large extent on the cooperation and support from provincial and local Environmental Protection Bureaus and Fire Fighting Bureaus. Training and public awareness therefore continue to be key elements in the halon sector plan implementation.

6. The rapid reduction of halon 1211 makes it imperative and important for fostering the supply of alternative fire extinguishing agents and fire fighting equipment in order to maintain the national fire protection and fire fighting capability. Special initiatives have been taken up to strengthen the supply of light-weight high pressure CO_2 cylinders, ABC powder, and vegetable protein foam. A halon bank is also being established. Details of these initiatives are provided in Part A.

7. The production and consumption of halons in China since the start of the halon sector plan is described in Table 1 below. Consumption in this table was determined in accordance with the ExCom approval conditions as total annual production plus imports, minus exports. As indicated above, China has reported that no other halons were produced in China, including halon 1202 and halon 2402. All production and consumption data (including 2001 production) has been verified by an annual international audit commissioned by the World Bank.

Table 1: Annual Production and Consumption of Halons under the Sector Plan

	Halon 1211				Halon 1301			
	Production		Consumption		Production		Consumption	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
1997 (baseline year)	9,950	11,644	NA	10,849	618	618	NA	NA
1998	7,960	7,842	7,160	7218	618	450	300	-152 [1/]
1999	5,970	5,965	5,370	5280	618	484	300	304
2000	3,980	3,978	3,580	3650 [2/]	618	428	300	377 [2/]
2001	3,317	3118	3,117	2,832	618	213	300	180
2002	2,654		2,654		600		150	
2003	1,990		1,890		600		150	
2004	1,990		1,890		600		150	
2005	1,990		1,890		600		150	
2006	0	0	0		150		100	
2007	0	0	0		150		100	
2008	0	0	0		150		100	
2009	0	0	0		150		100	
2010	0	0	0		0			

[1/] The negative consumption of Halon 1301 in 1998 (–152 MT) reflects the export of 602 MT, which included part of the stock (328MT) from the previous year's production. Therefore, the total consumption in 1998 (Consumption=Production +Import - Export) is negative.

[2/] Remedial action for the excess consumption in 2000 was taken by appropriately reducing consumption quota in 2001.

Part A

Implementation Status Of Previous Annual Programs

1998-2001 Annual Programs

1. ***Phaseout targets and objectives.*** As described in Table 1, production and consumption of halons has been reduced annually under the halon sector agreement. While production has consistently been retained below the agreement levels, the consumption of halons (production adjusted for net export) exceeded the targets twice (for 1998 and 2000) as exports of halons turned out to be lower than expected, and this was discovered only when the final export figure became available in the beginning of the following year. These developments were promptly reported to the ExCom, and corrective measures were taken as follows:

(a) reduction of excess consumption from the next year's consumption limit (for 2000);
(b) confiscation of excess production to not allow its consumption within the following year (described in detail in the 2001 annual program); and
(c) strengthening of the controls on the national consumption target from 2001 onwards by limiting the initial total national production quota to the consumption target for the year. Any additional production quota (for export) can only be requested retroactively, so that an enterprise requesting such additional quota would have to provide documentation to prove that the export has already taken place.

2. The consumption data for 2001 confirms the effectiveness of this arrangement.

3. ***Implementation of policy instruments.*** The production quota regulations became effective in December, 1997. National annual halon production quotas are issued to individual producers for halon 1211 and halon 1301.

4. The quota system is the main tool for the implementing the halon phaseout and is supported and enforced fully by MPS. The production data reported by the producers is periodically verified by SEPA and MPS. MPS has simultaneously strengthened its enforcement of the regulation on use of halon 1211 fire extinguishers, which has further reduced the demand for halon 1211. As described above, the halon quotas are now administratively split up into production quotas for domestic consumption and for export. Utilization of the export component is allowed retroactively, and requires proof of export orders having been carried out. Licensing is another important control measure. Only licensed enterprises are allowed to produce and/or sell halon and/or and halon containing products. After a halon closure/conversion project is completed, the enterprise's production license for halon and/or halon containing products is withdrawn by MPS.

5. There is also a ban on production and sale of halon and/or halon-containing products to enterprises who have been funded under and completed projects under previous annual programs. When the conversion is completed and the project is commissioned by MPS and

SEPA, the license to produce and sell halon fire extinguishers and systems are withdrawn.

Other enterprise-level phaseout activities

6. ***Closure of halon production facilities.*** Full closure contracts were signed with bid winners in various annual programs. Their production facilities were dismantled and halon-producing equipment was completely dismantled and disposed. Partial closure contracts were also signed with some bid winners, and their production quota and capacity was reduced accordingly. Details by year are provided in Annex II.

7. ***Closure and conversion of halon fire extinguisher manufacturers.*** Likewise, contracts were signed under each annual program with extinguisher and system manufacturers for reducing halon 1211 consumption to match the declining supply of halons. Some extinguisher manufacturers selected closure and the other selected conversion. All the closure and conversion activities have been completed on schedule and were commissioned by SEPA and MPS. Details are provided in Annex III.

Technical assistance (TA) aactivities

8. All activities under TA projects of 1998 and 1999 have been completed. Two TA activities of the 2000 annual program have been completed, and one is under implementation. . Two TA activities were taken up in 2001; one has been completed and the other is under implementation. Details of all these activities are in Annex IV (A-D).

Special Initiatives

9. Another main objective of the Halon Sector Plan is to ensure that the level of fire protection capability in China is not compromised as a result of halon phaseout activities, and that adequate quantities of suitable quality substitutes are available. Special initiatives have been taken up under various annual programs to address this requirement. The special initiatives undertaken so far are summarized in Annex V and described below.

10. ***ABC dry chemical powder.*** To maintain the required level of fire fighting capacity in China, the Foshan Electro-chemical General Plant was selected to establish an ABC dry powder production line with an annual capacity of 3000 MT. The grant contract was signed in May 1999 and the project has been completed and commissioned in November 2001. Commercial production has already started.

11. ***Light weight high pressure CO_2 cylinders.*** Weifang Dongming Fire-fighting Equipment Co., Ltd was selected as the beneficiary for manufacture of light weight CO_2 cylinders with the capacity of 600,000 units per year. The contract was signed in November 2000. Since the equipment needed had to be specifically designed and manufactured it took a long time to finalize the specifications, before the transaction could be settled. The purchased equipment will arrive in the first half of 2003.

12. ***Halon banking***. The Panyu Shengjie Fire-fighting Equipment Co., Ltd. was selected as the beneficiary to set up a halon bank in Guangdong with an annual recycling capacity as

500 MT. The grant contract was signed in August 2000. The equipment was delivered to the beneficiary in December 2001.

13. ***Plant-protein based foam.*** The Honsen Fire-fighting Hi-tech company was selected as the beneficiary to establish a test laboratory for plant-protein-based foam. The contract was signed in April 2000. The project has been completed by December 2001.

14. ***National conference.*** A national halon conference was held in November, 2000, and was attended by various institutions and entities related to halon phaseout activities . The conference provided a valuable opportunity to look back on experiences and lessons, look forward to future tasks, and to share the lessons of successful experience.

2002 Annual Program

15. ***Phaseout targets and objectives.*** The phaseout target is (see Table 1) to reduce halon 1211 production to a maximum of 2,654 MT; to reduce halon 1211 consumption to a maximum of 2,654 MT; to reduce halon 1301 production to a maximum of 600 MT; and to reduce halon 1301 consumption to a maximum of 150 MT. Production quotas have been issued consistent with these targets.

16. ***Implementation of policy instruments.*** The quota system continued to be the main tool for the implementing the halon phaseout and is supported fully by MPS. A catalogue of ban on production and sale for the phased out products including halon extinguishers and agents was issued by SETC. The deadline for halon and halon extinguisher production is in line with the sector plan timetable. Like previous years, a ban on sales and production for the commissioned project enterprises was issued.

Enterprise-level phaseout activities

17. ***Closure of halon production facilities.*** **total c**losure contract was signed with one halon1211 producer and quota reduction (partial closure) contract signed with one halon 1301 producer. The total halon phased out will be 780 MT of halon 1211 and 18 MT halon 1301, thereby ensuring that the 2002 national targets for halon production level are met. Both projects have completed the closure activities. Details are in Annex II.

18. ***Closure & conversion of halon fire extinguisher manufacturers.*** China has conducted an assessment of the number of contracts that have already been signed in the first three years for closure and conversion of equipment manufacturers to review whether the pace of conversion is appropriate, given the projected availability of halon 1211 in the next three years. This assessment has now been concluded, and eight to ten contracts will be signed by the end of October, 2002.

Special initiatives

19. ***Development of 3,600 MT plant-protein foam fire fighting agent production line.*** The development of a 3,600 MT Honsen L119 plant-protein based foam plant is under way (while the overall designed plant capacity is larger at 10,000 MT, the special initiative will only support this limited capacity in keeping with the requirement that halon sector funding should not result in any incremental increase in national fire-fighting capacity in China). The beneficiary's feasibility study is being reviewed by Government.

20. ***Halon banking*** Contracts for demonstration projects will be signed with two Halon recycling centers to collect, recycle and reclaim used halons if up to 240 MT. The recycle centers are at Panyu in Guangdong Province and in Dalian, Liaoning Province.

Technical assistance activities

21. Eleven TA projects were identified for the 2002 annual program, including training and auditing, and are at various stages of implementation. Details are in ANNEX IV.

PART B
2003 ANNUAL PROGRAM

Objectives

1. The phaseout target for the 2003 annual program is to (a) reduce halon 1211 production from the level of 2,654 MT to a maximum of 1,990 MT and consumption to a maximum of 1,890 MT and, (b) to maintain halon 1301 production at a maximum of 600 MT, with consumption being maintained at a maximum of 150 MT. The 2003 program will also continue actions to ensure that the fire fighting capacity is not undermined as the result of an insufficient supply of substitutes of satisfactory quality.

2. China is requesting the release of the approved amount of US$ 5.9 million for the 2003 annual program as agreed in the overall Halon Sector Phaseout Plan. To achieve these goals, the following activities are envisioned:

a. US$1.57 million to be used for buying back quotas and as a result reduce the halon 1211 production;
b. US$1.7 million to be used for closing and converting 10-15 fire extinguisher manufacturers;
c. US$2.4 million to be used for converting 8-10 halon 1211 fire system manufacturers; and
d. US$0.23 million to be used for technical assistance activities in order to support the halon phaseout program and ensure that existing fire protection requirements can be met.

Policy instruments during the Year

3. ***Policies to be continued.*** In 2003, the following policies and measures will continue to be implemented by the Government. These policies are considered necessary for the success of a total halon phaseout in China.

a. Bidding -- The bidding system will continue to be improved based on the experiences gained from the 1998, to 2002 annual programs. Preparatory work will be finished by the end of 2002. Bidders with the lowest evaluated unit prices will be awarded grant funds. The Government will sign closure/conversion contracts with the winning enterprises.
b. Tradable production quota – The regulation will continue to be implemented.
c. The ban on new installations of halon extinguishers for non-essential uses and a gradual tightening of the definition of essential uses will continue.

4. In order to support local enforcement of the ban on non-essential uses of halons in the most effective manner, the Government will ensure that:

a. SEPA/MPS will disseminate details of the ban to all prospective consumers through various channels (news media, bulletins, propaganda, etc.);
b. Local fire bureaus and environmental protection bureaus will jointly inspect

consumers on a regular basis. If any consumer is found to be using the newly-installed halon fire extinguishers in non-essential areas, the consumer will be required to change to non-halon systems within a defined time.

c. Joint inspection teams of the local fire bureaus and environmental protection bureaus will be required to submit regular reports to MPS and SEPA about the situation and measures in implementation of the ban.
d. Stricter control the sales of halon will be enforced by making use of the output of projects for three demonstration centers and replicating the experience to other provinces in order to reach phaseout goals.

5. As usual MPS will withdraw production licenses for manufacturing halon and halon-containing products from beneficiaries after their projects are completed.

Enterprise-level activities

6. Through a combination of production quotas, bidding systems and administrative measures, enterprises will be granted funds for closure and conversion activities. All contracts for closures are expected to be signed by the end of 2002. Closure projects (for halon agent producers) are expected to take effect from January 1, 2003 and all the closure projects to be completed within the program year. All contracts for conversion projects are expected to be signed in the second half of 2003 and implementation may take one and half years.

Technical assistance (TA) activities

7. ***National Standard Formulation for the general technical conditions of aerosol fire extinguishing apparatus.*** It is necessary to work out unified national standards to (a) develop national capacity in this field, (b) define the limitations for the production and application of aerosols firefighting products, and (c) to encourage the application of aerosol fire extinguishing technology to help ensure phase-out of halons.

8. ***Training of Personnel Involved in Phaseout Activities:*** As in the previous year, it is considered necessary to train staff of local environmental protection bureaus, local fire fighting bureaus and halon enterprises in order to implement the phaseout plan effectively. Training is needed to prepare enterprises to bid in the following year, to supervise halon production and consumption, to manage the tradable production quota system and to learn operation procedures in the halon sector phaseout approach. In addition, as the sector approach requires financial and performance audits, training has to be provided for audit agencies on the sector approach and the annual plan.

9. ***Performance Audit for 2002 Annual Program enterprises.*** As in previous years, CNAO will conduct a performance audit for sector plan activities in 2002 to ensure the effective implementation of the annual program.

10. The above policy initiatives, enterprise-level and technical assistance activities are summarized in Table I below.

Table I. 2003 Annual Program

Halon phaseout targets & policy instruments				
	Start of program (MT)	End of program (MT)	Key Actions Required	Key Dates
Halon 1211 Production ceiling	2,654	1,990	1. Quota reduction of halon agent producers 2. TA activities to help phaseout	1. Jan-Dec. 2003
O/w export		100		
Consumption ceiling	2,654	1,890	1. Closures of extinguishers manufacturers 2. Conversion of halon fire extinguishers to non-halon extinguishers	1. Jan.-Dec. 2003 2. To start conversion by second half of 2003
Halon 1301 Production ceiling	600	600	1.Policy controls.	1. Jan-Dec. 2003
O/w export	450	450		
Consumption ceiling	150	150	1. Policy controls.	1. Jan-Dec. 2003

Continuation of policy instruments		
Policy Instruments	Actions Required	Key Dates
1. Bidding system for fire extinguisher and system manufacturers	1. Training for the 2003 bidding 2. Bidding started 3. Bidding completed 4. Bid winners awarded for 2003 5. Contracts signing with winners 6. Implement closure/ conversion contracts.	1. Apr.- 2003 2. May 2003 3. Jun..2003 4. Jul. 2003 5. Jul. 2003 6. (a) Closure – Jul .to Dec. 2003 (b) Conversion—starting July for a 12 month Period
2. Tradable production quota for halon producers	1. Establish 2003 halon production quota ; 2. Issue 2003 production quota to halon producers	1. Dec. 2002 2. Dec. 2002
3. The ban on halon extinguisher uses in non-essential areas	1. Promotional campaign on the ban, through various channels; 2. Joint supervision of ban by local Fire Fighting Bureaus and Envir. Protection Bureaus.	1. Through 2003 2. Through 2003

Table I: 2003 Annual Program (Contd.)

Enterprise-level Activities						
	Funding Requested (US$ mill)	Existing Enterprises	# of enterprise targeted	# of enterprises at end of 2003	Key Actions Required	Key Dates
1. Reduction of halon 1211 production	1.57	2	2	2	Partial closure (quota reduction)	1. Contracts signed Dec. 2002 and completed in 12 months
2. Closure & conversion of halon extinguisher manufacturer	1.70	30	10-15	15-20	Selection through bidding process	1. Bid winners by July, 2003. 2. Contracts signed no later than July 31, 2003. 3. Completed in 12 months after signing contract
3. Conversion of halon fire extinguishing system manufacturers	2.40	18	8-10	8-10	Selection through bidding process	1. Bid winners and contracts signed no later than September. 2003 2. Completed in 12 months after signing contract
Subtotal	**5.67**					

Table II: 2003 Annual Program-Technical Assistance Activities

TECHNICAL ASSISTANCE ACTIVITIES			
Activities	MLF funding requested (US$'000)	Actions Required	Key Dates
1. National standard formulation for the general technical conditions of aerosol fire extinguishing apparatus	60	Selection of qualified institutions to formulate the standard	1. Contract signed no later than 3Q 2003. 2. Finish work within 24 months after signing contract
2. Training	100	Training workshops will be carried out	Training will be carried out through the 2003.
3. Performance Audit	70	Annual Performance audit of the 2003 production	
Subtotal	230		
TOTAL for phaseout activities	**5900**		

Table III: 2003 Annual Program - Proposed Performance Indicators

Halon Phaseout Targets			
Halon sector	Start of program (MT)	End of program (MT)	Performance Indicators
Halon 1211 Production ceiling	2,654	1,990	• Production levels (national aggregate halon 1211)
o.w. exports	0	100	
Consumption ceiling	2,654	1,890	• Consumption levels (national halon production plus import minus export)
Halon 1301 Production ceiling	600	600	• Production levels (national aggregate halon 1301 production)
o.w. exports	450	450	
Consumption ceiling	150	150	• Consumption levels (production plus imports minus exports)

Continuation of Policy Instruments	
Initiatives	Performance Indicators
Bidding system	• Enterprises trained for bid preparation for 2003 bidding by June 30, 2003 • bidding for 2003 annual plan by June 30, 2003 • Winning enterprises for 2003 selected by July 31, 2003
Tradable production quota for halon producers	• Annual production quota to halon producers for 2003 issued by March 30, 2003 • Production reports from enterprises received on quarterly basis
The ban on halon extinguisher uses in non-essential areas	• 2 training workshops conducted throughout the year in key provinces

Enterprise-level activities				
Activities	Funding requested (US$ mill)	Existing Enterprises	# of enterprises at end of 2003	Performance Indicators
Reduced Halon 1211 production	1.57	2	2	Halon production reduction contracts signed before Dec.31, 2002
Closure & conversion of halon extinguisher manufacturer	2.3	30	15-20	Halon consumption phaseout contracts signed by July 30, 2003
Conversion of halon fire extinguishing system manufacturers	1.7	18	8-10	Halon consumption phaseout contracts signed by July 30, 2003
Subtotal	5.57			Total disbursement to enterprises

Table III: 2003 Annual Program - Proposed Performance Indicators (Contd.)

Technical assistance activities		
Activities	Amount in US$'000	Performance Indicators
1. National standard formulation for the general technical conditions of aerosol fire extinguishing apparatus	60	Invitation issued by March 30,2003
2. Training	100	Workshops conducted by June 30, 2003
3. Performance Audit	70	Audit reports submission by June 30, 2003
Subtotal	230	
TOTAL for Phaseout Activities	**$5.9million**	

ANNEX I: Halon Phaseout Action Plan, January 1, 1998 to January 1, 2010

CHINA **Halon Sector Phaseout Action Plan, January 1,1998 to January 1,2010**															
		First Stage			**Second Stage**					**Third Stage**					**Total Funding Request**
Year	Base line production	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Halon 1211 (MT)															
Production target	9,950	7,960	5,970	3,980	3,317	2,654	1,990	1,990	1,990	0	0	0	0	0	
o.w. Export		800	600	400	200	0	100	100	0	0	0	0	0	0	
Import		0	0	0	0	0	0	0	0	0	0	0	0	0	
Domestic Consumption		7,160	5,370	3,580	3,117	2,654	1,890	1,890	1,890	0	0	0	0	0	
Production phaseout target		1,990	1,990	1,990	663	663	664	0	0	1,990	0	0	0	0	
Consumption phaseout target		1,790	1,790	1790	463	463	764	0	0	1,990	0	0	0	0	
Halon 1301 (MT)															
Production target[3/]	618	618	618	618	618	600	600	600	600	150	150	150	150	0	
o.w. Export		318	318	318	318	450	450	450	450	50	50	50	50	0	
Import		0	0	0	0	0	0	0	0	0	0	0	0	0	
Domestic Consumption		300	300	300	300	150	150	150	150	100	100	100	100	0	
Production phaseout target		0	0	0	0	150	0	0	0	450	0	0	0	150	
Consumption phaseout target		0	0	0	0	150	0	0	0	50	0	0	0	100	
Required funding from MLF ($'000)		1240	970	1060	450	370	590	120	180	1140	40	30	10		6200

ANNEX II
Closures of halon production facilities and lines

A. 1998 Annual Program

Table 1: Closure of Halon 1211 Plants with 1998 Production Quotas

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1.Zhedong No.1 Chemical Plant	347	January 1, 1998	Project completed. Equipment dismantled completely	Plant closure
2.Zhejiang Dongyang No.2 Chemical Plant	1,004	January 1, 1998	Project completed Equipment dismantled completely	Plant closure
3.Zhejiang Xiaoshan Fire-fighting Chemical Plant	387	January 1, 1998	Project completed Equipment for one production plant dismantled completely	Partial closure. One out of two production plant closed.
4.Foshan Electro-Chemical General Plant	300	January 1, 1998	Project completed. Production within reduced production quota.	Partial closure. Reactor pipes dismantled.
Total (Quotas sold back to Gvt.):	**2,038**			

Table 2: Closure of Halon 1211 plants not assigned 1998 production quotas

Name of the plant	Halon phaseout (MT)	Year of stop production	Implementation status	Remarks
1.Dalian Fire-extinguishing Agent Plant	165.9	1997	Project completed and equipment dismantled completely	Dismantling and destruction of equipment verified
2.Zigong Fijian Chemical Plant	54.0	1997	Project completed and equipment dismantled completely	Dismantling and destruction of equipment verified
3.Guangdong Don guan Fire-fighting Equipment Plant	320.0	1997	Project completed and equipment dismantled completely	Dismantling and destruction of equipment verified
4.Guangxi Bihar Ocean Chemical Plant	40.0	1997	Project completed and equipment dismantled completely	Dismantling and destruction of equipment verified
5.Wenling Salt Farm Chemical Plant	70.5	1997	Project completed and equipment dismantled completely	Dismantling and destruction of equipment verified
Total	**650.4**			

B. 1999 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1. Hewing Xiaoshan Fire-fighting Chemical Plant	400	January 1, 1999	Project completed and equipment dismantled completely	Plant closure
2.Shandong Hahira Group Shogun Fire-fighting Chemical Plant	500	January 1, 1999	Project completed Reactor pipes dismantled	Partial closure.
3.Wuxian Chemical Plant	388	January 1, 1999	Project completed Reactor pipes dismantled	Partial closure.
4. Hewing Dongyang Chemical Plant	654	January 1, 1999	Project completed Reactor pipes dismantled	Partial closure.
Total (Quotas sold back to Gvt.)	**1,942**			

C. 2000 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1. Hewing Dongyang Chemical Plant	779	January 1, 2000	Production based on reduced production quota	Partial closure.
2.Shandong Hahira Group Shogun Fire-fighting Chemical Plant	451	January 1, 2000	Production based on reduced production quota	Partial closure.
3.Wuxian Chemical Plant	170	January 1, 2000	Production based on reduced production quota	Partial closure.
4. Hewing fire-fighting Chemical Plant	130	January 1, 2000	Producing basing on reduced quota	Partial closure.
5.Foshan electro-chem. general plant	381	January 1, 2000	Production based on reduced production quota	Partial closure.
6.Zhejiang chemical research institute	79	January 1, 2000	Production based on reduced production quota	Partial closure.
Total (Quotas sold back to Gvt.)	**1,990**			

D. 2001 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1.Wuxian Chemical Plant	330	January 1, 2001	Project completed and equipment dismantled completely	Plant closure.
2. Zhejiang fire-fighting Chemical Plant	250	January 1, 2001	Project completed and equipment dismantled completely	Plant closure.
3.Zhejiang chemical research institute	150	January 1, 2001	Production quota for Halon 1211 cancelled and production line adjusted to disable ability to produce halon 1211.	Plant closure.
Total (Quotas sold back to Gvt.)	**730**			

E. 2002 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1. Foshan electro-chem general plant	780 (halon 1211)	January 1, 2002	Project completed and equipment dismantled completely	Plant closure.
2.Zhejiang chemical research institute	18 (halon 1301)	January 1, 2002	Production based on the reduced halon 1301 production quota.	Partial closure.

ANNEX III
List of beneficiary fire extinguisher manufacturers

A. 1998 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Zhejiang Xiangshan No.1 Fire-fighting Equipment Plant	1998.03.14	223.0	Project completed and commissioned Equipment dismantled.	1999.03.14	Plant closure
2.Zhejiang Yiwu Fire-fighting Extinguisher Plant	1998.03.14	162.2	Project completed and commissioned. Equipment dismantled.	1999.03.14	Plant closure
3.Changzhou Fire-fighting Equipment Plant	1998.03.14	47.5	Project completed and Commissioned	2000.03.14	Conversion
4.Dalian Jinzhou Fire-fighting Equipment Plant	1998.03.14	105.7	Project completed and Commissioned	2000.03.14	Conversion
5.Guangxi Wuzhou Fire-fighting Equipment Plant	1998.03.14	52.4	Project completed and Commissioned	2000.03.14	Conversion
6.Guangzhou Zhujiang Fire-fighting Equipment Plant	1998.03.14	138.4	Project completed and Commissioned	2000.03.14	Conversion
7.Jiangxi No.1 Fire-fighting Equipment Plant	1998.03.14	220.8	Project completed and Commissioned	2000.03.14	Conversion
8.Nanjing Heli Fire-fighting Equipment Plant	1998.03.14	146.4	Project completed and Commissioned	2000.03.14	Conversion
9.Ningxia Yongning Fire-fighting Equipment Plant	1998.03.14	23.0	Project completed and Commissioned	2000.03.14	Conversion
10.Panyu Shengjie Fire-fighting Equipment Plant	1998.03.14	435.1	Project completed and Commissioned	2000.03.14	Conversion
11.Shanghai Haishen Fire-fighting Equipment Plant	1998.03.14	149.6	Project completed and Commissioned	2000.03.14	Conversion
12.Shanghai Punan Fire-fighting Equipment Plant	1998.03.14	268.4	Project completed and Commissioned	2000.03.14	Conversion
13.Shanghai Qingpu Fire-fighting Equipment Plant	1998.03.14	169.9	Project completed and Commissioned	2000.03.14	Conversion
14.Shenyang Fire-fighting Equipment Plant	1998.03.14	153.7	Project completed and Commissioned	2000.03.14	Conversion
15.Xiangshan Fire-fighting Equipment Plant	1998.03.14	270.6	Project completed and Commissioned	2000.03.14	Conversion
16.Ningbo Sanyou Fire-fighting Equipment Ltd.	1998.03.14	50.0	Project completed and Commissioned	2000.03.14	System conversion
Total (Average halon 1211 consumption 1995 to1997):		**2,616.7**			

B. 1999 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Zhejiang Dongyang Fire-fighting Equipment Plant	1999.03.16	131.88	Project complete and commissioned. Equipment dismantled.	2000.03.16	Plant closure
2.Shanghai Global Fire-fighting Extinguisher Plant	1999.03.16	32.66	Project complete and commissioned. Equipment dismantled.	2000.03.16	Plant closure
3.Helongjiang Fire-fighting Equipment Plant	1999.03.16	23.4	Project completed and commissioned.	2001.03.16	Conversion
4.Guangzhou Fire-fighting Equipment Plant	1999.03.16	83.431	Project completed and commissioned.	2001.03.16	Conversion
5.Jiangsu Taixin Fire-fighting Equipment Plant	1999.03.16	336.6	Project completed and commissioned .	2001.03.16	Conversion
6.Chongqing Zhendan Fire-fighting Equipment Plant	1999.03.16	60.77	Project completed and commissioned.	2001.03.16	Conversion
7.Heilongjiang Shangzhi Fire-fighting Equipment Plant	1999.03.16	78.4	Project completed and commissioned.	2001.03.16	Conversion
8.Hubei jiangling Fire-fighting Equipment Plant	1999.03.16	194.78	Project completed and commissioned.	2001.03.16	Conversion
9.Shandong Weifang Fire-fighting Equipment Plant	1999.03.16	153.116	Project completed and commissioned.	2001.03.16	Conversion
10.Shunde Fire-fighting Equipment Plant	1999.03.16	192.72	Project completed and commissioned.	2001.03.16	Conversion
11.Guangzhou Fire-fighting Equipment Plant	1999.03.16	29.697	Project completed and commissioned.	2001.03.16	System Conversion
Total (Average halon 1211 consumption 1995 to1997):		**1317.431**			

C. 2000 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Guangzhou Baiyun luoyang Fire-fighting Equipment Plant	2000.02.24	183.608	Project complete and commissioned. Equipment dismantled..	2001.02.24	Plant closure
2.Zhejiang Linhai Fire-fighting Equipment Plant	2000.02.24	57.5	Project complete and commissioned. Equipment dismantled.	2001.02.24	Plant closure
3.Anhui Bengbu Fire-fighting Equipment Plant	2000.02.24	142.124	Project complete and commissioned. Equipment dismantled.	2001.02.24	Plant closure
4.Suzhou Fire-fighting Equipment Plant	2000.02.24	14.2677	Project completed and commissioned.	2001.02.24	Conversion
5.Shanghai No. 4 Fire-fighting Equipment Plant	2000.02.24	74.762	Project completed and/ commissioned	2001.02.24	Conversion
6.Lianyungang Tianyi Fire-fighting Equipment Plant	2000.02.24	52.35	Project complete and commissioned.	2001.02.24	Conversion
7.Tianjin Tanggu Fire-fighting Equipment Plant	2000.02.24	45.64	Project completed and commissioned.	2001.02.24	Conversion
8.Zhejiang Wananda Fire-fighting Equipment Plant	2000.02.24	56.5	Project complete and commissioned.	2001.02.24	Conversion
9.Zhenzhou Huanghe Fire-fighting Equipment Plant	2000.02.24	25.153	Project complete and commissioned.	2001.02.24	Conversion
10.Nanjing Honghu Fire-fighting Equipment Plant	2000.02.24	81.818	Project complete and commissioned.	2001.02.24	Conversion
11.Zhuhai Zhuzhou Fire-fighting Equipment Plant	2000.02.24	80	Project completed and commissioned.	2001.02.24	Conversion
12.Fujian Changle Fire-fighting Equipment Plant	2000.02.24	284.2	Project completed and commissioned.	2001.02.24	Conversion
13. Zhuhai Zhuzhou Fire-fighting Equipment Plant	2000.02.24	40.5	Project completed and commissioned.	2001.02.24	System Conversion
Total (Average halon 1211 consumption 1995 to1997):		**1138.423**			

D. 2001 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Planned completion date	Remarks
1.Fuzhou fire-fighting equipment plant	2001.07.10	22.52	The contract was changed from a conversion project to a closure project. The activities has been completed and the project will be commissioned by December 2002.	2002.12.31	Conversion
2.Zhenjiang fire-fighting equipment plant	2001.07.10	17.463	Conversion activities finished and project to be commissioned by December 2002	2002.12.31	Conversion
3. Nanjing jiangpu fire-fighting equipment plant	2001.07.10	84	Conversion activities finished and project to be commissioned by December 2002	2002.12.31	Conversion
4.Jiangsan fire-fighting equipment co.	2001.07.10	41	Conversion activities finished and project to be commissioned by December 2002	2002.12.31	Conversion
5.Wuhan jiangan fire-fighting equipment plant	2001.07.10	16.8	Conversion activities finished and project to be commissioned by December 2002	2002.12.31	Conversion
6. Jiangxi ship's valve plant	2001.07.10	40	Conversion activities finished and project to be commissioned by December 2002	2002.12.31	System Conversion
Total (Average halon 1211 consumption 1995 to1997):		221.783			

ANNEX IV

A. Implementation of Technical Assistance Activities in the 1998 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1.Revision of Standards for ABC Powder	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2001.6.30	
2.Design Codes for Gaseous Fire Extinguishing Systems	Tianjin Fire Research Institute	1998.04.28	The draft Code has been completed for approval.		To be fully completed by the second half of 2002
3.Standards for Components of Gaseous Fire Extinguishing Systems	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2001.6.30	Completed
4.Halon Management Plan-Overall Management	Shanghai Fire Research Institute	1998.04.28	Completed and commissioned	1999.12.31	Completed
5.Halon Management Plan-Training Courses and Propaganda Materials	Shanghai Fire Research Institute	1998.04.28	Completed and commissioned	2000.12.07	Completed
6.Halon Management Plan-Provincial Promotions and Demonstration Centers	Shanghai Fire Fighting Bureau	1998.04.28	Completed and commissioned	1999.10.31	Completed
7.Halon Management Plan-Provincial Promotions and Demonstration Centers	Guangdong Fire Fighting Bureau	1998.04.28	Completed and commissioned	1999.08.31	Completed
8.Development of halon Management Database and Data collection System	Qinghua University	1998.04.28	Completed and commissioned	1998.09.28	Completed
9.Management Information System	Qinghua University	1998.04.28	Completed and MIS accepted by SEPA	1998.04.02	Completed
10.Training	SEPA		Four training workshops have been conducted	1998.12.10	Completed
11. Export/Import study	Beijing University	1998.09.28	Completed and commissioned	1999.11.30	Completed

B. Implementation of Technical Assistance Activities in the 1999 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1.Halon management plan---establishment of demonstration centers	Beijing Fire Fighting Bureau	1999.11.10	1)The demonstration center has been established and are now in operation; 1) A series of local policies have been formulated and issued. 2) Halon consumption survey has been carried out. 3) Propaganda has been launched on newspaper, magazines and TV 5) Project completed and commissioned.	2001.10.10	Completed
2. Policy study of demonstrative halon bank	Guangdong Fire Fighting Bureau	1999.11.10	1) International Information on halon bank policies have been collected and reviewed; 2) The framework of Guangdong demonstrative halon bank has been formulated. 3) Recycle and reclaim procedure has been studying and testing. 4) Project completed and commissioned	2001.10.10	
3. Revision of national standard for CO_2 fire extinguishing agent	Tianjin Fire Research Institute	1999.11.10	1)Test equipment has been installed; 2) Information on similar international standards collected & reviewed. 3) Project completed and commissioned	2002.06.01	Completed
4. Study on test method and test equipment for CO_2 fire extinguishing agent	Tianjin Fire Research Institute	1999.11.10	1) Test equipment has been nstalled; 2) Information on similar international standards collected & reviewed. 3) Project completed and ommissioned	2002.06.01	Completed
5. Revision of the design code of CO_2 fire extinguishing systems	Tianjin Fire Research Institute	1999.11.10	1) Test equipment has been installed; 2) Information on similar international standards collected & reviewed. 3) Project completed and commissioned	2002.06.01	Completed
6. Study on the scope of use of CO_2 extinguishers	Shanghai Fire Research Institute	1999.11.10	PCR submitted , Project completed and commissioned	2002.06.01	Completed
7. Study on the standard and test method of CO_2 extinguishers with light cylinders	Shanghai Fire Research Institute	1999.11.10	PCR submitted , Project completed and commissioned	2002.06.01	Completed
8. Formulation of national standard for HFC227 agent	Tianjin Fire Research Institute	1999.11.10	Project completed and commissioned	2002.06.01	Completed
9. Study on the disposal standard for Halon 1211 extinguishers	Shanghai Fire Research Institute	1999.11.10	Project completed and commissioned	2002.06.01	Completed
10.Trianing	SEPA		Four training workshops have been conductedActivities completed	1999.31.12	Completed

C. Implementation of Technical Assistance Activities in the 2000 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned /Actual Completion Date	Remarks
1.Design code for Water Mist Fire extinguishing System					Cancelled
2. Performance test Method of Components of Water Mist Fire Extinguishing Systems					Cancelled
3. Propaganda for halon sector approach and halon alternative technology	Shanghai Aozhen Technology Development Company	2000. 10.15	The book was finished, published and handed out to relevant parties. Project completed and commissioned	2000.12.31	Completed.
4. Design Code for Dry Powder Fire Extinguishing System					Cancelled
5. Tests equipment for light weight CO2 Cylinders	Shanghai Fire Research Institute	Oct. 2001	Contract signed in 2001. Project being implemented.	2003.12.31	Ongoing
6. Future requirements for essential uses, Special places					Cancelled
7. Standards for Mechanic foam extinguishers					Cancelled
8. Standards for portable dry powder extinguishers					Cancelled
9. Nitrogen system					Cancelled
10. Training	DIA		Four training workshops were carried out	Within 2000	Completed

D. Implementation of Technical Assistance Activities in the 2001 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned /Actual Completion Date	Remarks
1. Formulating Design Code for Mist Water Fire Extinguishing System					Cancelled
2. Revision of Design Code for Installation of Fire Extinguishers for Buildings					Cancelled
3. Feasibility Study on Substitutes for Halon Fixed Fire Extinguishing Systems					Cancelled
4. Studies of Market Prospect for Closure Enterprises	Seven enterprises were chosen to carry out the project	2001.4.10	1 project completed; others ongoing	December 2002	Ongoing
5. Training	DIA		Four training programs were carried out	2001.12.31	Completed

E. Implementation of Technical Assistance Activities in the 2002 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned Completion Date	Remarks
1. Study on Evaluation Method of Engineering Application of Heptfluoride Propane Fire-fighting System	Selected bidder	By the end of 2002	General Procurement Notice is being published in UNDB for shortlisting interested consultants	24 months after contract signing	Under preparation
2. Study on Evaluation Method of Engineering Application of Inert Gases Fire-fighting System	Selected bidder	By the end of 2002	Short-listing under way	36 months after contract signing	Under preparation
3. National Standards Formulation for Inert Gas Fire Extinguishing Agent	Selected bidder	By the end of 2002	Short-listing under way	18 months after contract signing	Under preparation
4. Study on the Testing Equipment and Technology of Inert Gas Fire Extinguishing Agent	Selected bidder	By the end of 2002	Short-listing under way	18 months after contract signing	Under preparation
5. National Standard Formulation for General Specifications of Low-pressure Carbon Dioxide Fire-fighting System and Parts	Selected bidder	By the end of 2002	Short-listing under way	18 months after contract signing	Under preparation
6. Study on Testing Equipment and	Selected bidder	By the end of 2002	Short-listing under way	18 months after contract	Under preparation

Technology of Heptfluorid Propane Fire Extinguishing Agent				signing	
7. Liaoning Halon Management Plan	Selected bidder	October, 2002	Bidder selection under way	18 months after contract signing	Under preparation
8. National Standard Formulation for Aerosol Fire Extinguishing Agent	Selected bidder	By the end of 2002	TOR under review	18 months after contract signing	Under preparation
9. Study on the Testing Equipment and Technology of Aerosol Fire Extinguishing Agent	Selected bidder	By the end of 2002	TOR under review	18 months after contract signing	Under preparation
10.Training	DIA		three training workshops were carried out	2002.12.31	Ongoing
11.Performance Audit	CNAO		Performance audit was conducted from April-June, 2002	2002.10,31	Ongoing

ANNEX V

Special Initiatives

Special initiative	Name of the manufacturer	Project starting date	Implementation Status	Planned completion date	Remarks
HAL-99-SI-01 ABC Dry Powder Production Line	Foshan Electro-Chem General Plant	1999.05.12	Project completed and commissioned.	2001. 10.12	Completed
HAL-00-DI-02 National Halon Phaseout Conference	SEPA	2000.08.01	The conference was held on Nov. 22, 2000. Activity completed	2000.12.31.	Completed
HAL-00-SI-03 Halon Bank Guangdong Branch	Panyu Shengjie Fire Fighting Equipment Plant	2000.08.05	Equipment arrived and constuction of workshop started	2003.06.30	Ongoing
HAL-00-SI-04 Light Weight CO_2 Cylinders	Weifang Dongming Fire-fighting Equipment Co., Ltd.	2000.11.18	Procurement contract signed. Equipment to be delivered by second half of 2003.	2003.11.18	Ongoing
HAL-01-SI-05 Plant Protein Foam test laboratory Project	Honsen Fire-fighting Hi-tech Co., Ltd.	2001.04.04	Project Completed and to be commissioned by end December 2002	2002.12.31	Completed
HAL-02-SI-06 Development of a 3,600 MT Production Line of Honsen L119 Vegetable -protein Foam Extinguishing Agent	Dalian Honsen Hi-tech Fire-fighting Co., Ltd.		Feasibility study reviewed.	12 months after contract signing	Under preparation

China: Process Agents Sector Plan – Compliance Scenario

Introduction

1. At its 37th meeting in July 2002, the ExCom has decided that, pending any decision by the Meeting of the Parties, project proposals in which a country would be in non-compliance with the control measures of the Montreal Protocol should not be approved by the Executive Committee until the underlying issue of non-compliance had been dealt with by the Parties, through the Implementation Committee. The ExCom also invited the MLF Secretariat, the World Bank, and interested Executive Committee members, "to continue working on the sector plan to resolve technical issues and eligible incremental costs for consideration at a future meeting, when the underlying non-compliance issues were resolved." (Decision 37/20).

2. This decision was taken in the context of the China Process Agents Sector Plan, which was submitted for consideration at the 37th ExCom meeting. Following the ExCom meeting, China has informed the World Bank that it would like to develop an additional phaseout scenario that would reduce the CTC consumption for the 25 applications under Decision X/14 to 15 percent of the average consumption of 1998-2000 by 2005. An additional proposal with such a phaseout schedule for CTC is therefore provided in this note. In order to facilitate the review and enable a comparison, the original phaseout scenario proposed in the PA Sector Plan is included in this note. As further modifications might also result after discussions with the MLF Secretariat, The PA Sector Plan will be revised in accordance with the final agreement on PA phaseout scenario and funding.

National CTC Consumption and consumption in the PA Sector

3. The overall CTC production and consumption as reported to the Ozone secretariat is shown in Table I below. Data up to 2000 has been submitted. The data for 2001 is presently under collection and will be submitted in accordance with the reporting requirements; the data for 2001 below are best estimates. The data used below is further explained as follows:

i. 1997-2000 Production, imports and exports data is from reports by China to the Ozone Secretariat.
ii. 1997 Data of feedstock used for CFC production is calculated based on the production of CFC-11 and CFC-12, and the ratio of CFC-11/CTC and CFC-12/CTC from production sector verification.
iii. 1998-2000 Data of feedstock used for CFC production is from the national (CNAO) audit report of the CFC sector.
iv. 1997-2000 data of CTC used for process agent is from the process agent sector plan.

4. Consumption data is calculated using the MP definition (Consumption equals production plus imports minus exports minus feedstock use for CFC and quantity used for other process agents proposed by China (beyond the list of 25 applications).

Table I: National CTC Consumption and Production Data (data in MT)

Year	Production	Import	Export	Feedstock for CFC production	Process agents		Consumption
					Decision X/14 (List of 25)	Other applications proposed by China[1]	
1997	34780	32679	105	60761	2909	4511	2082
1998	31900	45975	31	64782	2707	5387	7675
1999	30036	53226	23	53534	2986	5224	24481
2000	48193	26092	61	48227	3593	5952	20045
2001[2]	58320	1	2	44108	3952	6547	7664

1: These applications will be treated as feedstock until a decision is taken by the Parties.
2: Assumes that consumption of CTC used for process agents (list of 25 as well as other applications proposed by China) in 2001 increased by 10% compared with that in 2000.

5. Unconstrained consumption of CTC in the process agents sector, as described in the Sector Plan, is projected to be as follows:

Table II: Unconstrained Demand for CTC in the Process Agents Sector

	Report	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
CR	Annex 1, Table 4 of Sector Plan	1,357	1,765	2,294	2,982	3,430	3,994	4,536	5,216
CP-70	Annex II, Table 5	2,236	2,482	2,755	3,058	3,395	3,768	4,183	4,643
CSM	growth of 6%/year (annex III, Paragraph 2)	987	1045	1108	1175	1245	1246	1399	1483
Ketotifen	growth of 10%/year (averaged from annex V, Table 3)	10.45	11.5	12.65	13.91	15.31	16.84	18.52	20.37
	Total	**4,590**	**5,304**	**6,170**	**7,229**	**8,086**	**9,024**	**10,137**	**11,363**

Original Phaseout Schedule

6. The proposal submitted to the ExCom earlier included the phaseout schedule as shown in the Table III below. This proposal for gradual phaseout over the entire 2003-2010 period originates from the previous categorization of process agents; until November 1998, there was no provision for process agents applications, and as these were not treated as controlled substance applications, they therefore did no appear in the Country Program for ODS phaseout.

Table III: Original proposed phaseout schedule scenario(in MT/a)

Product	**ODS used**	**Baseline (1999 consumption)**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
CP-70	CTC	932	932	782.52	640.32	498.12	498.12	355.92	317.72	317.72	0
CR	CTC	1142.3	1142.3	896.3	632	367	235	103.5	103.5	103.5	103.5
CSM	CTC	827	827	827	827	827	827	684	684	163.1	163.1
Ketotifen	CTC	10.35	10.35	10.3	8.3	5.3	2	2	2	2	2
PTFE	CFC-113	21.52	21.52	21.5	21.5	17.5	13.5	10.5	0	0	0
Subtotal		2,933	2,933	2,537*	2,129	1,715	1,576	1,156	1,107	586	269

Phaseout Scenarios for Compliance

7. Now that a decision has been taken to add a new scenario to meet the requirement by reducing its consumption of CTC in process agent applications from the average 1998-2000 consumption level of 3,094.6 MT CTC (3,404 ODP Tons) to 15 %, or 464.2 MT CTC (510.6 ODP Tons) by January 2005. Given the unwillingness of technology providers to easily transfer the technology and associated costs, it is not technically feasible to convert the current applications to non-ODS processes within the required time available (less than 2 ½ years for approval, procurement, contacting and implementation). The approach would therefore have to include a combination of policy measures on a national level and phaseout activities on enterprise level.

8. In order to meet its MP obligations, China will implement the CTC phaseout in the PA sector as follows:

i. China will reduce it supply of CTC for process agent consumption by 85% by January 2005 and forward.

ii. Assuming that Funds would be available from the MLF in 2003, all eligible enterprises in the CR, CP-70 and CSM sub-sectors would be invited to sign conversion or closure contracts latest by the end of December 2004.

iii. The annual consumption of CTC up to 2010 would also be limited through a quota system.

iv. China will concurrently establish a quota system for CTC production to ensure that the supply of CTC for feedstock and PA consumption conforms to MP requirements. (This assumes that the CTC production sector plan will be approved not later than 2004}

v. The Government will set up a monitoring system on CTC producers and PA enterprise level to ensure that the national consumption of CTC will be in compliance with the Montreal Protocol;

9. The CTC phaseout schedule will be as follows

Table IV: Revised phaseout Schedule

PA sub	1999	2002	2003	2004	2005	2006	2007	2008	2009	2010
CR	1,142	1,357	1,765	2,294	0	0	0	0	0	0
CP-70	1,007	2,236	2,482	2,755	0	0	0	0	0	0
CSM	827	987	1,045	1,108	352	373	396	419	444	
Ketotifen	10.45	11.5	12.65	13.91	15.31	16.84	18.52	20.37	10.45	
Unallocated					98	76	51	26	0	
	2,987	4,904	5,304	6,170	464	464	464	464	464	

10. The sector enterprises can decide on participating in the phaseout plan through either closure or conversion contracts.

i. Enterprises choosing closure would have to cease production and exit the industry by December 31, 2004 and have all their key equipment dismantled and destroyed within six months of this date. The full closure cost is provided in Table VI for comparison with other options.

ii. For enterprises choosing to convert their production processes, the contract will specify, in accordance with Government regulations, that they will not be allowed to buy any CTC from January 1, 2005 and it would be up to the enterprises to manage the period of transition until they have completed their conversion.

Choice of Phaseout Technologies

11. CR and CP-70 manufacturers will convert to water based technology, the only known non-CTC substitute technology used globally. It is expected that the conversion to water based technology for both CR and CP-70 producing enterprises would take 3 to 4 years, so enterprises would only be able to complete their conversion at the earliest by 2006. During the period of conversion and implementing emission control measures, the enterprises would have to shut down their production temporarily until the conversion has been completed. In order to evaluate or establish the costs associated with this scenario, the costs associated with a short shut down after January 2005 were compared and also listed in the last column of Table IV.

12. As no substitute technology is currently known for CSM and Ketotifen, their CTC phaseout would be based on emission control. For CSM, it is expected that implementation of the emission control measures would take at least 3 years.

13. Consistent with the current guidelines on the sector, emissions reductions will have to be brought down to "insignificant" levels which will be determined by the ExCom. In case this involves further reductions by 2010 and additional incremental costs to China, China would reserve the right to request additional funding for such reductions, to be based on the feasibility studies and international bids in accordance with normal World Bank rules and procedures.

Funding Schedule and Requirements

14. In Decision 27/78, it was agreed that proposals should be prepared consistent with all existing policies and guidelines of the ExCom, with the exception of the eligibility cut-off date of July 1995, which should not be applied as the decision to include CTC as a controlled substance was taken only at the tenth meeting of the Parties. The ExCom guidelines on process agent also requires, consistent with the Decision X/14 of the Parties, that the comparative costs of emission control technologies, process conversion, plant rationalization or closure should be evaluated, and that the cost-effectiveness and emission reductions which can be achieved should be presented. Finally, Decision 27/78 also states that cost-effectiveness of process agent projects will initially be considered on a case by case basis to provide a body of information which can be a basis for the establishment of appropriate cost-effectiveness thresholds in due course.

15. Phaseout costs for conversion of CR companies have been estimated based on the initial discussions with the MLF Secretariat and based on the experience from the only approved Chlorinated Rubber (CR) project.. A critical element in assessing the CR and CP-70 conversion cost, is the cost of technology transfer. At present, none of the technology holders has been willing to provide reasonable quotations at a level comparable with the conversion and

technology transfer costs of the sole approved CR project. The two main issues in descriptions received from technology providers has been the requirement to replace the entire existing equipment and to pay a high technology transfer costs.

16. The annual funding schedule for the compliance scenario is provided below.

Table V: Costs of Compliance Scenario (US$ million)

	1999	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
CTC Phase-Out Plan	2987	2987	2987	2987	447	447	447	447	447	165	
PA sub-sector											
CR			29.40	14.60	6.60	1.50					52.1
CP-70			38.60	12.00	2.00	1.00					53.6
CSM			10.30		0.25*	0.25*					10.8
Ketotifen			1.0								1.0
CFC-113					4.00	4.00	1.70				9.70
TA activities			0.5	0.25	0.25	0.25	0.25	0.25	0.25		2.00
Total MLF funding required			79.80	26.85	12.85	7.00	2.2	0.25	0.25		129.2

* Investment needed to improve emission control measures to "insignificant" levels (to be defined by the ExCom). The funding of $0.25 million is requested for feasibility studies on emission control to be carried out by experts familiar with CSM production and emission control technologies available.

17. China has also considered the costs of other scenarios , such as complete closure, as provided in the original sector plan document, but these options are found to be less cost-effective that the compliance scenario presented here. A comparison of the costs of alternative options is provided below:

Table VI: Comparison of Options

Application	Full closure Costs (as given in the Sector Plan)	Proposed funding in original Sector Plan	Costs of compliance scenario
CR	US$ 50.082	US$ 45.940	US$ 52.10
CP-70	US$ 49.552	US$ 49.720	US$ 53.60
CSM	US$ 19.358	US$ 6.393	US$ 10.8
Ketotifen	US$ 4.016	US$ 1.019	US$ 1.00
PTFE	US$ 222.481	US$ 9.700	US$ 9.70
TA	US$ 0	US$ 2.000	US$ 2.000
Total	US$ 345.489	US$ 114.772	US$ 129.2

Treatment of other applications (in addition to approved list of 25)

18. Consistent with previous decisions by the Parties to the Montreal Protocol regarding CTC used for process agent applications, it is China's understanding that the additional consumption

of 5,224 MT of CTC in other PA applications should be treated as feedstock, and is therefore exempt from controls under Protocol obligations, until the Parties take a new decision on these applications.

Other Issues raised in MLF Secretariat comments to ExCom

19. The MLF Secretariat has also commented (UNEP/OzL.Pro/ExCom/37/32 of June 20, 2002) on other issues relating to the Sector Plan document that need to be addressed. Apart from those already covered above, the following issues are addressed.

20. Specific mechanism for achieving necessary technology transfer: In order to identify potential technology providers, China is requesting a list of known technology providers from the PATF, China are seeking guidance from the MLF Secretariat on how to obtain such a list. Using World Bank procurement procedure, China will request these providers to provide offers of interest for specific conversions and contracts will be negotiated. Specific costs can only be presented after this exercise, which cannot be undertaken unless funding is made available.

21. Of particular importance is the issue of "eligible incremental costs" indicated in the ExCom's decision 37/20. This has limited relevance if closure is considered, but it is necessary to provide a description of existing baseline equipment so that a judgment can be made regarding what incremental costs are necessary for conversion. However, it is the technical opinion of China's experts that retrofit or salvage is not an option, and that the entire lines will need replacement. Attached is a Technical Annex that includes flow-charts of the revised configurations which can be reviewed to establish the validity of these assumptions, as also the components and detailed incremental costs of establishment of typical CP-70 and CR lines.

22. Date of eligibility of enterprises: China has already provided the reasons for considering January 1, 1999 as the appropriate date for establishing eligibility in process agents, and guidance is awaited on whether these reasons are acceptable. So far, no comments have been provided except a reiteration of the previous rules.

23. Closure compensation: Closure is one of the comparison options detailed in Decision X/14; in presenting closure costs, an effort has been made to capitalize the assets of the concerned companies. Guidance is requested on what other methods should be used.

24. Measurement of performance: As in other consumption sector plans, performance can be measured in two complementary ways: physical audits of the beneficiary enterprises to ensure localized phaseout, and caps on national consumption that confirm compliance of ODS supply. The latter issue can be addressed through the forthcoming CTC Sector Plan. As an example, the PU foam sector agreement stipulates national consumption limits on CFC-11 consumption that have to then be enforced by appropriate production quota caps in the CFC Production Sector Plan. The World Bank and China also reviewed the various reporting processes relating to data on consumption of CTC, and a summary is provided in Table I. China confirms that this is the final verified report in this regard (except the caveat for 2001).

25. Action Plans: as all enterprises must in any case participate in the sector plan, there will be limited requirement for setting up enterprise selection methods (bidding, etc.) or for annual targets; it is anticipated that 2003 would be spent in administrative and other arrangements, and phaseout activities would be initiated in 2004.

26. Penalties: Penalties can be set at twice the approved cost-effectiveness ratio for the sector plan.

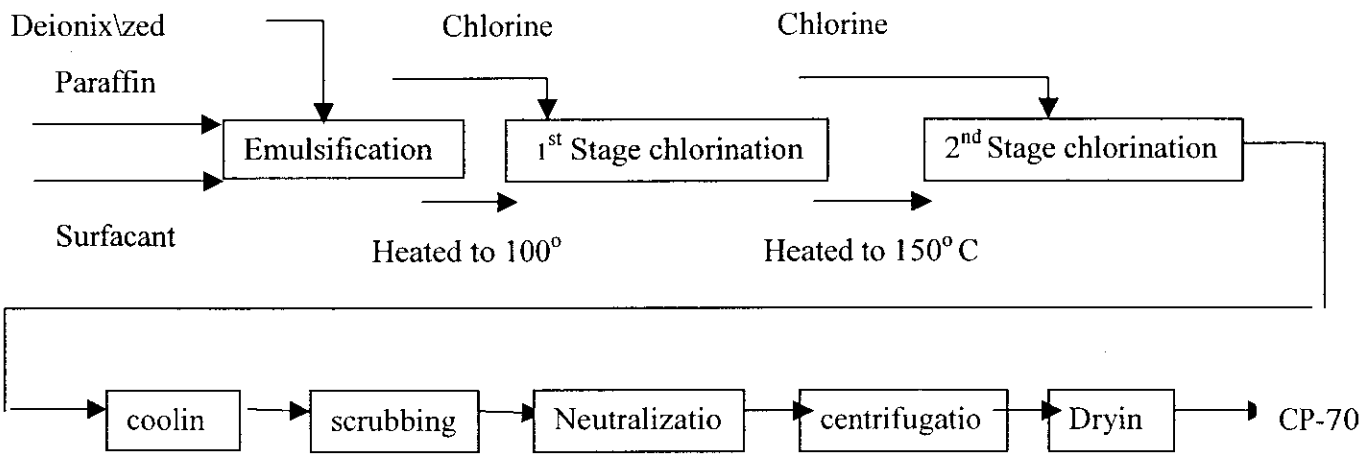
Technical Annex for China PA Compliance Scenario

Aqueous technology for CP-70

Description of the process for aqueous technology for CP-70

Paraffin or CP-42 are dispersed in aqueous or HCl solution with pertinent agents, and are sent to the chlorinating reactor. Chlorine gas is fed in for chlorinating reaction. When the chlorine content reaches 70±2%, the material in the reactor is discharged. After removing acids, neutralized by alkali solution scrubbing, the raw product is sent to the centrifuge and dried. The final product id packed for shipment. Meanwhile, dilute HCl solution is upgraded to concentrated hydrochloric acid as by-product.

Flow-sheet for CP-70 aqueous process



2. Main Equipment

Equipment	**Specification**
Chlorinating reactor	Special Material, 2000 L
Neutralization vessel	Special Material, 2000 L
Scrubbing vessel	
Stirrer	Material - Titanium
Centrifuge	SS - 8 0 0
Dryer	Horizontal fluidized bed
Electronic apparatus	
piping and valves	
Off gas treatment equipment	
Pressure Vessels for chlorine	
Vaporizing system for	

chlorine	
Miscellaneous	

3. Pollution treatment

In the process of producing CP-70, dilute HCl solution is produced. It should be neutralized till PH value of 6-8. Then, it can be discharged.

2000t/a CP-70 aqueous process pollutants and their treatments

Waste	Source	Component	Discharge rate, per year	Measures	Note
Waste gas	Tail gas after absorption by HCl solution	Gaseous chlorine	140394 m^3	Absorption by alkali solution	Meet the regulation of discharge
	Tail gas from chlorinating reaction	HCl,Cl_2	$1.1\times 10^6 m^3$	Liquid film absorber	
	Acid gas	HCl,Cl_2	10382m^3	Forced absorption by a stream pump, Neutralization of waster water containing acid	Meet the regulation of effluent
Waste water	Scrubbing water	CP-70,HCl	30000t	Precipitation of waste materials. Waste water neutralization and de-aeration.	Meet the regulation on effluent water
	Waste water containing acid	HCl	1650t	PH value 7-8 Pump to neutralization tower for neutralization treatment to pH value of 7-8	Meet the regulation on effluent

4. The main costs for setting up a for CP-70 plant are estimated as follows:

Source: Shenyang Chem Co Ltd				
Capacity: 2,000 TPA				
Technical sources: Imported aqueous technology				
Incremental Capital Costs				
	glass-lined reactor	6	1,800,000	
	photochemical system	4	600,000	
	Heat exchanger	6	280,000	
	process utility and pipig		700,000	
	storage tanks	2	280,000	
	effluent treatment system		100,000	

	Environmental treatment system		200,000	
	auxiliary equipments		564,000	
subtotal				4,524,000
Contingency				452,400
Incremental Operating Costs				
IOC for 2 years				
	power consumption and additional chemicals required			600,000
Technology transfer fee				1,500,000
preparation costs				
	Travel, trainning and project team salaries		40,000	
	Building modification		100,000	
	cost of trial production for 4 months		30,000	
	Designing fee		80,000	
subtotal				250,000
TOTAL				7,326,400

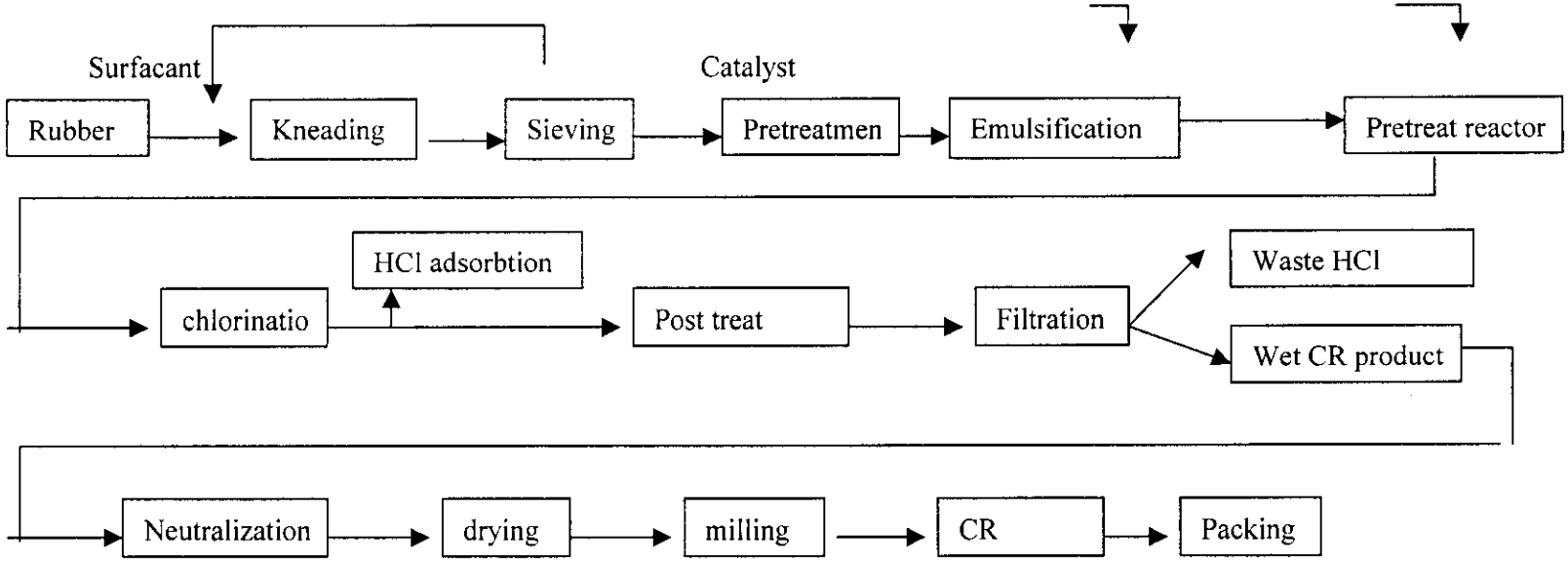
Aqueous technology for CR

1. Description of the process

The raw material is rubber that is cut into pieces and thereafter is rubbed into very fine particles and sieved and recycled the coarse fraction to the rubbing device. And then the fine particle is conveyed to a "pretreatment system". This system consists of an emulsion preparation system where also additives are fed (surfactant, stabilizer). From the suspension preparation system the feed is pumped to the pretreatment reactor, where water, hydrochloric acid and catalyst is added and the solution is homogenized to be ready for chlorination. When the next batch is started the contents of the pretreat vessel is pumped into the chlorination reactor (Both have equal volume). During chlorination, hydrochloric acid is vented to a HCl adsorption system; Residual inerts + HCl are neutralized in a tower fed with dilute caustic.

After chlorination, the suspension is pumped to the post treatment reactor to purge residual chlorine and some HCl and to adjust pH. This vessel also acts as feed bin for the filters (two in series) to separate the wet product. The wet product is fed to a dryer (rotary batch types or fluid bed). After drying the product is sieved and blended to specification. The flow-sheet of the CR Aqueous process, and an estimate of the main costs for setting up a CR plant, are provided below.

Flow sheet for CR production



Technical sources: Imported aqueous technology for 1000t/a CR production

Incremental Capital Costs

items	size	materials	unit price(US$)	quantity	price(US$)
solid rubber cutting facility	300kg/hr	304 stainless steel	135,000	1	135000
particle rubbing	300kg/hr	304 stainless steel	112,500	1	112500
Partcle feed system	300kg/hr	304 stainless steel	19,500	1	19500
Pretreat reactors	10m^3	304 stainless steel	29,000	2	58000
Pretreat transportation pump	0.3m^3/min	304 stainless steel	7,000	2	14000
Chlorinating reactors	10m^3	glass-lined or plastic lined	434,543	2	869086
Chlorination transportation pump	0.3m^3/min	glass-lined or plastic lined	7,000	2	14000
Post-treatment reactor	10m^3	plastic-lined steel	7,895	2	15790
1st stage solid separator	300kg/hr	plastic-lined steel	150,071	1	150071
2nd stage solid separator	300kg/hr	plastic-lined steel	150,071	1	150071
particle size control equipment	300kg/hr	304 stainless steel	225,300	1	225300
drying system	300kg/hr	304 stainless steel	195,000	2	390000
storage tanks for 12 hr products	3600kg solid/25m^3	304 stainless steel	52,800	1	52800
packing equipment	600kg/hr		22,500	1	22500
Feed system for additives	0.8m^3	304 stainless steelor FRP	800	2	1600
emulsion preparation system	0.8m^3	304 stainless steelor FRP	800	2	1600
catalyst preparation system	0.5m^3	304 stainless steelor FRP	250	2	500
chlorine vaporizer	600kg/hr	carbon steel	13,500	2	27000
Feed systemm for PH adapting	0.8m^3	304 stainless steelor FRP	800	2	1600
feed system for retardants	0.5m^3	305 stainless steelor FRP	1,500	2	3000
waste water storage system	25m^3	FRP	34,000	1	34000
waste water neutralization system			10,000	1	10000
condensers			15,000	2	30000
collectors of condensate	0.5m^3	plastic or glass-lined steel	500	2	1000
HCl adsorption system	600kg/hr HCl gas	glass-lined steel	96,000	1	96000
subtotal					**2434918**

Main items	cost of materials	Installation fee	total
principle equipment	2434918	66,169	2,501,087
Pipe lines	885,741	590,494	1,476,235
electronic items	338,301	276,794	615,095
Meters	516,682	221,435	738,117
Computer system	193,577	82,962	276,539

Building construction	147,888	344,454	492,342	
insulation	73,522	171,930	245,452	
Painting	61,540	184,592	246,132	
Incremental Investment Cost subtotal				6,590,999
Contingency				659,100
Basic engineering and technical service			80,000	
detailed design and implementation supervision			120,000	
Operating and safety training			100,000	
Pre-productive cost subtotal				300,000
Technology transfer fee				2,250,000
IOC for2-year due to power consumption and additional chemicals required				1,000,000
Total Cost				**10,800,099**

Neeraj Prasad
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THE CFC PRODUCTION SECTOR

CHINA

2003 ANNUAL PROGRAM

August 23, 2002

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Introduction

1. In accordance with the Executive Committee's approval of the "Agreement for the China Production Sector" (UNEP/Ozl.Pro/ExCom/27/48, Decision 27/82 and Annex IV), China is hereby requesting release of the fifth tranche of US$13 million for the implementation of the 2003 Annual Program. With this funding, China's CFC production will be reduced to a maximum of 30,000 ODP MT by the end of 2003. The production quotas issued will also ensure that the ceiling on overall national CFC-11 consumption of 15,500 MT for 2003 required in the "Agreement for CFC Phase-out in the Polyurethane Foam Sector in China" (UNEP/OzL.Pro/ExCom/35/19, Annex VIII) is met. Details of the 2003 annual program are provided in Section B.

2. Following the approval of the China CFC Production Sector Plan at the 27th Meeting of the ExCom in March 1999, China has been implementing the phaseout project according to the agreed phaseout plan. Through this period, China has also developed supporting policies and regulations. There were 37 CFC production plants in China in 1999; the number has been reduced to 7 producers in 2001. CFC production has correspondingly been reduced from 50,351 ODP Tons in 1997 to 36,196 ODP Tons in 2001, and will not exceed 32,900 ODP MT in 2002.

3. ***China's CFC phaseout obligations.*** Within the Sector Plan, China agreed to the following phaseout schedule for in Group I Annex A and Group I Annex B CFCs.

Table 1: CFC Production Phaseout Schedule[1/] and Annual Grant

Year	Annual Grant Funding	Agreed maximum production	Maximum planned production (based on quotas issued to producers)	Actual Production (confirmed by World Bank verification team)
	(ExCom Decision 27/82, Annex IV)			
	US$ (million)	(ODP Tons)		
1999	20	44,931	44,853	44,793
2000	13	40,000	39,998	39,991
2001	13	36,200	36,198	36,196
2002	13	32,900	32,898	
2003	13	30,000		
2004	13	25,300		
2005	13	18,750		
2006	13	13,500		
2007	13	9,600		
2008	13	7,400		
2009	13	3,200		
2010	0[2/]	0		

1/ The baseline year for CFC production phaseout is 1997. Baseline year production of CFCs (comprising CFC-11, CFC-12, CFC-113, CFC-114, CFC-115, CFC-13) was 50,351 ODP Tons .

2/ Savings from earlier years would be used for funding the 2010 phaseout.

4. As can be seen from Table 1, CFC production was below the annual targets in each of the years of the program

5. Thirty-two technical assistance activities have been planned, including activities to strengthen the implementation capacity and conversion capacity of closure enterprises, preparation of standards to ensure quality and reliability of CFC substitutes, and CFC production monitoring, etc.

6. Two special initiative projects have been taken up. Under the first initiative, Government is supporting the construction of a facility to produce HFC-134a. Under the second initiative, the screening of alternatives to Methyl Bromide in soil fumigation was taken up to screen out effective alternatives for tested crops, and to provide references for policy-makers.

7. The detailed implementation status of the 1999 - 2002 Annual Programs is provided in Part A.

PART A

IMPLEMENTATION STATUS OF PREVIOUS YEARS' ANNUAL PROGRAMS

As of July 2002

Phaseout Target

1. Starting with a baseline production of 50,351 ODP MT in 1997, China has issued production quotas each year that have enabled its producers to successfully meet the annual production targets specified in the agreement between China and the ExCom. The annual production in each year has been confirmed by both a national audit of the annual program (conducted by the China National Audit Office) and an international verification of production commissioned by the World Bank. The annual phaseout targets, production quotas issued to meet those targets, and the verified actual production for the first three years' annual programs are summarized in Table 1 above. In the year 2002, there are seven remaining CFC producers, and quotas for production of 32,898 ODP MT have been issued to them to meet the production reduction target of 32,900 ODP MT.

Enterprise Phaseout Activities

2. Details regarding the enterprise phaseout and production activities in the 1999-2002 Annual Programs are summarized in Annex 1. Starting with 37 identified enterprises in 1999 (36 covered under the technical audit commissioned by the ExCom and one additional enterprise identified later), 30 enterprises have been closed under the Sector Plan, accounting for closure of capacity for production of 73,430 MT of CFCs. All reduction in 1999 was through closure of enterprises, and starting in 2000, the required reduction in production has been achieved through a combination of closures and reduction in enterprise quotas. Seven enterprises remained in production in 2002.

3. The 1999 Annual Program comprised three sets of closures. *Firstly*, under the production sector agreement, China committed to close and dismantle production facilities at 14 enterprises (listed in the agreement between China and the ExCom) that had not been in production in 1997 (though one of these lines did produce some CFCs in the early part of 1999, prior to the agreement). SEPA signed closure contracts with these 14 enterprises, resulting in a reduction of production capacity of 22,630 MT (Annex 1, Table 1.1). *Secondly,* contracts were also signed with 3 other enterprises for closing down production lines that had no production in 1997, resulting in a further reduction of production capacity of 4,000 MT (Annex 1, Table 1.2). *Finally,* after the quota regulation and bidding for 1999 quotas, contracts were signed with 7 enterprises to phase out additional production capacity of 23,800 MT (Annex 1, Table 1.3).

4. Under the 2000 Annual Program, closure contracts were signed with 5 enterprises so as to enable a phase out of production capacity totaling 15,500 MT in 2000 (Annex 1, Table 1.4) and one enterprise accepted a reduction in quota.

5. Under the 2001 Annual Program, three producers were closed, and contracts for complete closure were signed in November 2000 with these three enterprises, enabling a total reduction in production capacity of 7,500 MT(Annex 1, Table 1.5).

6. Under the 2002 Annual Program, CFC production needs to be reduced from 36,200 ODP MT to 32,900 ODP MT. As no CFC producers bid to close their production lines, CFC production quotas were reduced by administrative measures, and quota reduction contracts were signed with 6 of the 7 CFC producers, with one enterprise's quota being retained at the previous level. . Quotas were issued for a total production of 32,898 ODP MT. These producers (Annex 1, Table 1.6) remain in production in 2002. Unverified data for CFC production through the end of June 2002 indicates that these enterprises had produced 18,738 ODP MT of CFCs (or 56% of the annual quota).

7. As indicated above, annual programs have been audited every year by the China National Audit Office.

8. All the closed production lines for all the years (1999 to 2001) have also been visited each year by a World Bank verification team that has confirmed that they are no longer capable of producing CFCs and their key production equipment has been fully dismantled and destroyed. The World Bank team has also verified and analyzed the production data recorded at each enterprise, and has confirmed that the production in 2001 was within the target established under the Agreement.

9. No total closures were planned for 2002. It is expected that the World Bank verification of CFC production under the 2002 Annual Program will be conducted starting on January 17, 2003 to enable a report to the first ExCom meeting by February 2003.

Implementation of Policy Instruments

10. *Key instruments.* The key policy instrument of the program is the regulation promulgated for the introduction and implementation of an annual tradable quota system, entitled "Circular on Implementing the Quota System for CFC Production", by the State Environmental Protection Administration (SEPA) and the State Administration of Petroleum and Chemical Industry (SAPCI) on May 31, 1999. A bidding system was also introduced together with the promulgation of the tradable production quota. Under this regulation, some CFC producers were awarded grants through bidding in 1999 and 2000 to close their production, while a national CFC production quota within the annual target was issued to the remaining CFC producers in order to ensure that the national production for the year did not exceed the agreed target. In 2001, administrative measures were adopted to meet the agreed target, and 3 CFC plants were closed. In 2002, CFC production quotas have been allocated through administrative measures, with the remaining 7 producers being given quotas totaling 32,898 ODP MT to meet the production target.

11. On December 17, 2001, SEPA issued a site supervision regulation to strengthen the monitoring of CFC production, entitled "Regulation on Implementing Site Supervision to CFCs Production Enterprises". From January 1, 2002, all the remaining CFCs producers have been placed under year-round site supervision by supervisors designated by SEPA These supervisors are technical professionals located on site at production plants, and are from other CFC producing plants; this effectively enables the CFCs industry to help to monitor itself.

12. *Other instruments related to trade in CFCs*. A study on options for export/import management for Halons and CFCs, which would help China to monitor trade in CFCs and prevent illegal CFC trade, was completed in July 1999. A "Circular on Control Mechanism of Import and Export of ODS" and a "Circular on Strengthening Management of ODS Import and Export" were promulgated on December 3, 1999 and in April, 2000. The mechanism is implemented by the Management Office of ODS Import-

Export Control jointly administered by SEPA, the General Administration of Customs (GAC), and the Ministry of Foreign Trade and Economic Cooperation (MOFTEC), and helps China to monitor trade in ODS and eliminate illegal ODS trade. Two batches of *Export/Import Control List of ODS in China* have been promulgated in January 2000 and January 2001 respectively. Imports of Carbon Tetrachloride, a key feedstock for CFC production and also a controlled substance under the Protocol, were banned on April 1, 2000, and imports of CFCs are regulated by a permit system administered by MOFTEC.

Technical Assistance Activities

13. Thirty-two technical assistance activities have so far been planned under the annual programs, of which twenty-two were taken up for implementation. Fifteen TAs have been completed, and seven are still under implementation. Four TAs for the recruitment of international consultants were not activated as such recruitments were not required. Six TAs were cancelled as they were found to duplicate other activities, or were not considered feasible on further consideration. Details are provided in Annex 3.

14. The status of the 2002 technical assistance activities is as follows:

(a) Training of Personnel Involved in Implementation of Phaseout Activities. To implement the phaseout plan effectively, it is necessary to train staff in CFC production enterprises and audit agencies. The TOR was prepared and agreed by the World Bank in May, 2002. The activities are expected to be completed by March 2003.

(b) 2001 Performance Audit. The activity has been completed .

(c) Study Tour on Methods of Controlling Smuggling of ODS. A study tour to some developed countries is being planned. With the aim of exchanging information and experience on efficient management of ODS import and export, and measures to control illegal trade in ODS. Implementation is being initiated.

(d) Integration of ODS MIS into the monitoring system at the Border. The system is designed to monitor all ODS imports and exports and enable PMO to obtain access to mainframe data, and to check the status of utilization of import and export licenses issued by MOFTEC. The TOR has been cleared by the World Bank, and implementation will begin within 2002.

(e) Recruitment of international technical consultants. No technical consultants are expected to be recruited in 2002. This TA will be activated when necessary.

(f) Three new TAs have been added to the 2002 Annual Program.

i. Site Supervision for CFCs Production Enterprises. This activity was added to the program for the purpose of strengthening the supervision of CFC production. From Jan. 1, 2002, all the remaining CFCs producers have been placed under year-round site supervision by supervisors designated by SEPA. These supervisors are technical professionals located on site at production plants, and are from other CFCs producing plants; this effectively enables the CFCs industry to help to monitor itself. This TA is under implementation.

ii. Investigation of CTC/TCA production status in China and analysis of substitute technologies: following the approval of the carrying out of technical audit for CTC production, China proposes to urgently review data on CTC production, to coordinate the supply of CTC as feed-stock for CFC production, and for other applications. This TA would also promote efficient provision of information to the technical audit itself and set up basic

information for the future CTC/TCA production sector plan. This TA proposes to review the number of producers, year of start of production, capacity and condition of production lines, data on production in recent years, and options for substitute technology, etc. Terms of reference are being developed, and the TA will commence within 2002.

iii. Study and tour of Performance audits. The China National Accounting Office (CNAO) are the performance auditors for the CFC production sector plan. As their previous experience with performance audits in China is limited, it is proposed that the audit team would visit neighboring countries to discuss procedures and monitoring systems and review best practices for performance audit processes applied in those countries.

Special Initiatives

15. As the phaseout of ODS production proceeds, the demand for substitutes in the consumption sector has increased rapidly. The impact of the first three years of implementation of the CFC sector plan equals a phaseout of more than 14,150 ODP tons of CFCs. The phaseout of CFC-11, which is the major foaming agent, has had an impact in the foam sector, and there is an urgent need to move into production of substitutes such as Cyclopentane and HCFC-141b. The use of CFC-12 as refrigerant in air-conditioners installed in all newly produced cars has been banned from January 1, 2002. It is estimated that the demand for HFC-134a, presently the only substitute of CFC-12 in the MAC sector in China, will exceed 7,500 tons in 2005 in this sector alone, and could reach 19,000 tons by 2010. China therefore envisages an urgent need to initiate special initiatives to produce such substitutes to ensure that there is no shortfall in their supply. Under the provisions of maximum flexibility in section (d) of the Agreement for the China Production Sector, China has undertaken the following initiatives.

16. ***Establishment of HFC-134a Production facility.*** Xi'an Jinzhu Jindai Chemical Industry Co., Ltd. was selected as the beneficiary for this project in December 2000. A plant with final annual capacity of 10,000 Tons (with the first stage capacity of 5,000 tons) is under construction.

17. ***Screening of alternatives to Methyl Bromide in soil fumigation in China.*** The Institute of Plant Protection, Chinese Academy of Agricultural Sciences, was selected as the beneficiary for this project in April 2002. The purpose of this project is to screen out one or two economical, effective and simple alternatives for each crop tested, to confirm their acceptance by Chinese farmers and to provide references for policy-makers. Five sites were defined for testing of tobacco, strawberry, tomato, cucumber and hot pepper. The project is expected to be completed by the end of 2002. China is now reviewing its options regarding ratifying of the Copenhagen Amendment to the Montreal Protocol.

Plants producing HCFC-22 in China

20. As required by the agreement on the production sector, China has provided an updated list of the plants producing HCFC-22 in China, attached in Annex 2.

PART B

2003 ANNUAL PROGRAM

1. *Phaseout Objectives* The phaseout objective of the 2003 Annual Program is to ensure that CFC production in the year does not exceed 30,000 ODP MT. China is requesting the release of the **fifth annual tranche** of **US$13 million** as agreed in the overall CFC Production Sector Phaseout Plan to achieve this objective. It is envisaged that the US$13 million will be allocated for closing CFC production lines or reducing production levels in some CFC enterprises which received production quota in 2003, for special initiatives , and for Technical Assistance activities.

Program Activities During the Year

2. *Policy actions.* In 2003, the following policies and measures will continue to be implemented by the Government. These policies are considered necessary for the success of total CFC production phaseout in China.

(a) Tradable production quota – The regulation has been under implementation since 1999, and will continue.

(b) Export and import control mechanism – The Management Regulation on Export/Import Control of ODS, promulgated in December 1999 by SEPA in collaboration with Ministry of Foreign Trade and Economic Cooperation (MFTEC) and General Administration of Customs (GAC), covers all ODS as well as related equipment and facilities that produce or consume ODS. ODS Export/Import quota and permit systems have been adopted, and all enterprises wishing to export or import ODS must hold both a quota issued by SEPA and MFTEC, as well as specific export/import permits. GAC supervises exports and imports of ODS. China has also promulgated the Export/Import Control List of ODS in China, the First Group in January, 2000, and the Second Group in January 2001. Under this regulation, China has banned imports of CTC, and introduced quota and permit requirements exports and imports of CFC-11, CFC-12, CFC-113 (not used as solvent), CFC-114 & CFC-115, CFC-13, Halon 1211 and Halon 1301.

3. *Enterprise activities.* Through a combination of bidding, allocation of production quota and administrative measures, plant would be granted funds for full or partial closure. All CFC reduction or closure contracts are expected to be signed by the end of November, but in any case will be signed no later than the end of 2002. Closure projects are expected to take effect from January 1, 2003 and are to be completed by the end of June 2003. Key equipment should be dismantled and destroyed by the end of January 2003.

4. *Technical assistance* (TA) activities. The following TA activities are proposed for 2003:

(a) *Training of personnel involved in implementation of phaseout activities.* To implement the phaseout plan effectively, it is necessary to train staff in CFC production enterprises and audit agencies. Training is also needed for enterprises to understand the closure regulations.

(b) *Daily Site Supervision to CFCs Production Enterprises.* This TA will continue in this year and the following years. This activity was added to the program in 2002 for the purpose of strengthening the supervision of CFC production. From January 1, 2002, all the remaining

CFCs producers have been placed under year-round site supervision by supervisors designated by SEPA. These supervisors are technical professionals located on site at production plants, and are from other CFCs producing plants; this effectively enables the CFCs industry to help to monitor itself.

(c) *Provisioning for Policy Training program administered by UNEP*. At its 34th Meeting held in July 2001, the Executive Committee of the MLF approved (Decision 34/37) a proposal for Policy training for local authorities in China to be implemented through UNEP. Some of the funding for this training is to be met from funding for the CFC production sector project; this requirement will be covered in the year.

5. Other TA activities that are necessary for effective phaseout may be developed during the year. The above policy initiatives, enterprise-level and technical assistance activities are summarized in Table B.1 below.

Table B.1: 2003 Annual Program

CFC production phaseout targets						
	Funding (US$ mill.)	2002 Production Limit[1] (MT)	Phaseout in 2003 (MT)	Allowed Production in 2003[2] (MT)	Performance Indicators	Key Dates
CFC (ODP Tons)	13	32,900	2,900	30,000	1. Closures of some current producers and reduction in production in remaining producers 2. Implementation of TA activities to help phaseout. 3. Production level not to exceed 30,000 MT	1. Dec. 2002-June 2003 2. Jan. 2003-Dec. 2003 3. Dec.31, 2003
Policy Initiatives						
Initiatives	Funding	Performance Indicators				Key Dates
1. Administrative measures	Incl .in TA n.a. n.a. n.a. incl. in TA	1. Training remaining enterprises for closing in 2003 2 Determine closing enterprises for 2003 3. Sign closure or partial closure contracts with CFC production enterprises 4. Implement closure or partial closure contracts 5 Train enterprises for closing preparation for 2004 reduction target				1. Sept. 2002 2. by Oct. 2002 3. Dec. 2002 4. Dec. 2002-June 2003 5. Sep. 2003
2. Tradable production quota for CFC producers	n.a.	1. Establish 2003 annual CFC production quota 2. Issue annual production quota to CFC producers for 2003				1. Dec. 2002 2. Feb. 2003
3. Import/export trade management	n.a.	1. implement the import/export trade management mechanism.				1. January 2003-December 2003
Enterprise activities						
	Funding (US$ million)	Existing enterprises		enterprises at end of 2003	Performance Indicators	Key Dates
Closure of CFC11/12/113 production lines	12.00	7		t.b.d.	1. Training of enterprises 2. Selection of closing plants, if any 3. Contracts signed 4. Facilities dismantled, and reports completed	1. Sept. 2002 2. Oct. 2002 3. Dec. 2002 4. no later than June 2003

[1] Per Agreement

[2] Maximum production quota that can be allocated for calendar 2003.

Table B.I: 2003 Annual Program (continued)

(Amount in US$ million)

Technical assistance activities			
Activities	Funding [1/] (US$ Million)	Performance Indicators	Key Dates
1. Training of personnel involved in implementation of phaseout activities.	t.b.d	1. TOR to be agreed with the Bank 2. Training on supervision and evaluation of CFC production, bidding system, management of CFC production quota system, and CFC Project Implementation Manual	1. June, 2003 2. Start in Jan. 2003. Specific schedules to be detailed in TORs
2. Implementing Site Supervision to CFCs Production Enterprise	t.b.d	1. TOR to be agreed with World Bank 2. Implementation.	1. January, 2003 2. January 1-December 31, 2003
3. Policy training managed by UNEP	0.457650	1. Performance Agreement to be signed between the World Bank and UNEP	By June 30, 2003.
4. others to be identified	t.b.d		
Subtotal	1.00		
TOTAL for phaseout activities	**13.00**		

[1/] These are estimated costs. After bidding for TA contractors, these costs will be adjusted to reflect contractual amounts for each TA. All TA activities are expected to be completed on schedule.

Annex 1
Status of CFC Producing Plants in the 1999-2002 Annual Programs

Table 1.1: CFC plants closed as part of ExCom approval conditions - April and May 1999

Sl.	SRI No.	Enterprise Name		CFC Production recorded					Status
			Capacity (MT/year)	CFC type	1999	2000	2001	2002	
1	A3	Shangdong Dongyue Chemical Co. Ltd.	5,000	CFC-12	1042	0	0	0	Closure verified August 1999
2	C2	Hunan Yiyang Chlor-Alkali Chemical Co. Ltd.	1,000	CFC-12	0	0	0	0	Closure verified August 1999
3	C5	Inner Mongolia Baotou Chemical Plant #1.	700	CFC-12	0	0	0	0	Closure verified August 1999
4	C1	Jiansu Jianhu Phosphate Fertilizer Plant	500	CFC-12	0	0	0	0	Closure verified August 1999
5	B4	Sichuan Zigong Fujiang Chemical Plant	1,500	CFC-11	0	0	0	0	Closure verified August 1999
			1,000	CFC-12	0	0	0	0	
6	B9	Zhejiang Linhai Jianxin Chemical Plant	800	CFC-12	0	0	0	0	Closure verified August 1999
7	A14	Guangdong Huiyang Chemical Plant	1,000	CFC-11	0	0	0	0	Closure verified August 1999
			3,000	CFC-12	0	0	0	0	
8	A1	Henan Hebi Chemical Plant #1	1,500	CFC-12	0	0	0	0	Closure verified August 1999
9	C3	Hebei Longwei Fluorochemical Plant #1	1,080	CFC-12	0	0	0	0	Closure verified August 1999
10	C4	Guizhou Wuling Chemical Plant	1,500	CFC-12	0	0	0	0	Closure verified August 1999
			50	CFC-13	19	0	0	0	
11	A15	Guangdong Zhaoqing Chemical Plant	500	CFC-12	0	0	0	0	Closure verified August 1999
12	C6	Shanxi Shangzhou Chemical Plant	2,000	CFC-12	0	0	0	0	Closure verified August 1999
13	B10	Zhejiang Linhai Shuiyang Chemical Plant	500	CFC-12	0	0	0	0	Closure verified August 1999
14	A12	Shanghai Shuguang Chem. Plant	1,000	CFC-113	0	0	0	0	Closure verified August 1999

Table 1.2: Additional CFC plant closures in 1999 -contracts of April and May 1999

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production				Status
					1999	2000	2001	2002	
15*	A2	Shangdong Jinan 3F Chemical Co. Ltd.	1,500	CFC-11	0	0	0	0	Closure verified August 1999
16	No SRI audit	Liaohe Chemical Group Chlor-Alkali Plant	1,000	CFC-12	0	0	0	0	Closure verified March 2000
17**	B15	Fujian Shaowu Floro-chem. Plant	1,500	CFC-11	0	0	0	0	Closure verified March 2000

Table 1.3: CFC plants closed as part of 1999 Annual Program - contracts of June 1999

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production				Status
					1999	2000	2001	2002	
18	B2	Chongqing Tianyuan Chemical Plant.	500	CFC11/ 12	14	0	0	0	Closure verified January 2000
19	B5	Hubei Wuhan Changjiang Chemical Plant	1,500	CFC-11	0	0	0	0	Closure verified January 2000
			4,500	CFC-12	0	0	0	0	
20	A5	Jiangsu Wuxian Juxing Chemical Plant	2,000	CFC-11	0	0	0	0	Closure verified January 2000
21	A6	Jiangsu Wuxian Union (City Link) Chemical Plant	1,800	CFC-11	0	0	0	0	Closure verified January 2000
22	B1	Jiangxi De'an Refrigeration Plant	3,000	CFC-12	0	0	0	0	Closure verified January 2000
15*	A2	Shangdong Jinan 3F Chemical Co. Ltd.	3,500	CFC-12	0	0	0	0	Closure verified January 2000
23	B6	Shanghai Chlor-Alkali Chemical Plant Co. Ltd.	7,000	CFC-12	687	0	0	0	Closure verified January 2000

Table 1.4: CFC plant closed as part of 2000 Annual Program - contracts of December 1999

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production				Status
					1999	2000	2001	2002	
24	A9	Jiangsu Wuxi Hushan Refrigeration Plant	4,000	CFC-11	560	0	0	0	Closure verified September 2000
25	B3	Sichuan Zigong Refrigerant Plant	1,500	CFC-11	198	0	0	0	Closure verified September 2000
			1,500	CFC-12		0	0	0	
26	B13	Zhejiang Lanxi Refrigeration Plant	2,500	CFC-11	785	0	0	0	Closure verified September 2000
27	B7	Zhejiang Rui'an Haitian Chem. Co. Ltd.	5,000	CFC-11	617	0	0	0	Closure verified September 2000
28	A4	Shandong Xuecheng Xinxing Chemical Plant	1,000	CFC-12	0	0	0	0	Closure verified September 2000

Table 1.5: CFC plants closed as part of 2001 Annual Program – contracts of November 2000

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production				Status
					1999	2000	2001	2002	
17**	B15	Fujian Shaowu Floro-chem. Plant	3,500	CFC-12	979	1,159	0	0	Closure verified June 2001
29	A7	Suzhou Xinye Chemical Co. Ltd.	3,000	CFC-11	7408	2,532	0	0	Closure verified June 2001
30	A11	Jiangsu Changsu Yudong Chem. Plant	1,000	CFC-113	545	545	0	0	Closure verified June 2001

Table 1.6: Remaining CFC producers by January 2002 (Quota reduction contracts signed in December 2001)

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production				Status
					1999	2000	2001	2002	
31	A8	Jiangsu Meilan Electric Chem. Plant	3,000	CFC-11	1766	1,050	1,050	480.76	Data not verified for 2002 (first half year reported)
			3,000	CFC-12	1866	1,793	1,793	570.94	
32	B14	Zhejiang Juhua Florochem. Com. Ltd.	4,000	CFC-11	3376	4,339	4,827	2,185.48	Data not verified for 2002 (first half year reported)
			8,000	CFC-12	6325	7,759	7,706	3,735.32	
33	A10	Jiangsu Changsu Refrig. Plant (Changsu 3F)	10,000	CFC-11	7960	8,192	8,222	5,476.30	Data not verified for 2002 (first half year reported)
			5,000	CFC-12	2780	5,019	5,075	1,932.43	
			4,000	CFC-113	2834	2,756	2,700	2,289.02	
			2,000	CFC-115	90	60	30	0	
34	B8	Zhejiang Linhai Limin Chem. Plant	3,000	CFC-12	1188	1,365	1,365	580.28	Data not verified for 2002 (first half year reported)
			50	CFC-13	27	27	27	9.59	
35	B12	Zhejiang Dongyang Chem. Plant	5,000	CFC-12	2053	2,219	2,219	1,047.38	Data not verified for 2002 (first half year reported)
36	A13	Guangdong Xiangsheng Chem. Co. Ltd.	3,000	CFC-12	1601	1,098	1,099	375.25	Data not verified for 2002 (first half year reported)
37	B11	Zhejiang Chemical Research Institute	100	CFC-114		7	7	12.42	Data not verified for 2002 (first half year reported)
			100	CFC-115	72	72	76	42.98	
		TOTAL ANNUAL PRODUCTION			**44,793**	**39,991**	**36,196**	**18,738.15**	

@: Separate lines closed at different times at this enterprise; it therefore appears twice in this table.
*: Separate lines closed at different times at this enterprise; it therefore appears twice in this table.

Annex 2

Updated List of HCFC-22 producing plants in China

Sl.	Name of Company
1.	Guangdong Huiyang Chemical Plant
2.	Hunan Zhuzhou Chemical Corporation (Group) (Hunan Zhuzhou Chemical Group Co., Ltd.)
3.	Zhonghao New Chemical Materials Co., Ltd.
4.	Jiangsu Changshu Elf Atochem 3F Co., Ltd. (ATOFINA-3F Fluoro-Chemical Changshu Co, Ltd.)
5.	Jiangsu Meilan Electric Chemical Plant (Jiangsu Meilan Chemical Co., Ltd.)
6.	Liaoning Fuxin Fluoro-chemical Plant (Fuxin Fluoro-Chemical Co., Ltd.)
7.	Shanghai Chlor-Alkali Chemical Co. Ltd. (Fluoro-Chemical Factory Of Shanghai 3F New Materials Co., Ltd.)
8.	Sichuan Chenguang Chemical Research Institute Plant No.2 (Zhonghao Chenguang Research Institute of Chemical Industry)
9.	Sichuan Zigong Refrigeration Plant
10.	Shandong Jinan 3F Chemical Co., Ltd. (Jinan 3F Fluoro-Chemical Co., Ltd.)
11.	Shandong Dongyue Chemical Co., Ltd.
12.	Shandong Fire Extinguishing Agent Plant Shouguang Division (The Fire Extinguishing Agent Factory Under Shandong Haihua Group Co., Ltd.)
13.	Sichuan Zigong Fujiang Chemical Plant
14.	Wuhan Changjiang Chemical Plant
15.	Zhejiang Juhua Fluoro-chemical Co., Ltd.
16.	Zhejiang Dongyang Chemical Plant (Zhejiang Fluorescence Chemical Co., Ltd.)
17.	Zhejiang Linhai Limin Chemical Plant (Zhejiang Linghai Limin Chemical Co., Ltd.)
18.	Zhejiang Yingpeng Chemical Co., Ltd. (Yingpeng Chemical Co., Ltd.)

Notes:

1. The enterprise name in the brackets are the current name of the enterprise (as established by CFC-01-TA-06, the 2001 TA on Verification of HCFC-22 Producers).
2. One HCFC-22 plant from the 2002 Annual Program list,(Sl. No.3) Jiangsu Changshu Refrigeration Plant has been closed and dismantled in January, 2002
3. One new plant has been added; Zhonghao New Chemical Materials Co., Ltd. The plant was constructed in beginning of 2002 (Sl. No. 3 in this list).

Annex 3

Technical Assistance Activities, 1999-2002

Table 3.1: Implementation of Technical Assistance Activities in the 1999 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date	Implementation status/Remarks
CFC-99-TA-01	Production of an ODS Phaseout Video	Promulgation and Education Center for Environmental Protection	July 12, 1999	December 1999.	**Completed.** An ODS Phaseout video was prepared and broadcast for public information during the 11th meeting of the Parties in Beijing in November 1999. The video, as well as six TV advertisements prepared under the activity, were broadcast on national TV to raise awareness of the general public and authorities in China concerning the necessity for ODS phaseout and the urgency of phaseout activities.
CFC-99-TA-02	Development of a Management Information System	Haitong Chuangye Company and Beifang Silu Information Tech. Company of Tsinghua University	September 13, 1999	December 1, 2000	**Completed.** An MIS was established to monitor and generate final production data and program progress reports
CFC-99-TA-03	Development of Substitute Strategy	Center of Environmental Science, Peking University and Zhejiang Chemical Research Institute	June 26, 2000	June 30, 2002	**Completed.** A report was finalized by the end of June, 2002. The strategy provides very useful guidelines for developing and investing in ODS substitutes Copies of the strategy document will be distributed to relevant administrations and associations for reference and guidance.
CFC-99-TA-04	Formulation of Standards for Cyclopentane, HCFC 141b, and HFC 134a	Shanghai Institute of Organic Fluorine Materials	April 28, 2000	March 23, 2001	**Completed.** After preliminary sampling of HCFC-141b and HFC-134a, the preliminary content and standards parameters were confirmed with the Government's administrative unit for standards. The draft standards report were completed in June, 2001 and submitted to the Standardization Committee of the State Bureau of Quality Supervision, quarantine and inspection for approval. The standards are expected to go into force by end of 2002.
CFC-99-TA-05	Training of Personnel involved in	SEPA		May 16, 2000	**Completed.** Training was organized for local officials, CFC producers

	Phaseout Implementation Activities				and auditors.
CFC-99-TA-06	Supervision and Management of Export/Import of ODS				**Cancelled**. Objective covered through a similar TA project in the Halon Sector
CFC-99-TA-07	Studies on Market Prospects for Closure Enterprises	SEPA		October 9, 2000	**Completed.** Eight enterprises were funded for exploring alternative economic options to CFC production.
CFC-99-TA-08	National Workshop	SEPA		June 5, 2000	**Completed.** This workshop included introductions by domestic research institutes of research topics relating to nine categories of CFC substitutes, fine fluorine chemicals, electrical fluorinated chemicals, electronic pure chemical reagents, special fluorine-containing drugs and agrochemicals (herbicide, insecticide etc.), production of these chemicals, and their potential market prospects. Many sector plan enterprises attended.
CFC-99-TA-09	Bidding Evaluation for HFC-134a Feasibility Study	CNCCC	January 28, 2000	January 14, 2001	**Completed.** Four proposals for undertaking a feasibility study for the construction of a HFC 134a production facility were evaluated, and a contract was signed with the winner.
CFC-99-TA-10	Survey on the ODS Application as Chemical Process Agents in China	Beijing University of Chemical Technology	December 10, 1999	January 12, 2000	**Completed.** This project provided a Report of Preliminary Survey on the ODS Application as Chemical Process Agents in China, and was used as the basis for further preparations on the proposed preparation of the Process Agent Sector Phaseout Plan in China.
CFC-99-TA-11	Recruitment of international technical consultants				**Cancelled**. No technical consultants were recruited internationally for TA activities in the year.

Table 3.2: Implementation of Technical Assistance Activities in the 2000 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date	Implementation status/Remarks
CFC-00-TA-01	Formulation of Standards for HFC-152a, and Isobutane	Zhejiang Chemical Research Institute	June 15, 2001	July 2002	**Ongoing.** Expected completion by end 2002
CFC-00-TA-02	Studies of Market Prospects for Closure Enterprises	SEPA	March 3, 2001	December 31, 2001	**Completed.** Six enterprises were supported to find production alternatives under this program.
CFC-00-TA-03	Training of Personnel Involved in Implementation of Phaseout Activities	SEPA		March 11, 2001	**Completed.** Training was organized for Audit staff, CFC producers and auditors.
CFC-00-TA-04	Performance Audit for 1999	China National Accounts Office	May 10, 2000	June 30, 2000	**Completed.**
CFC-00-TA-05	Verification of HCFC-22 Producers				**Deferred to 2001**. See CFC-01-TA-06.
CFC-00-TA-06	Recruitment of international technical consultants				**Cancelled.** No technical consultants were recruited internationally for TA activities in the year.

Table 3.3: Implementation of Technical Assistance Activities in the 2001 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date	Implementation status/Remarks
CFC-01-TA-01	Feasibility study of industrialized technology for CTC conversion to chloro-hydrocarbons other than CTC				**Canceled:** The CFC team concluded after field visits and a workshop that the technology was still under development.
CFC-01-TA-02	Training of Personnel involved in Phaseout Impl. Activities	SEPA		March 19, 2002	**Completed.** Training was organized for Customs staff, CFC producers and auditors.
CFC-01-TA-03	Assessment and Risk Analysis of Implementing Montreal in china	Institute of Environmental Economics Renmin University of China	August 15, 2001	October 15, 2002	**Under implementation:** Expected to be completed by end 2002.

CFC-01-TA-04	Studies of Market Prospects for Closure Enterprises				**canceled** as two of the three enterprises being closed in the year had already been covered under the 2000 Annual program, the third enterprise reduced its production quota only and did therefore not require any support. None of the remaining plants were to close in 2002.
CFC-01-TA-05	Performance Audit for 2000	China National Accounts Office	March 2001	June 30, 2001	**Completed.**
CFC-01-TA-06	Verification of HCFC-22 Producers	Chinese Industrial Association of Organo-Fluorine Silicone Materials	June 4, 2002	September 20, 2002	**Completed:** An updated list of HCFC-22 producers is provided in Annex 2. The list is the result of the study undertaken through the TA.
CFC-01-TA-07	Recruitment of international technical consultants				**Cancelled**. No technical consultants were recruited internationally for TA activities in the year.
CFC-01-TA-08	Significant New Alternative Processes (SNAP)				**Cancelled** as it was found that more preparatory work was necessary, including identification of key experts, before taking it up. It will be brought up in a later annual program.

Table 3.4: Implementation of Technical Assistance Activities in the 2002 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date	Implementation status/Remarks
CFC-02-TA-01	Training of Personnel involved in Phaseout Impl. Activities	SEPA		March 19, 2002	**Completed.** Training was organized for Customs staff, CFC producers and auditors.
CFC-02-TA-02	Performance Audit for 2001	China National Accounts Office	March 2002	June 30, 2002	**Completed.**
CFC-02-TA-03	Study Tour on Methods of Controlling Smuggling of ODS	SEPA			Under preparation
CFC-02-TA-04	Integration of ODS MIS	SEPA			Under preparation
CFC-02-TA-05	Recruitment of international technical consultants				**Cancelled**. No technical consultants were recruited internationally for TA activities in the year.

CFC-02-TA-06	Site supervision for ODS Producing Enterprises				Added in 2002. TOR Under preparation
CFC-02-TA-07	Investigation of CTC/TCA production status in China				Added in 2002. TOR Under preparation
CFC-02-TA-08	StudyTour of Performance Audit	The China National Accounting Office			Added in 2002. TOR under preparation.

Annex 4

Status of CFC producing plants under the CFC Sector Plan as of August 2002.

SI	SRI	Name of enterprise	Status
8	A1	Henan Hebei Chemical Plant #1. 1 CFC-12 production line.	Closed and dismantled
15	A2	Shangdong Jinan 3F Chemical Co. Ltd. 1 CFC-11 production line	Closed and dismantled
1	A3	Shangdong Dongyue Chemical Co. Ltd. 1 CFC-11 and 1 CFC-12 line	Closed and dismantled
28	A4	Shandong Xuecheng Xinxing Chemical Plant 1 CFC-12 production line	Closed and dismantled
20	A5	Jiangsu Wuxian Juxing Chemical Plant 1 CFC-11 production line	Closed and dismantled
21	A6	Jiangsu Wuxian Union (City Link) Chemical Plant. 1 CFC-11 production line	Closed and dismantled
29	A7	Suzhou Xinye Chemical Co. Ltd. 2 CFC-11 production line	Closed and dismantled
31	A8	Jiangsu Meilan Electric Chem. Plant 1 CFC-11 line and 1 CFC-12 line	**In production**
24	A9	Jiangsu Wuxi Hushan Refrigeration Plant 1 CFC-11 production line	Closed and dismantled
33	A10	Jiangsu Changshu Ref. Plant (Changshu 3F)	**In production**
30	A11	Jiangsu Changsu Yudong Chem. Plant 2 CFC-113 production line	Closed and dismantled
14	A12	Shanghai Shuguang Chem. Plant	Closed and dismantled
26	A13	Guangdong Xiangsheng Chem. Co. Ltd. 1 CFC-12 production line	**In production**
7	A14	Guangdong Huiyang Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line.	Closed and dismantled
11	A15	Guangdong Zhaoqing Chemical Plant. 1 CFC-12 production line.	Closed and dismantled
22	B1	Jiangxi De'an Refrigeration Plant 1 CFC-12 production line	Closed and dismantled
18	B2	Chongqing Tianyuan Chemical Plant. 1 CFC-11 production line,1 CFC-12 production line	Closed and dismantled
25	B3	Sichuan Zigong Refrigerant Plant 1 CFC-11 production line, 1 CFC-12 production line	Closed and dismantled
5	B4	Sichuan Zigong Fujiang Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line.	Closed and dismantled
19	B5	Hubei Wuhan Changjiang Chemical Plant 1 CFC-11 production line,1 CFC-12 production line	Closed and dismantled
23	B6	Shanghai Chlor-Alkali Chemical Plant Co. Ltd. 1 CFC-12 production line	Closed and dismantled
27	B7	Zhejiang Rui'an Haitian Chem. Co. Ltd. 1 CFC-11 production line	Closed and dismantled

34	B8	Zhejiang Linhai Limin Chem. Plant 2 CFC-12 production line and 1 CFC-13 production line	**In production**
6	B9	Zhejiang Linhai Jianxin Chemical Plant 1 CFC-12 production line.	Closed and dismantled
13	B10	Zhejiang Linhai Shuiyang Chemical Plant 1 CFC-12 production line.	Closed and dismantled
37	B11	Zhejiang Chemical Research Institute 1 production line to produce CFC-114 and CFC-115	Producing
35	B12	Zhejiang Dongyang Chem. Plant 1 CFC-12 production line	**In production**
26	B13	Zhejiang Lanxi Refrigeration Plant 1 CFC-11 production line	Closed and dismantled
32	B14	Zhejiang Juhua Florochem. Com. Ltd. Produce CFC-11 and CFC-12 in 1 production line	**In production**
17	B15	Fujian Shaowu Flouro-Chemical Plant	Closed and dismantled
4	C1	Jiansu Jianhu Phosphate Fertilizer Plant 1 CFC-12 production line.	Closed and dismantled
2	C2	Hunan Yiyang Chlor-Alkali Chemical Co. Ltd. 1 CFC 12 production line.	Closed and dismantled
9	C3	Hebei Longwei Fluorochemical Plant #1 2 CFC-12 production lines.	Closed and dismantled
10	C4	Guizhou Wuling Chemical Plant. 1 CFC-12 production line and 1 CFC-13 production line.	Closed and dismantled
3	C5	Inner Mongolia Baotou Chemical Plant #1. 1 CFC-12 production line.	Closed and dismantled
12	C6	Shanxi Shangzhou Chemical Plant1 CFC-12 production line	Closed and dismantled
16	Not SRI	Liaohe Chemical Group Chlor-Alkali Plant. 1 CFC-12 production line.	Closed and dismantled.

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2002 ANNUAL PROGRESS REPORT ON THE IMPLEMENTATION OF SOLVENT SECTOR PLAN FOR ODS PHASEOUT IN CHINA

AND

2003 ANNUAL IMPLEMENTATION PROGRAMME

submitted by
State Environmental Protection Administration (SEPA), China
and
United Nations Development Programme (UNDP)

A. BACKGROUND

At its 30th Meeting held in Montreal 29-31 March 2000, the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol (ExCom), by Decision 30/56, approved the "Agreement for ODS Phase out in China's Solvent Sector" (Agreement) on the phase out of ozone-depleting substances (ODS) in China's solvent sector at a total cost of $52 million to the Multilateral Fund (MLF).

The Agreement is for the phased reduction and complete phase out of the consumption of trichlorotrifluoroethane (CFC-113) and 1,1,1 trichloroethane (TCA), as well as the consumption of carbon tetrachloride (CTC) used as cleaning solvents in China.

The $52 million would be paid out in instalments over an eleven-year period in the exact amount of US dollars as specified in the Agreement, starting in the year 2000 and ending in 2010. By the approval of the Agreement, China committed that in exchange for the funding level specified, it will eliminate its total non-exempt CFC-113 and TCA consumption, as well as its total CTC consumption for solvent use in accordance with an agreed schedule. China further agreed that total non-exempt CFC-113 and TCA consumption in China, as well as the total consumption of CTC in the solvent sector in China will not exceed the levels agreed for specific chemicals in each year up to 2010.

China will phase out its CFC-113 consumption by 1 January 2006 and its CTC consumption by 1 January 2004, save for consumption of these two ODS for feedstock and process agent uses, and for CFC-113 consumption and CTC solvent consumption that may be agreed by the Parties to be essential for China after 2010. TCA will be totally phased out by 1 January 2010, save for any TCA solvent consumption that may be agreed by the Parties to be essential for China after 2015.

The United Nations Development Programme (UNDP) has agreed to be the implementing agency for this project for the first three years at a fee of 10% of funds allocated during that period. The fees for future years will be agreed between the Executive Committee and the implementing agency for the project.

B. ODS PHASEOUT ACTIVITIES

A series of preparatory activities took place immediately after the approval of the Agreement in March 2000. Project document was signed by SEPA and UNDP in June 2000 and work plan prepared. A Domestic Implementing Agency (DIA) was selected in August 2000 to assist SEPA in undertaking the day-to-day operational activities to facilitate enterprise level phase out.

1. 2000 ODS Reduction Contracts

Bidding for the 2000 ODS Reduction Contracts took place September 2000. 30 large and medium ODS solvent consuming enterprises in liquid crystal display (LCD) manufacture, compressor, electric vacuum and electronic component were identified as priority subsectors for early phase out. 20 out of the 30 enterprises submitted their bids by the closing date of 6 November 2000. A two-stage bid evaluation approach was utilized to evaluate the bids. 19 out of the 20 bids were qualified for the next stage of technical evaluation utilizing the following six criteria:

- priority of subsector;
- mature and advance alternative technology;
- reasonable and executable implementation plan;
- quality of documentation;
- management and financial condition of enterprise; and
- price.

The bid evaluation recommended 15 enterprises for the award of ODS Reduction Contracts that would phase out 473.169 tons of CFC-113, 15.6 tons of TCA and 7.6 tons of CTC. ODS Reduction Contracts for these 15 enterprises were signed on 27 November 2000. One more contract was signed on 21 February 2001 to phase out an additional 86 tons of TCA to meet all the phase out targets of each of the three solvents as stipulated in the 2000 – 2001 First Annual Implementation Programme.

The 16 ODS Reduction Contracts signed would therefore phase out 473.169 tons of CFC-113, 101.6 tons of TCA and 7.6 tons of CTC in 12 – 18 months, i.e. by June 2002. Total bid price for the 16 winning bids was RMB 58,799,444, counterpart funding by the enterprises amounted to RMB 24,641,414, total phase out cost for the ODS Reduction Contracts awarded is RMB 34,158,030, equivalent to US$ 4,132,353.

In April 2001, international competitive bidding for the equipment required for the 2000 ODS Reduction Contracts was advertised in newspapers in China and on international website. By the closing date of 13 June 2001, 15 domestic equipment manufacturers purchased the bidding document, 12 of them submitted bids. A Bid Evaluation Report and the recommendation of award were submitted to the Contracts Committee of the Foreign Economic Cooperation Office (FECO) of SEPA for review and approval. Contracts for the procurement of equipment were subsequently awarded to two lowest bidders in July 2001. Production of the equipment was closely monitored by the Special Working Group on the quality of materials and workmanship.

Throughout the production process, adjustments on technical specifications were being made to more accurately meet the specific cleaning requirements of the recipient enterprises. Unfortunately such adjustments led to delayed delivery from the original target date of December 2001.

Major equipment production has been completed by end of April 2002 with the exception of spacers for LCD enterprises. The equipment is now undergoing a final workshop adjustment and final inspection prior to delivery to enterprise sites. Some inspected equipment has already been delivered, tested and commissioned at three of the 16 enterprises during the period of May to August 2002, and their consumption phased out. The specifications for the spacers have been modified and finalized in early August according to information based on result of new findings from research and experiments. It is expected that the spacers will be delivered to the enterprises in early November 2002. All of the remaining 13 enterprises will have their equipment installed, test and commissioned latest by December 2002. Baseline equipment in all the 16 enterprises will be destroyed by the end of 2002.

The completion of some of the 2000 ODS Reduction Contracts in December 2002 will contribute to the phase-out target of 2003. It also means a six-month delay to the original completion target of 12-18 months.

2. 2001 ODS Reduction Contracts

According to the 2000 – 2001 First Annual Programme, the phase out of 655 tons of CFC-113 and 100 tons of TCA were to be achieved with the 2001 ODS Reduction Contracts and Voucher System.

Bidding documents for the 2001 ODS Reduction Contracts were issued on 2 April 2001 to 23 enterprises in the LCD, compressor, electronic vacuum, electronic components and mechanical processing subsectors. 21 of the 23 enterprises submitted bid by the closing date of 12 June 2001. The Bid Evaluation Committee recommended the award of contract to 19 successful bidding enterprises to phase out 676.978 tons of CFC-113, 27.973 tons of TCA. The Bid Evaluation Report was reviewed and approved by the Contracts Committee of FECO/SEPA. ODS Reduction Contracts with the 19 winning enterprises were signed on 5 July, 2001

The phase out amount of TCA again fell short of the required phase out target by 72.027 tons. DIA and national experts then carried out site visits and completed negotiations and finalized technical schemes with two more enterprises to phase out an additional 78 tons of TCA. Additional ODS Reduction Contracts were signed with these two enterprises in September 2001.

The 21 ODS Reduction Contracts signed in 2001 would therefore phase out 676.978 tons of CFC-113, 105.973 tons of TCA in 12 – 18 months after signature of the contracts. Total bid price for the 21 winning bids was RMB 56,050,140, counterpart funding by the enterprises amounted to RMB 20,003,300, total phase out cost for the 21 ODS Reduction Contracts awarded is RMB 36,046,840, equivalent to US$ 4,360,857.

Under the guidance of national experts, the 21 winning enterprises prepared technical specifications for the equipment required. Due to the wide range of sectors covered, the preparation of technical specifications required greater accuracy, it also required the national experts to spend more time and effort for an in-depth understanding of the actual situation and cleaning requirements of the enterprises, and more time to find the appropriate alternative cleaning solutions. Advertisement for the tendering of equipment was posted in August and September in Chinese and international websites. Bidding processing was initiated in September 2002. It is expected that contract award will be made the fourth quarter of 2002 for delivery early 2003, with completion of these 21 ODS Reduction Contracts targeted at June 2003, contributing to the phase-out reduction during 2003.

3. 2002 ODS Reduction Contracts

According to control targets stipulated in the Agreement, and the phase-out activities included in the 2002 Annual Implementation Programme approved by the Executive Committee at its 35th and 36th Meeting, China will phase-out 625 MT of CFC-113, 250 MT of TCA and 50 MT of CTC through ODS Reduction Contracts and Voucher System initiated in 2002. To accomplish these phase-out targets, DIA prepared bidding documents in March 2002. The Special Working Group on Solvent (SWG) and DIA held a Tendering and Training Meeting in Beijing from 17 to 19 April 2002. Close to 40 interested large and medium size enterprises participated. The enterprises were introduced on the China Solvent Sector Phase-out Plan and the requirements for national ODS solvent phase-out schedules. Bidding procedures, phase-out methodologies and qualification requirements for participation were introduced and carefully explained.

Of the 40 participated in the meeting, 17 purchased the bidding document at the meeting. From the number of bidding document purchased at the meeting, it can be foreseen that the phase-out activities may start to face a complicated situation. Some of the enterprises are not eligible to participate in the phase-out activity as they were established after July 25, 1995. Some enterprises consider the bidding procedure too complicated for the limited amount of grant they would receive and refused to participate in the bidding process, hence it may result in some of these enterprises prepare to phase-out at their own costs. Some enterprises are still hesitating to participate. In addition, some enterprises are not aware of the phase-out activities because of their remote locations. These ODS consuming enterprises are so scattered around that it is difficult for the SWG to find them. For this reason, other than intensifying its effort in the phase-out activities, China would promulgate regulation of issuing ODS Solvent Consuming Certificate to control ODS consumption from ODS production sources. Such regulation on issuance of ODS Solvent Consuming Certificate has been issued jointly by SEPA and the Ministry of Information Industry in June 2002.

Bids on 2002 ODS Reduction Contracts were opened on July 15, 2002, 36 enterprises submitted their bids. The bid evaluation took place 16 – 19 August 2002 by an Evaluation Committee of 11 technical experts from SEPA, DIA and various industrial sectors concerned. The evaluation result showed that 35 bidders were qualified, one bid was rejected because it failed to provide valid supporting documents to verify its actual ODS consumption.

The 35 successful bidding enterprises will phase out 695.36 tons of CFC-113, 482.39 tons of TCA and 16.31 tons of CTC with total contract price of RMB 33,832,883 equivalent to US$ 4,093,018. While the bidding results have been finalized and that the ODS Reduction Contracts can be awarded, UNDP has not authorized the signature of the 35 ODS Reduction Contracts, in compliance with ExCom Decisions 36/50 and 37/22 which decided that "no disbursement would occur until the required information on the use of carbon tetrachloride as a process agent (for the year 2000) has been provided" by China to the Executive Committee. Due to data verification, since February 2002 China was not in a position to provide UNDP with such information for reporting to the Executive Committee, neither at its 36th or 37th Meeting.

While signature of the 35 ODS Reduction Contracts has not taken place, UNDP and China can however report that, based on the results of the 2002 bidding, China will be able to sign 2002 ODS Reduction Contracts to phase-out sufficient quantity of solvents consumption to meet the reduction targets stipulated in the Agreement. The status of ODS consumption to be phased out as a result of the 2000, 2001 and 2002 ODS Reduction Contracts can be summarized as follows:

Table 1: Phase-out of 2000 – 2002 ODS Reduction Contracts

		CFC-113		**TCA**		**CTC**		**No. of Enterprises**	**Funding (US$ 1,000)**
		ODS tons	ODP tons	ODS tons	ODP tons	ODS tons	ODP tons		
2000 Bidding	Planned	466	372.8	100	10	0	0	10 – 20	$5,000
	Executed	473	378.4	101	10.1	7.6	8.36	16	$4,132
2001 Bidding	Planned	655	524	100	10	0	0	10 – 20	$5,505
	Executed	677	541.6	105.9	10.59	0	0	21	$4,361
2002 Bidding	Planned	625	500	250	25	50	55	20 - 40	$5,830
	Executed	695.36	556.29	482.39	48.24	16.31	17.94	35	$4,093
Three Year Cumulative Total	Planned	1,746	1,396.8	450	45	50	55	40 – 80	$16,335
	Executed	1,845.36	1,476.29	689.29	68.93	23.91	26.3	72	$12,586

With the exception of CTC, the quantities of phase-out under the 2002 ODS Reduction Contracts will exceed the targets set for CFC-113 and TCA. For CTC, the phase out quantity with the 2002 ODS Reduction Contracts will have a short fall of 33.69 MT, for the three year cumulative of 2000 – 2002, there is a short fall of 26.09 MT. It was found through actual investigation by SEPA that very few enterprises are using CTC as cleaning solvent. In fact so far, SEPA is only able to identify two enterprises using CTC as cleaning solvent, with consumption of 6.7 and 16.3 MT. It is believe that many of the CTC consuming enterprises have already phased out the use of CTC at its own cost, therefore the consumption of CTC will met the phase-out target.

4. Voucher System

A detailed operational procedure of the Voucher System has been prepared by the DIA and reviewed by the SWG. The procedure needs to be further simplified to suit the real situation of the SMEs to reduce the burdens imposed on the participating SMEs and the corresponding

operational workload, yet still be able to assure transparency, to achieve the most efficient and appropriate use of fund.

The procedure utilizes the industrial associations and local organizations as the intermediate execution agent (IEA) to locate those SMEs scattered around the country based on their experience and knowledge of these SMEs. The SMEs will be verified and registered by the IEA in accordance with the regulations specified by the SWG and then reported the registration to the DIA. Upon review and approval by SWG and FECO/SEPA, vouchers will be issued to the eligible SMEs through the IEA or the SWG. On completion of phase-out activities, IEA would be responsible for submitting a Project Completion Form to the DIA and SWG. Payment of the voucher amount will be made upon satisfactory verification and approval of FECO/SEPA.

DIA, together with SWG have already contacted the Beijing Municipal Environmental Bureau, the Tianjin Municipal Environmental Bureau and the Shanghai Academy of Environmental Science. All three departments expressed interest to undertake the role as IEA to implement the Voucher System. Based on discussions, the three departments already initiated actions to investigate and identify the small ODS consuming enterprises in their corresponding areas.

5. Relevant Policies

Throughout the period of the 2000 – 2002, China has initiated and effectively implemented policy actions to facilitate ODS phase-out. In order to control ODS production and selling situation, FECO/SEPA, jointly with the Ministry of Information Industry (MII), issued on June 20, 2002 the "Notice of Issuing Execution Methods on Issuing Usage Certificate on Selling ODS Products". The main contents of the Notice covers the following:

i) From May 25, 2002 all those who are producing ODS must strictly produce the ODS against the production quota of the year. The ODS producing factories must sell ODS products against the buyer showing their ODS Usage Certificate issued by FECO/SEPA.

ii) From May 25, 2002 all ODS consumers must apply to FECO/SEPA's designated unit to obtain the ODS Usage Certificate.

According to the operational procedures, the responsibility of issuing the ODS Usage Certificates has been assigned to China Cleaning Engineering Technique Cooperation Association (CCETCA). From August 9, 2002 up to now, CCETCA has issued such ODS Usage Certificates to 199 enterprises at all production levels.

C. TECHNICAL ASSISTANCE ACTIVITIES

1. Training Activities

Training activities were conducted in Amoy in January 2002, in Beijing in February and April 2002 for over 200 participants from the candidate enterprises for the 2002 bidding. Training programme includes:

- Introduction of Solvent Sector Plan and its execution modality;
- Preparation of bid proposal and how the bidding will be executed;
- Introduction by technical experts on alternative technologies;
- Exchange and discussion between technical experts and enterprises.

A Training Workshop by international experts was conducted in Xian in August 2002 for over 100 national experts and enterprise technicians to provide the participants with:

- Alternative cleaning process/technologies;
- Available alternative solvents;
- Retrofit of equipment to non-ODS cleaning applications

2. Public Awareness & Promotion

The event of issuing the Notice on ODS Solvent Usage Certificate was publicized by China Environment Protection Daily on June 27, 2002.

The event of International Seminar and Training on Solvent Technology was reported and publicized by China Daily on August 15, 2002.

Currently the overall promotion plan for the Solvent Sector Plan is under review by FECO/SEPA and will be implemented upon approval by FECO/SEPA. The promotion will include raising public awareness in trade journals, publications, newspaper, news media, Radio and TV.

3. Strengthening of Alternative Technology Support System (ATSS)

To strengthen the ATSS, SWG started in May 2002 to investigate countrywide the capability of local solvent cleaning institutes and experts by issuing an Application and Registration Form, with the aim to identify all capable institutes or experts in the country to participate in ATSS. To-date, a total of 33 application forms have been received and are under reviewed. Upon completion of a qualifying and approval process by SWG and FECO/SEPA, the ATSS will be further strengthened and appropriate training will be conducted for these newly identified institutes and experts.

To further build up the capacity of the national experts, an international seminar on alternative cleaning solvents and technologies were held in Xian, attended by 100 national experts and technicians from the various ODS consuming enterprises. Discussions and exchanges were made between the international and national experts, to learn from each other's experience and knowledge.

With cooperation of MII, the third Technology Center has been established at the Fifth Research Institute in Guangzhou, Guangdong Province and relevant work has been started. A technology assistance plan is being developed based on the current conditions and equipment available so as to strengthen the center to provide technical assistance to the enterprises in various sub-sectors in the overall capability of measuring, testing and technical services to ensure smooth execution of the Solvent Sector Plan.

4. Solvent Sector Management Information System (SSMIS)

The development of the SSMIS has been basically completed by end March 2002. The SSMIS is currently under test-run and readjustment. It is expected to be fully operational from October 2002, and will form an integral part of the overall Management Information System, covering all sector plans approved and being implemented and will offer a useful integrated database.

5. Development and Investment of Alternative Solvents Production

During preparation for the implementation of the Solvent Sector Plan, China realizes that the most important challenge for a successful and smooth phase out in the solvent sector is the sufficient availability of good quality, workplace safe alternatives at reasonable low price. At present, China imports most of the alternative solvents at a very high price which is a major obstacle to getting the interest of enterprises to participate in phase out activities. Some local enterprises have embarked on the development and production of alternative solvents and equipment. SEPA strongly believes that one important activity in the successful implementation of the Solvent Sector Plan is to assist these local enterprises in the development of these alternative solvents that are identified to be of good potential substitutes and to provide investment in building up their production capacity in order to provide sufficient local supply to current ODS solvent consumers.

To ensure that non-ODS cleaning technologies are appropriate for various cleaning applications and that cleanliness requirements and production capacity can be maintained, experiments on alternative technologies and production-scale tests have been carried out in LCD and electronic vacuum sectors. Studies on alternative equipment and appraisal on economic impacts of alternative technologies were also carried out.

A comprehensive strategy on alternative solvents is being developed. Investigations on current situation, the development trend and anticipated demand on solvent alternatives, alternative cleaning technologies and products are being conducted. A comprehensive economic and technical impact analysis will be carried out to assess benefits and costs to the affected industrial sectors and the country as a whole. Based on these findings, a national strategy on alternative development during the compliance period and post-2010 will be finalized.

To meet the requirement of the development and production of alternative solvents, savings of $2 million from the bidding process for the 2000 and 2001 ODS Reduction Contracts has been reallocated to the development and production of alternative solvents. While no actual activity or expenditure has been incurred up to now, plan for such alternative production has been included in the recently inaugurated Industrial Park for Implementation of Multilateral Environmental Agreements located in Langfang Economic Development Zone in Hebei Province outside Beijing.

D. CONTROL TARGETS OF ODS SOLVENT CONSUMPTION

As phase out activities at the enterprise level will take at least 12-18 months to complete implementation, phase-out of ODS consumption will only be achieved upon completion of the ODS Reduction Contracts and destruction of baseline equipment. For example, project activities initiated under the sixteen 2000 ODS Reduction Contracts signed in November 2000 and February 2001, under the 2000 – 2001 First Implementation Programme would not result in any consumption phase out at the end of 2000 or 2001, but will only contribute to the phase out targets in 2002.

1. 2000 CONTROL TARGETS

As reported to the 36th Executive Committee Meeting, China met the 2000 consumption limits for CFC-113, TCA and CTC as stipulated in table a of the Agreement, through phase-out achieved on the completion of on-going individual projects. SEPA and UNDP also submitted the name list and quantities purchased of CFC-113 and CTC for exempted feedstock use. However, due to data verification, China was not able to provide the name list of enterprises and quantities purchase of CTC for process agent use for the year 2000, either to the 36th or the 37th Executive Committee Meetings. China is now able to report such information in Table 2 below:

Table 2 Name List and Quantity of CTC for Process Agent Use in 2000

Name of Enterprise	Quantity of CTC for Process Agent Use (MT)
Shenyang Chemical Ltd.	45.68
Shanghai Dihua Industrial Enterprise	156.02
Shangyu Qiming Chemical Ltd.	148.9
Jiangyin Falsheng Fine Chemicals	144.47
Shouchang Chemical Ltd.	62
Sichuan Longchangshenghua Chemical Plant	102
Zhejiang Longyoulude Pesticide Ltd.	47.06
Wuxi Chemical Group Co.	320.44
Huanghua Jinhua Chemicals Co.	292
Zhongyuan Oil Field Fluorine Rubber Plant	140
Guangzhou Haotianxue Group	201.56
Zhejiang Xinan Chemicals Group	200.89
Luzhou Longmatan Hongyuan Chemicals	147.65
Dalian Lushun Jianxi Chemical General Co.	250.6
Harbin Yibin Chemicals Co.	24.06
Jilin Chemical Ltd.	933.07
Zhejiang Huahai Pharmaceuticals	15.75
Total	**3,232.15**
Limit as per Agreement	*5,000 (5,500 ODP MT)*

With the provision of the above required information, China has now fulfilled its obligation under the Agreement. UNDP will therefore proceed with authorization for the signature of the 2002 ODS Reduction Contracts, and the subsequent disbursement of funds for the implementation of the 2002 Annual Implementation Programme.

2. 2001 CONTROL TARGETS

Based on official data and statistics on China chemical production and import & export obtained by SEPA, the total domestic consumption of CFC-113 and TCA in 2001 has met the phase-out targets specified in Table a of the Agreement. While annual usage of CTC all over China is around 60,000 to 70,000 MT, the consumption of CTC as cleaning solvent cannot be increased or changed drastically from 2000, and CTC consumption for the year 2001 would not exceed 100 MT. China has therefore met the reduction targets on the three chemicals as well as the overall consumption limit for the year 2001.

Table 3: ODS Solvent Consumption for the Year 2001 unit: ton

	CFC-113		TCA		CTC	
	ODS	ODP	ODS	ODP	ODS	ODP
Consumption Control Target	3,375	2,700	6,130	613	100	110
Production	4,194.39		390			
Import	0		3,602			
Export	32		1			
Raw Material Usage	819.40		-			
Solvent Consumption	3,342.99	2,674.4	3,991	399.1	<100	<110

In accordance with paragraph c of the Agreement, a list of name of enterprises and the quantities purchased of CFC-113 and CTC for exempted feedstock use and process agent use for the year 2001 is presented in Table 4 and Table 5 below. With the exception of CFC-113 for exempted feedstock use that exceeds the 10 ODP ton limit, all other limits were met.

Table 4 Name List and Quantity of CFC-113 and CTC for Exempted Feedstock Use in 2001

Name of Enterprise	CFC-113 for Exempted Feedstock Use (MT)	CTC for Exempted Feedstock Use (MT)
Changshu 3 F Chemical Industry Co. Ltd.	86 or CFC-115)	
	526 (for CFC-113a)	
Zhejiang Chemical Industry Research Institute	207 (for CFC-114 & 115)	
Juhua Fluoro-Chemical Co. Ltd.		16,428.9
Dongyang Chemical Plant		3,010.5
Linhai Limin Chemical Plant		1,970.4
Guangdong Xiangsheng Chemical Co. Ltd.		1,507.8
Jiangsu Meilan Electro-Chemical Plant		3,773.7
Jiangsu Changsu 3 F Refrigerant Co. Ltd.		17,417
Total	819	44,108.3
Limit in Agreement	*12.5 (10 ODP MT)*	*60,000 (66,000 ODP MT)*

Table 5 Name List and Quantity of CTC for Process Agent Use in 2001

Name of Enterprise	Quantity of CTC for Process Agent Use (MT)
Shenyang Chemical Ltd.	74.62
Shanghai Dihua Industrial Enterprise	147.45
Shangyu Qiming Chemical Ltd.	151.7
Jiangyin Falsheng Fine Chemicals	150.44
Shouchang Chemical Ltd.	56
Sichuan Longchangshenghua Chemical Plant	126
Zhejiang Longyoulude Pesticide Ltd.	41.48
Wuxi Chemical Group Co.	122.97
Huanghua Jinhua Chemicals Co.	289.7
Zhongyuan Oil Field Fluorine Rubber Plant	140
Guangzhou Haotianxue Group	173.91
Zhejiang Xinan Chemicals Group	173.29
Luzhou Longmatan Hongyuan Chemicals	16.09
Dalian Lushun Jianxi Chemical General Co.	332.3
Harbin Yibin Chemicals Co.	37.55
Jilin Chemical Ltd.	1,063.17
Zhejiang Huahai Pharmaceuticals	25.92
Total	3,122.59
Limit as per Agreement	*5,000 (5,500 ODP MT)*

E. PERFORMANCE AUDIT ON 2001 PHASE-OUT TARGETS

1. SCOPE OF AUDIT

As mandated in the Agreement, UNDP has included the China Solvent Sector Plan in its regular annual management and financial audit in 2001 and 2002, undertaken by the National Audit Office of the People's Republic of China. The audit was conducted in conformity with the provisions of the project document, International Generally Accepted Auditing Standards, relevant Chinese auditing standards and the principles and procedures prescribed for the United Nations with respect to funds obtained from or through UNDP. The audit included examination of accounting records, tests of internal control systems and other procedures considered necessary for due performance of this audit. Opinion is expressed by the National Auditors on:

(a) Financial operations and controls
(b) Adequacy of the management structure
(c) Equipment use and control
(d) Monitoring, evaluation and reporting
(e) Project execution rate

In addition, the Foreign Funds Application Audit Department of the China National Audit Office (CNAO) was engaged by SEPA and UNDP to undertake a specific performance and financial

audit of the 16 recipient enterprises under the 2000 Annual Implementation Programme, as well as activities under the overall Solvent Sector Phase-out Plan.

From 4 to 7 February 2002, a training workshop was held in Shenzhen where the auditors from the Foreign Funds Application Audit Department (FFAAD), national technical experts, project officials of SEPA and UNDP train the auditors from the related audit offices from 10 provinces and municipalities who would participate in the audit exercise.

Auditors from local audit offices were authorized by CNAO to conduct audits on the 16 individual recipient enterprises, in accordance with the uniform audit programme. They submitted individual audit reports to FFAAD. FFAAD itself directly audited SEPA on the overall situation of the implementation and financial receipt and expenditure of the Solvent Sector Plan. FFAAD was assisted by two technical experts in auditing 3 of the 16 individual enterprises. The technical experts submitted the appraisal on each sub-project and prepared their technical reports that were submitted to FFAAD. FFAAD in turn reviewed and summarized the individual sub-project reports by the local audit offices and the technical experts and consolidated to finalize the Audit Report on ODS Solvent Sector Phase out Plan.

The scope and main content of the performance audit includes:

i) The Management and Implementation Status of the ODS Solvent Sector Phase-out Plan:
   - Policies formulated
   - Measures taken
   - Project management status
   - Progress of project
   - Implementation status of the annual workplan approved by UNDP
   - Disbursement of grants

ii) 16 ODS Reduction Contracts in the 2000 Annual Implementation Programme
   - Bidding and contract signing procedures
   - Quantity of ODS solvent used in tendering year
   - Quantity of ODS solvent used in 2000 and 2001
   - Information of ODS cleaning equipment of the sub-project
   - Receipt and application of the grant
   - Progress of sub-projects
   - Evaluation of the implementation of sub-projects

2. AUDIT CONCLUSIONS AND FINDINGS

The audit produces the following observations and recommendations:

i) Project Management and Control

The audit results on SEPA and the plants showed that the Project Management Office's management and control on the project was efficient; the whole phase-out programme

was in conformity with the situation of China; and the regulations issued and measures taken which conformed to the actual situation of the project were the concrete guarantee to smoothly realize the phase-out. Furthermore, the allocation of funds was timely and a guarantee of the smooth implementation of the test and reconstruction work in the enterprises. By the end of December 31, 2001, the related management departments have formulated the policies and regulations. In 2002 SEPA formulated the following policies and regulations:

"Notification of list of ODS materials restricted in export and import Second Part (HuanKongFa[2001]No.6)". The notification was promulgated by SEPA, Ministry of Foreign Trade and Cooperation, Custom Administration for the management on the import and export of ODS materials.

ii) 16 ODS Reduction Contracts

As described in the 2000 Annual Implementation Programme, the phase-out quantity of ODS solvent for 2000 was 466 tons of CFC-113 and 100 tons of TCA.

In line with the requirement of UNDP and the Solvent Special Working Group, CNAO audited overall project implementation status and the projects of the 16 ODS Reduction Contracts. The contract phase-out quantity verified by SEPA for the 2000 Annual Implementation Programme was 473.169 tons of CFC-113, 101.6 tons of TCA and 7.6 tons of CTC. The audit found some discrepancies in the actual phase-out quantity of CFC-113 and TCA in six enterprises. Subsequent contacts between SWG and the enterprises had resulted in explanations on the mistaken figures arrived at by the Auditors. The enterprises have contacted the local auditors to correct the wrong figures included in the audit report.

The audit shows that most concerned sub-projects have suitable business scope, qualified staff competency and sufficient technical and management ability to implement the project. The application, disbursement of the grant almost can meet the requirement of the project agreement.

iii) Audit Findings

The 2000 annual plan was the first yearly plan of the ODS Solvent Sector Phase-out Plan. CNAO audit shows that overall the project was implemented smoothly and concerned project units were capable of implementing the sub-project. However CNAO still found some problems that need to be improved. The problems and the recommendation of the Auditors are as follows:

a. All enterprise level's phase-out process was delayed according to the contract. According to the contracts signed between FECO/SEPA and the 16 enterprises, the phase-out process should be completed in 18 months (by June. 30, 2002). But actually, the period of design of the new equipments was effected by many facts such as different

situation in different enterprises, etc. This affected the whole process greatly. All contracts cannot meet the time limit of 18 months.

Recommendation: FECO/SEPA should report to UNDP on this issue. Adjustment on the time limit is needed considering the complexity of this project and in the equipment design stage. Thus the practicability and obligation of the contract can be fulfilled.

b. The data about the volume of ODS solvent used in some enterprises which were reported to SEPA when tendering was not corrected and not in accordance with the contract quantity.

Recommendation: SEPA should strengthen its examination of enterprises' data when tendering. Furthermore, a promise from enterprises is needed and related regulations for punishment need to be established.

[Note: Subsequent contacts between SWG and the enterprises had resulted in explanations on the mistaken figures arrived at by the Auditors. The enterprises have contacted the local auditors to correct the wrong figures included in the audit report. SEPA and UNDP is waiting for the correction of the audit report.]

c. Some enterprises used the aided fund to pay consultant fees.

Recommendation: SEPA should urge the above enterprises to use the aided fund as required by contract and reconstruction plan. The above fund paid should be expended from enterprises' counterpart fund. Furthermore, SEPA should strengthen the training and supervision on the use of the aided fund.

d. Some reduction contracts have been adjusted, yet necessary procedure is lack for the reflection of these changes. For the reason of sequence of the procedure of implementing the project (First tender of reduction contract, second tendering of equipment), some equipment's actual procurement amounts were not consistent with the amount signed in the reduction contract. Yet necessary amendment to reduction contract is lacking and thus the practicability and obligation of the reduction contract cannot be ensured.

Recommendation: SEPA should complete necessary adjustment to reduction contract to reflect the change of the use of the aided fund. And necessary items for explanation of these changes needed to be amended in the original reduction contract. Thus the practicability and obligation of the reduction contract can be ensured

e. The audit found that one enterprise was in the process of preparing for bankruptcy, and the audit on SEPA also shows that second allocation of test and reconstruction fees to this enterprise has been suspended.

Recommendation: In the future implementation of the sector plan, SEPA should require enterprises to submit their financial information supported by annual audit report

and ask enterprises to ensure the truthfulness of the financial information. Also enterprises need to promise to report its significant change timely when attend bidding. SEPA should strengthen the examination of these data and operation situation to avoid influence to project from problems in business operation.

[Note: The enterprise has since been acquired by another enterprise that agreed to accept all contractual obligations. SEPA has checked all official documents and financial records and judged the transfer of ownership acceptable. The new enterprise will undertake all contractual obligations and carry on implementation of the sub-project.]

f. Sichuan Danpu Compressor Company did not follow the regulations required in the contract and project management rules (taking pictures in the destruction of the old equipment) and this will affect this project's final acceptance test.

Recommendation: SEPA should strengthen the training of the related project management rules to ensure the smooth implementation of the project.

g. CNAO's audit on the consultant fees collected by China Cleaning Engineering Technique Cooperation Association (CCETCA) shows that the invoice they used is not in accordance with related regulations set by Ministry of Finance.

Recommendation: SEPA should ask CCETCA to correct its action as required.

Since the 16 enterprises did not complete their phase-out process before July 2002 as required by the ODS Reduction Contract, the audit has not rendered an opinion on quantities of ODS phase-out.

3. INDEPENDENT TECHNICAL AUDIT BY UNDP

In addition to the performance and financial audit undertaken by China National Audit Office, UNDP's international and national solvent sector experts also carried out a technical audit in August 2002 at the only three (out of the 16) recipient enterprises who have their equipment installed, commissioned and have eliminated the consumption of ODS solvent. The three enterprises clean compressor parts and electronic materials for meters. The technical audit reviewed the ODS cleaning applications, the quantity of ODS consumption, the alternative solvents, the new non-ODS cleaning equipment installed and commissioned, and the fate of the baseline equipment.

The technical audit concluded that:

- Review of the three sub-project sites showed a high quality of engineering effort, good competency in designing the projects, strong skills in the manufacturing and installation of the cleaning equipment and process.

- The enterprises pointed out the need for the new solvent supplier (locally produced HEP-2) to supply better information on the use and disposal of this nPB-containing product.

- The equipment suppliers are making a strong effort to meet the specifications, and that there is sufficient engineering support to assure a relatively smooth start-up.

- The factories that are recipients of these sub-projects are committed to making the phase-out successful in their particular site, and they all have worked well with the equipment suppliers to adjust the basic specifications and include some very good ideas to improve performance and safety in loading and operating the equipment.

- In general, the alternative solvent works very well and the equipment all work acceptably. Cleanliness requirements, based on visual examination, were equal or better than the system that was replaced.

- While the baseline equipment has not been destroyed, but in storage waiting for SEPA and UNDP officials to witness the destruction, they have now operating with non-ODS cleaning application, ODS consumption has been phased out.

With the completion of these three enterprises in June to August 2002, a total of 42.89 MT of CFC-113, 86 MT of TCA and 7.6 MT of CTC have been eliminated, contributing to the phase out reduction in 2002. With the completion of the remaining 13 recipient enterprises to take place latest by the end of 2002, the reduction in ODS consumption in these enterprises will contribute to the reduction targets in 2003.

F. CONTINUATION OF UNDP AS THE IMPLEMENTING AGENCY FOR THE CHINA SOLVENT SECTOR PLAN FROM 2003 TO 2010

Through close collaboration and cooperation, SEPA and UNDP have established an excellent mechanism and procedure to operationalize the China Solvent Sector Plan. While there are many obstacles and problems that were encountered during the first three years of implementation, both SEPA and UNDP worked diligently to identify the problems and seek innovative solutions, through a process of consultation and negotiation. Appropriate management and technical support were provided by the UNDP Montreal Protocol Unit in New York and the UNDP China Country Office in Beijing. Periodic missions of UNDP technical experts and programme management staff have established excellent working relationship with the SWG, DIA, FECO/SEPA and Ministry of Information Industry staff. Activities are dictated by proper and transparent procedures.

To maintain the momentum of this difficult sector phase-out plan in the consuming sector, both SEPA and UNDP agree that UNDP should be retained as the implementing agency for this sector phase-out plan, for the duration of its remaining period, 2003 – 2010.

G. 2003 ANNUAL IMPLEMENTING PROGRAMME

The 2003 Annual Programme (Annex 1) is submitted for the review and approval of the Executive Committee. The 2003 Annual Programme will phase out 600 ODP Tonnes of CFC-113, 78 ODP Tonnes of TCA and 55 ODP Tonnes of CTC. Phase-out activities at the enterprises level will be achieved through ODS Reduction Contracts and the Voucher System for SMEs. In order that phase-out activities will be completed by the end of 2004, bidding for the 2003 ODS Reduction Contracts will be initiated early 2003, with ODS Reduction Contracts signed by June 2003. Vouchers for the SMEs will be issued by October 2003. The completion of these activities by the end of 2004 will contribute to the phase-out targets in 2005.

Necessary technical assistance activities are also included in the 2003 Annual Implementation Programme. Together with enterprise level phase-out activities and the necessary policy framework, the combined actions will facilitate the smooth and orderly phase-out of solvent consumption to achieve the phase-out targets stipulated in the Agreement. It is note that the consumption of CTC as cleaning solvent will be completely phase-out by 2004.

The Executive Committee is requested to approve the 2003 Annual Implementation Programme of the China Solvent Sector Plan at its 38th Meeting, as the basis for consideration of the release of the 2003 funding level of $5,755,000 and the corresponding support fees at a future Executive Committee Meeting.

H. ACHIEVEMENT OF PERFORMANCE INDICATORS

As reflected in Annex 2 to this Report, in implementing the ODS Reductions Contracts and technical assistance activities, China has been able to achieve the performance indicators stipulated in Table 5 of the Amended 2000 – 2001 First Implementation Programme.

Annex 1

SOLVENT SECTOR PLAN
FOR ODS PHASEOUT IN CHINA

2003 ANNUAL IMPLEMENTATION PROGRAMME

(January 2003 – December 2003)

September 25, 2002

SOLVENT SECTOR PLAN FOR ODS PHASE-OUT IN CHINA 2003 ANNUAL IMPLEMENTATION PROGRAMME

A. PHASEOUT SCOPE AND APPROACH

1. The Solvent Sector Plan uses a phased, performance-based approached as described in detail in the final version of "Solvent Sector Plan for ODS Phase-out in China" (March 30, 2000, hereinafter referred to as the "Solvent Sector Plan") to phase out consumption of CFC-113, TCA and CTC as cleaning solvents. In accordance to the Solvent Sector Plan, China will continue to phase out ODS of CFC-113, TCA and CTC used as cleaning solvents through well structured annual implementation programmes. The scope of work for the 2003 Annual Implementation Programme will include the following:

(a) Undertake, sign and initiate implementation of ODS Reduction Contracts with 20 - 40 large enterprises and redeem vouchers with about 100 small enterprises to phase out 600 ODP tons of CFC-113, 78 ODP tons of TCA and 55 ODP tons of CTC so as to realize the phase out at the end of 2004;

(b) Further strengthening and optimization of the Alternative Technology Support System (ATSS);

(c) Implementation of the Voucher System;

(d) Continue to undertake technical assistance activities; and

(e) Continue to formulate related policies.

B. ACTIONS AND FUNDING

2. Solvent consumption phase-out requires implementation of investment projects at the enterprise level. At the enterprise level, the implementation period for contracts with large enterprises is about 18 months from signing and approval of the ODS Reduction Contracts to the commissioning of non-ODS technology system and destruction of baseline equipment. The implementation of phase-out through the Voucher System for small enterprises is about 12-18 months. Therefore China is applying to the Multilateral Fund to release the amount of $5,755,000, and the corresponding support fee in March 2003 to implement the 2003 Annual Implementation Programme, for activities covering the period of 1 January 2003 through 31 December 2003, with ODS phase out results being achieved by the end of 2004.

Table I. Phase out Activities and Proposed Funding

2003 Enterprise-level ODS Phase-out	Funding (USD 1,000)
ODS Reduction Contracts / Voucher System 20 - 40 large enterprises (ODS Reduction Contracts) 100 small enterprises (Voucher Payment) Estimated Phase-out to be realized at the end of 2004 600 ODP tons of CFC-113; 78 ODP tons of TCA; and 55 ODP tons of CTC	5,255
Technical Assistance activities and Policy Actions	500
Funding for 2003	5,755

C. ENTERPRISE-LEVEL ACTIVITIES

3. Enterprise level activities will continue to focus on the challenge of identifying, funding and implementing phase-out activities with large and medium size enterprises through ODS Reduction Contracts and small size projects with small solvent consuming enterprises through Voucher System to phase out sufficient quantity of consumption to achieve reduction at the end of 2004, contributing to the phase-out targets in 2005. Project identification will be carried out in several ways, with close cooperation of provincial and city level industrial associations, equipment manufacturers and solvent dealers. Principal focus will be the use of local resources including the Solvent Special Working Group (SWG), Domestic Implementing Agent (DIA), Ministry of Information Industry (MII) and ATSS agencies.

4. The following activities will be carried out in 2003:

(a) Complete implementation of 21 and 35 ODS Reduction Contracts signed in 2001 and 2002 to contribute to achieving the 2003 and 2004 consumption limits of CFC-113, TCA and CTC;

(b) Sign up about 20 - 40 ODS Reduction Contracts and issue vouchers to about 100 SMEs so as to achieve reduction at the end of 2004 and realize the phase-out targets for the year 2005.

5. Projects to be commenced in 2003 will require that ODS Reduction Contracts be signed latest by June 2003 and vouchers be issued by October 2003. Project Management Office (PMO) of the State Environmental Protection Administration (SEPA) will undertake planning action to identify, bid and negotiate these contracts and vouchers starting January 2003.

D. DEVELOPMENT AND STRENGTHENING OF ALTERNATIVE TECHNOLOGY SUPPORT SYSTEM (ATSS)

6. The ATSS and the associated Voucher System will be the principal vehicle for reaching the many small solvent users. During 2003, China will strengthen and optimize the functions of the three existing Technical Centers and other industrial associations as well as several alternative technology or equipment suppliers to make sure that they are capable of providing effective technical support on alternative solvent and technology to small enterprises, especially on the selection of the most appropriate and cost-effective options for moving to a non-ODS operation.

E. POLICY ACTIONS

7. The following activities will be undertaken to establish relevant policies and relevant solvent standards:

(a) Promulgate the Ban on Usage of CTC as cleaning solvent, starting 2004;

(b) Promulgate relevant sub-sector policies for stopping OD solvent usage.

(c) Continue to establish relevant solvent standards and technical norms.

F. TECHNICAL ASSISTANCE (TA) ACTIVITIES

8. Technical assistance activities shall continue to be undertaken to:

(a) strengthen the overall institutional framework;

(b) improve the management, monitoring and evaluation capabilities of participating institutions;

(c) train enterprise managers, technical personnel and decision makers at various levels;

(d) strengthen the Alternative Technology Support System

9. All terms of references and work schedule of TA activities will be agreed with UNDP prior to signing contracts and initiating work.

10. The main TA activities to be carried out in 2003 include:

(a) *Start integration of the Solvent Sector Management Information System (SSMIS)* for ODS phase out in the solvent sector with the ODS MIS System of FECO/SEPA to form a comprehensive and coordinated database of ODS phase out in all sectors;

(b) Continue the *Public Awareness Campaigns* to introduce and publicize country-wide the Solvent Sector Plan and ODS solvent phase-out schedule in newspaper and other media to make the public, especially the ODS solvent users, understand the phase-out plan and to attract participation in phase-out activities;

(c) With the wide geographical distribution of ODS solvent users in different regions and the many government and enterprise personnel involved in all aspects of the phase out activities, it is important to continue the *Training of personnel involved in the implementation of phase-out activities*. Training will be provided to: 1) environmental staff and decision makers to increase their recognition and management capacity; 2) industrial managers and technicians to enhance their understanding of alternative technology and to master how to apply the new technology; 3) ODS and substitute solvent dealers to deliver information on updated non-ODS solvent technology to their users; and 4) ODS solvent consumers on how to participate in activities of the ODS Reduction Contract bidding process and voucher system, and to obtain funding to undertake phase-out activities;

(d) *Strengthen the Alternative Technology Support System (ATSS)* – ATSS has been established with members from national experts group, relevant industrial associations, three technical support centers, alternative solvent and equipment dealers and manufacturers. Further strengthening of its technical capabilities will be required so that the ATSS can better resolve the alternative technology issues and to provide sufficient support on the selection of appropriate alternative technology options and its subsequent implementation;

(e) *Development of a non-ODS solvent management plan:* Rapid phase-out of ODS solvent production in China will cause demand after 2010 to be covered increasingly by substitutes. Preparation work for the development of ODS substitutes started in 2001 will continue during 2003. Preparation of the plan will draw on experiences from developed countries. Essential and necessary usage in the solvent sector will be determined, survey, study, testing and tryout of alternatives will be carried out.

(f) *Establish standards and technical norms*: Terms of Reference will be finalized by the end of 2002. As this work involves many areas, in 2003, it will continue to carry on the work and scope initiated in the First Annual Implementation Programme and to expand to other areas;

(g) Recruit necessary national and international consultants to provide technical services for training and technical conversion guidance to ODS solvent users, SWG, DIA and procurement agency.

G. DEVELOPMENT AND INVESTMENT OF ALTERNATIVE SOLVENTS PRODUCTION

11. To support the development of alternative solvents, US$ 2 million savings from the 2000 and 2001 ODS Reduction Contracts through the bidding process has been realized and reallocated to the development and investment of alternative solvents production in China. To ensure effective fund utilization, China has completed investigation and feasibility study on local alternative solvents. The development and investment in the local production of alternative solvents will follow the same set of Guidelines for Management of Investment on ODS Substitute Production which has been drafted by SEPA and World Bank for other sector plans, with selection of enterprises through bidding process to participate in the investment for local production.

12. A locally developed alternative HEP-2, containing n-propyl bromide as its components, has been chosen as alternative solvent by 28 of the 37 enterprises selected for the 2000 and 2001 phase-out projects. Development and investment on local production of HEP-2 will become the first priority for consideration. An enterprise in Huizhou, Guangdong Province has been selected through a bidding process.

13. In view of the uncertain toxicity of nPB, China will supervise and guide the users on the use of HEP-2 in the safest condition possible. Regarding nPB's toxicity, ODP value and usage, China will abide by the decisions made by the Parties and the Executive Committee.

Table II. Implementation Programme - Phase-out Targets and Enterprise Activities (January 1, 2003 – December 31, 2003)

SOLVENT CONSUMPTION PHASE-OUT TARGETS & ACTIVITIES							
	MLF $ million Requested	**Start of programme (MT)**	**Reduction Target (MT)**	**Reduction Contract (MT)**	**End of programme (MT)**	**Key Actions Required**	**Key Dates**
Phase out of CFC-113 from 2002 ODS Reduction Contracts			625	695			July 1, 2002– Dec. 31, 2003
CFC-113 (2003 ODS Reduction Contracts)	3.600	2,125	750		1,375	1. Conversion of ODS solvent enterprises to non-ODS cleaning technology 2. Ban on import and export of CFC-113 as cleaning solvent	January 1, 2003 – Dec. 31, 2004
CFC-113 Consumption Phase-out Target		2,750	1,375		1,375		By December 2004
Phase out of TCA from 2002 ODS Reduction Contracts			250	482			July 1, 2002 – Dec. 31, 2003
TCA (2003 ODS Reduction Contracts)	1.455	5,800	780		5,020	1. Conversion of ODS solvent enterprises to non-ODS cleaning technology 2. Ban on export and management on import of TCA as cleaning solvent	January 1, 2003 – Dec. 31, 2004
TCA Consumption Phase-out Target		6,050	1,030		5,020		By December 2004
Phase out of CTC from 2002 ODS Reduction Contracts			50	16+6			July 1, 2002– Dec. 31, 2003
CTC (2003 ODS Reduction Contracts)	0.200	50	50		0	1. Conversion of ODS solvent enterprises to non-ODS cleaning technology 2. Ban on import and export of CTC as cleaning solvent	January 1, 2003 – Dec. 31, 2004
CTC Consumption Phase-out Target		50	50		0		By December 2004

ENTERPRISE-LEVEL ACTIVITIES				
	Estimated MLF US$ million requested	**No. of enterprises targeted**	**Key Actions Required**	**Key Dates**
Conversion of ODS Consuming Enterprises	CFC-113 3.600 TCA 1.455 CTC 0.200	1. L/M-size: 30-50 2. Small size: 100	1. Sign 20 – 40 ODS Reduction Contracts 2. Issuing vouchers to about 100 small users	1. Bid winners and contracts signed by the end of June 2003; 2. Vouchers issued by end of October 2003.

Table III. Implementation Programme - Policies and TA Activities (January 1, 2003 – December 31, 2003)

POLICY INITIATIVES		
Activities	**Actions Required**	**Key Dates**
1. Final Notice on banning use of CTC as cleaning solvent	- Formulate and seek approval of the Ban; - Promulgate such Ban at least one year prior to taking effect.	By the end of 2003.
2. Prepare and draft Notice on self-phase out of OD solvent for enterprises not cover by MLF grant	- Consult and discuss with relevant industrial associations; - Study and determine the feasibility of promulgation and implementation of such policies; - Prepare and draft a policy.	- By beginning of 2003; - Second half of 2003.

TECHNICAL ASSISTANCE ACTIVITIES			
Activities	**MLF funding requested (US$1,000)**	**Actions Required**	**Key Dates**
a. Public Awareness	20	Promote public awareness of enterprises on ODS solvent sector phase-out activities	From beginning of 2003
b. Training	50	Training on technology of non-ODS solvent and conversion operating manual.	Start no later than April 2003
c. Strengthening ATSS	50	Conduct training and exchanges	June 2003
d. Strengthening of third technology center	50	Optimize establishment and capacity of the third technical center.	March 2003
e. Preparation for the development of a non-ODS solvent management plan and support to some necessary tests on alternative technology	100	1. Start to implement the project for strategy study on alternative technology development; 2. Support to tests and study on alternative technology on the basis of sub-sectors.	From the beginning of 2003 Start no later than June 2003
f. Establishment of standards and technical norms	200	By qualified institution	Start in January 2003
g. National and International Consultants	30		January – December 2003
Total 2003 TA Activities	**500**		

Table IV. Implementation Programme
(January 1, 2003 – December 31, 2003)
Performance Indicators

Solvent Phase-out Targets				
Solvent sub-sector	**Start of programme (MT)**	**Reduction Target (MT)**	**End of programme (MT)**	**Indicators to be reported on in semi-annual progress reports.** **Verified in annual performance audits**
CFC-113 Imports/exports	0	0	0	Ban on exports and imports in 2003
Domestic consumption and phase-out target		750		Consumption levels will be dictated by domestic production.
TCA		780		Realized by ODS Reduction Contracts
CTC		50		Realized by ODS Reduction Contract
Number of ODS Reduction Contracts Voucher Redeem		L/M 20-40 SMEs 100		Number of contract signed. Number of voucher issued.
Development and Investment on alternative solvents production				Enterprises selected for investment through bidding process.

Policy and TA Initiatives	
Initiatives	**Indicators to be reported on in semi-annual progress reports**
1. Bidding system	- Enterprises trained for bid preparation for 2003 bidding - Bidding procedures completed. - Winning enterprises for 2003 ODS Reduction Contracts selected. - Vouchers issued to SMEs.
2. Public Awareness	- Introduce Solvent Sector Plan and phase-out schedule in newspapers. - Invite ODS solvent users to take part in the bidding and promote the enterprises to participate in the phase-out actions.
3. Training	Provide personal training courses to ODS users, EPBs and local line ministries
4. Final Notice on banning use of CTC as cleaning solvent	- Promotional campaigns on the ban; - ATSS, Local Electronic Bureaus and EPBs engaged in promotion and support to CTC solvent users
5. Strengthen ATSS	Contracts issued, technical capacity improved, progress reports prepared
6. Establishment of standards and technical norms	Contracts issued, progress reports prepared, draft standards finalized

Annex 2
Implementation Programme (2000 - 2001)
Performance Indicators

Solvent Phase out Targets					
Solvent Sub-sector	Start of programme (MT)	Reduction Target (MT)	End of programme (MT)	Indicators to be reported on in Semi-Annual Progress Reports. Verified in Annual Performance Audits	Achievement
CFC-113 Imports / Exports	149	0	0	Ban on exports and imports effective January 1, 2001	Promulgated 18 January 2001, effective 1 February 2001
Domestic Consumption and Phase out Target	4,441	466 (plus 600 from on-going MLF projects)	3,375 (in 2001) 2750 (in 2002)	Consumption levels (production plus imports minus exports)	Overall 2000 and 2001 Consumption and Phase out Targets on CFC-113, TCA and CTC were met
TCA Supplement	-	>100	-	Included in ODS reduction contracts	ODS Reduction Contracts signed to meet 2001 and 2002 Phase Out Targets
Number of ODS Reduction Contracts (inclusive of TCA supplement) Voucher Redeem		L/M 20-40 S 100 (2001)		Number of contract signed (sum of ODS reduction in the contracts) Progress under contracts Number of voucher redeemed	- 16 ODS Reduction Contracts signed in 2000 to phase out 473 MT of CFC-113, 101 MT of TCA and 7.6 MT of CTC; - 21 ODS Reduction Contracts signed in 2001 to phase out 677 MT of CFC-113, 105.9 Mt of TCA

Policy and TA Initiatives		
Initiatives	Indicators to be reported on in semi-annual progress reports	Achievements
1. Bidding System	Bidding system's operating procedures finalized. Winning enterprises for 2000 –2001 selected. Enterprises trained for bid preparation for 2000 and 2001bidding.	- Project Implementation Manual finalized June 2000 and bidding took place in September 2000 and April 2001. - 30 and 23 enterprises selected to participate in 2000 and 2001 phase out activities respectively. - Training took place prior to each year's bidding. - Performance and financial audits carried out in Aug. 2002
2. Public Awareness	Introduce Solvent Sector Plan and phase out schedule on two newspapers Invite ODS solvent users to take part in the reduction bidding and promote the enterprises to participate the phase out actions	- Mass media promotions carried out in August 2000. Periodic articles published in electronic sector's regular publications and countrywide newspapers and magazines. - 30 and 23 enterprises were invited to participate in the 2000 and 2001 bidding.
3. Training	Provide personal training courses to ODS users, EPBs and local line ministries	Trainings and seminars on ODS phase out conducted during 2000 and 2001.
4. Notice on banning newly-built enterprise which produces or uses ODS solvent	Promotional campaigns on the ban; Local Electronic Bureaus and EPBs engaged in overseeing ban enforcement.	Second Export Banning List of ODS promulgated on 18 January 2001 and became formally effective 1 February 2001.
5. Developing ATSS	Contracts issued, progress reports	ATSS composed of national expert group, relevant industrial associations, three technical support centers, alternative solvent or equipment dealers or manufacturers