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执行蒙特利尔议定书
多边基金执行委员会
第五十九次会议
2009 年 11 月 10 日至 14 日，埃及迦里卜港

开发计划署 2009 年工作方案修正案

基金秘书处的评论和建议

1. 开发计划署请执行委员会为其 2009 年工作方案修正案核准 1,006,197 美元，外加 75,464 美元的机构支助费用。

2. 开发计划署工作方案修正案中的拟议活动如下文表 1 所示：

表 1：开发计划署的工作方案修正案

国家	活动/项目	所需数额（美元）	建议数额（美元）
A 节：建议一揽子核准的活动			
A1. 延长体制建设项目：			
阿根廷	延长体制建设项目（第六阶段）	155,784	155,784
哥斯达黎加	延长体制建设项目（第八阶段）	70,257	70,257
古巴	延长体制建设项目（第七阶段）	74,533	74,533
印度尼西亚	延长体制建设项目（第七阶段）	135,623	135,623
特立尼达和多巴哥	延长体制建设项目（第六阶段）	30,000	30,000
	A1 小计：	466,197	466,197
A2. 额外的氟氯烃淘汰管理计划投资活动的编制申请			
菲律宾	氟氯烃化合物淘汰投资活动的编制（制冷剂和空调行业）	65,000	65,000
	A2: 小计：	65,000	65,000
A3. 额外的氟氯烃淘汰管理计划的项目编制：			
特立尼达和多巴哥	氟氯烃淘汰管理计划的编制(额外资金)	65,000	65,000
	A3 小计：	65,000	65,000
B 节：建议个别审议的活动			
B1. 处理消耗臭氧层物质的示范项目			
哥伦比亚	消耗臭氧层物质处理项目的项目编制	40,000	*
古巴	消耗臭氧层物质处理项目的项目编制	40,000	*
印度	消耗臭氧层物质处理项目的项目编制	80,000	*
	B1 小计：	160,000	
B2. 技术援助			
全球	为共同气候惠益调动资源	250,000	*
	B2 小计：	250,000	
B3. 氟氯烃示范项目的项目编制			
中国	氟氯烃示范项目的 3 个项目编制请求（泡沫和溶剂行业）	0	[1]
	B3 小计：	0	
A 节和 B 节小计：		1,006,197	596,197
机构支助费用（7.5%用于项目编制和体制建设以及超过 250,000 美元的其他项目，9%用于其他 250,000 美元以下的项目）：		75,464	44,714
	共计：	1,081,661	640,911

* 供个别审议或待定的项目。

[1] 根据 UNEP/OzL.Pro/ExCom/59/11 号文件审议

A 节：建议一揽子核准的活动

A1. 延长体制建设项目：

(a) 阿根廷（第六阶段）：155,784 美元
(b) 哥斯达黎加（第八阶段）： 70,257 美元
(c) 古巴（第七阶段）：74,533 美元
(d) 印度尼西亚（第七阶段）：135,623 美元
(e) 特立尼达和多巴哥（第六阶段）：30,000 美元

项目说明

3. 开发计划署为上述五个国家的延长体制项目提交了申请，对这些国家的申请说明见本文附件一。

秘书处的评论

4. 基金秘书处审查了该机构代表上述国家提交以支持延期申请的体制建设终期报告和行动计划，并认为报告适合和符合对此类项目的要求。

5. 审议这些项目时，秘书处考虑到了第 57/36(b)号决定的规定，该决定中，委员会决定“在执行委员会第五十八次会议对此事做出最后决定之前，继续以同样水平为体制建设项目延期到 2010 年 12 月底提供申请供资”，执行委员会在第五十八次会议上的第 58/16 号决定中再次重申了这一点，决定“核准延长体制建设至 2010 年 12 月 31 日”。根据这些决定，在 2010 年 12 月前仅根据比例计算延长体制建设的建议供资。

秘书处的建议

6. 基金秘书处建议以本文表 1 中给出的供资额度一揽子核准阿根廷、哥斯达黎加、古巴、印度尼西亚、特立尼达和多巴哥的延长体制建设申请。谨建议执行委员会向这些国家的政府转达本文附件二中的意见。

A2. 额外的氟氯烃淘汰管理计划投资活动的编制申请：

菲律宾：氟氯烃淘汰管理计划投资活动的编制：65,000 美元

项目说明

7. 开发计划署申请获得额外资金以编制菲律宾的投资活动。菲律宾收到了第五十五次会议上核准的氟氯烃淘汰管理计划的编制资金。在其呈件中，开发计划署说明了该国氟氯烃的消费情况和使用氟氯烃的行业，以及这些行业如何与综合的氟氯烃淘汰管理计划相联系，特别是在不止一个机构参与执行的国家。

秘书处的评论

8. 秘书处详细审查了所有上述呈件，并认为呈件所提供的信息及申请供资符合第 56/16(d)号决定中的规定。

9. 秘书处注意到，这个活动并未被纳入第五十七次会议上核准的开发计划署 2009 年业务计划。它请阐明这个问题，并获悉，这是该国的一个具体请求，根据第 56/16 号决定和菲律宾 2007 年 180.2 ODP 吨的消费量，菲律宾有权请求获得不超过 200,000 美元，用于氟氯烃淘汰管理计划投资组成部分的项目编制。秘书处还注意到，除了这个申请，工发组织和世界银行正在为其他氟氯烃制造行业申请供资。该国申请供资总额在第 56/16(d)号决定所设限额内。秘书处还指出，相关机构之间已经举行了磋商，并明确了解每个机构在菲律宾内的责任划分。秘书处还认为，尽管这次申请没有纳入机构的业务计划，但执行委员会可以认为不存在与此有关的政策问题，并且符合第 56/16 号决定。

秘书处的建议

10. 秘书处建议按 65,000 美元的供资额度一揽子核准制冷和空调行业投资活动的项目编制，作为菲律宾氟氯烃淘汰管理计划的一部分。

A3. 氟氯烃淘汰管理计划编制的额外供资：

特立尼达和多巴哥：氟氯烃淘汰管理计划的编制（额外供资）： 65,000 美元

项目说明

11. 开发计划署为特立尼达和多巴哥提交了总额为 65,000 美元的额外项目编制资金申请，并在第五十五次会议上获得了用于氟氯烃淘汰管理计划编制的资金。正在提交申请，因为该国汇报了 2007 年第 7 条数据，数据表明氟氯烃的消费使其有资格获得第 56/16 号决定所说的额外项目编制资金。

秘书处的评论

12. 秘书处注意到，呈件符合第 56/16 号决定，该决定规定，国家有资格根据其 2007 年的官方第 7 条数据获得氟氯烃淘汰管理计划编制供资额度。就特立尼达和多巴哥而言，在第五十五次会议上，它收到了 85,000 美元，因为它仅报告了用于维修的 HCFC-22 的消费量。开发计划署指出，在其呈件中，该国有泡沫塑料制造行业的 HCFC-142b 消费量，因此秘书处要求为特立尼达和多巴哥的氟氯烃淘汰管理计划编制额外供资 65,000 美元。2007 年特立尼达和多巴哥氟氯烃化合物的消费量为 45.4 ODP 吨，（HCFC-22 为 44.1 ODP 吨，HCFC-142b 为 1.34 ODP 吨），数据来自该国的第 7 条和国家方案执行报告。

秘书处的建议

13. 基金秘书处建议一揽子核准特立尼达和多巴哥氟氯烃淘汰管理计划编制的额外供资申请，额度为 65,000 美元。

B 节：建议单个审议的活动

B1. 处理消耗臭氧层物质的示范项目

哥伦比亚：消耗臭氧层物质处理项目的项目编制： 40,000 美元
古巴：消耗臭氧层物质处理项目的项目编制： 40,000 美元
印度：消耗臭氧层物质处理项目的项目编制： 80,000 美元

背景

14. 执行委员会在其第五十八次会议上根据缔约方会议 XX/7 号决定第 2 段核准了处理消耗臭氧层物质示范项目供资的一整套临时指导方针。在第 58/19 号决定中，还赞同“多边基金在同一决定列出的具体条件下将为有限几个示范项目提供资金”。

15. 在项目编制供资的申请案例中，预计呈件将包括以下信息：

(a) 说明处理消耗臭氧层物质活动的类别（收集、运输、储存和销毁），这将被纳入项目提案中；

(b) 说明该国目前正在或近期是否打算制定同其他多边环境协定有关的化学品处理方案以及协同是否有可能；

(c) 估计意在项目内进行处理的各消耗臭氧层物质数量；

(d) 消耗臭氧层物质数量估计的根据；这个估计应建立在已知收集到的现有库存还是目前已处于非常先进且记录完善的在建阶段的收集工作；

(e) 对于收集活动，提供有关现有或未来可信赖的收集工作以及目前已处于高级在建阶段以及将同此项目下的活动有关方案的资料；

(f) 对于至少部分关注四氯化碳或哈龙的活动，说明这个项目如何可能具有重要的示范价值。

16. 开发计划署为四个国家的消耗臭氧层物质处理项目的项目编制提交了四份申请。在这几个国家中，只有三个国家（哥伦比亚、古巴和印度）达到了第 58/19(a)(iv)号决定列出的最低信息要求，也是该工作方案修正案下审议的唯一国家。下面提供了各呈件的说明。

17. 秘书处注意到，处理消耗臭氧层物质重点试点项目名单中并未包括执行委员会在第57/6号决定中同意的任何这些国家，但在执行委员会第五十七次会议报告的附件三中有所反映，该附件列出了开发计划署2009年业务计划中删除的所有处理消耗臭氧层物质试点项目。

哥伦比亚：消耗臭氧层物质处理项目的项目编制：40,000美元

项目说明

18. 开发计划署为哥伦比亚消耗臭氧层物质处理试点项目的项目编制提交申请。项目将确定目前储存在容器中可供销毁的11 ODP吨CFC-12的试销毁办法。这些都是哥伦比亚回收和再循环中心从维修运营中收集所得。

19. 在其提案中，开发计划署指出，该国已经着手从库存中收集废弃的消耗臭氧层物质，因为设国制造商通过提前报废方案开始自筹资金活动并对其予以维持。未来可能被收集且要求销毁的废弃消耗臭氧层物质将从正在制定的试点项目中受益。拟议的供销毁的消耗臭氧层物质数量并非来自该设备提前报废方案。

20. 开发计划署指出，试点项目将研究两个办法：（1）废弃的消耗臭氧层物质物的物流和运输到当地废物管理公司的成本，以便出口到拥有商业销毁设备的国家，或者（2）在移动销毁设备中的小量消耗臭氧层物质中探索使用等离子技术。这将包括运输、存储和销毁（或出口以销毁）已经装在钢瓶里的消耗臭氧层物质。本文所附开发计划署的工作方案附件一将对详细的申请资料予以说明。

秘书处的评论

21. 秘书处根据第58/19号决定中要求的资料审查了该项目。秘书处请开发计划署说明项目是否包括收集，因为提案称该国设备报废方案在按比例增加。开发计划署表示，它们已经修订了提案，并确认项目将不包括方案的按比例增加，也不会包括收集工作。

22. 开发计划署进一步解释说，由于设备报废方案在哥伦比亚颇受欢迎，它们期待通过研究焚化全部泡沫塑料而无需非得从中提炼氟氯化碳的可能性，试点项目还将研究销毁泡沫塑料中102 ODP吨CFC-11的办法。据估计，已经从设备中收集到了这一数量的CFC-11，并且从泡沫塑料中获得氟氯化碳的可能不止这些。

23. 秘书处还探讨了提案中提到的与多氯联苯销毁方案协同增效方面的更多细节。开发计划署解释说，试点项目将通过比较以上所定备选方案所需投资及研究与该国向全球环境基金提交的环保管理和多氯联苯处置供资的可能项目（包括分析多氯联苯销毁技术）进行协作，确定该国最佳可能的替代销毁办法。

24. 秘书处指出，开发计划署坚信，如果可以通过试点项目确定这些关于销毁问题的解决

办法，政府将能够大范围执行这个项目，并制定将涵盖各个方面的完整的消耗臭氧层物质废物管理制度，包括未来可能共同筹资。秘书处还指出，需要的项目编制金额是合理的，同之前核准的此类项目的编制资金一致。

秘书处的建议

25. 谨建议执行委员会根据上述信息审议哥伦比亚处理消耗臭氧层物质试点项目的项目编制申请，并根据第 58/19 号决定核准这一申请。

古巴：消耗臭氧层物质处理项目的项目编制（40,000 美元）

项目说明

26. 古巴政府的处理消耗臭氧层物质试点项目将着重销毁该国 133 ODP 吨废弃消耗臭氧层物质。这由根据古巴国家淘汰计划制定的回收和再循环方案所收集到的氟氯化碳和 HCFC-22 组成。

27. 在其项目编制申请中，开发计划署指出，该试点项目将涵盖小岛屿发展中国家完整消耗臭氧层物质废物管理制度的方方面面。通过国内制冷和空调设备目前正在进行的一个替代方案，该国正着手从库存中收集废弃的消耗臭氧层物质。冷风机替代方案和商用制冷改造方案也收集废弃的消耗臭氧层物质。这些可以收集并需要销毁的废弃消耗臭氧层物质将从正在制定的试点项目中受益。

28. 开发计划署指出，试点项目将展示日本为水泥窑开发的销毁技术，该技术之前并未在本区域进行测试。提案还在古巴的一个省中确定了一个候选水泥窑，将在该省展示这项技术。关于申请的详细资料列在本文所附开发计划署的工作方案附件一中。

秘书处的评论

29. 秘书处根据第 58/19 号决定中要求的资料审查了该项目。秘书处要求开发计划署说明项目中提议的日本技术。开发计划署确认，正与日本政府讨论水泥窑销毁技术，这促成了在古巴确定一个具体可适合此目的的水泥窑。开发计划署称，项目编制做法将让开发计划署和古巴能够研究与日本转让技术有关的必要因素，包括费用、排放控制、业已销毁的具体消耗臭氧层物质数量的核实等。

30. 根据这些回复意见以与开发计划署进行的讨论情况，秘书处指出，由于以下几个原因，该项目编制申请符合第 58/19 号决定关于消耗臭氧层物质处理项目中所包含的项目编制的资料要求：

(a) 项目编制明确指出，该项目的目的是销毁，并将探索利用日本技术在该国使用水泥窑焚化技术；

(b) 已经有从该国现有回收和再循环方案中收集到的废物/废弃消耗臭氧层物质的确切数量；

(c) 项目有试点的一面，即一旦该项技术在古巴示范，就可以被本区具有少量废弃消耗臭氧层物质要处置的其他国家效仿；以及

(d) 根据国家氟氯化碳计划和冷风机方案，具有替代国内制冷设备和收集本设备所含废弃消耗臭氧层物质的可行办法。

31. 秘书处注意到，开发计划署进一步解释说，古巴已经制定了诸如在该国收集、运输以及储存不需要的消耗臭氧层物质的其他环节，需要注意的是缺失了示范具体销毁技术的环节，有鉴于此，这些资金申请是合理的。开发计划署还指出，目前该国并没有任何同其他多边环境协定有关的处理方案。秘书处还指出，需要的项目编制金额是合理的，同之前核准的此类项目的编制资金一致。

秘书处的建议

32. 谨建议执行委员会根据上述信息审查古巴消耗臭氧层物质处理试点项目的项目编制申请，并根据第 58/19 号决定核准这个申请。

印度：消耗臭氧层物质处理项目的项目编制（80,000 美元）

项目说明

33. 开发计划署代表印度政府为在该国处理四氯化碳和其他消耗臭氧层物质的试点示范项目提交了项目编制申请，总额为 80,000 美元。根据所提交的呈件，项目将利用新型组织、操作和资金机制来建立处理不同消耗臭氧层物质的各种机制，这将确保可持续性。拟议的项目编制做法将具体针对四氯化碳的过量生产，这是甲基氯生产的重要副产品，也是该国的重要产业。提案指出，预计每年可供销毁的最低四氯化碳超量生产为 3,500 公吨或 3,850 ODP 吨。此外，提案还将关注从包含消耗臭氧层物质设备和其他设备中收集到的其他消耗臭氧层物质。

34. 在其项目编制申请中，开发计划署介绍了编制做法的办法，并指出，这将包含分析潜在的消耗臭氧层物质库存以及二氯乙烯酸性化合物中四氯化碳的使用，查明要处理的数量，确定收集的程序和多个产品消耗臭氧层物质销毁设备的技术参数。开发计划署还强调，由于期望这个设备通过可能的碳融资运作，因此将确定运作的技术标准，以符合清洁发展机制、CCX 或其他氯乙烯市场标准。申请的具体资料说明在本件开发计划署工作方案的附件一中。

秘书处的评论

35. 秘书处根据第 58/19 号决定要求的资料审查了该项目。在其对开发计划署的评论中，秘书处着重关注试点项目将研究销毁过量生产的四氯化碳，作为优先事项的事实，这同由多边基金供资的淘汰印度四氯化碳的生产有关。尽管已知道过量四氯化碳的数量，且可能需要销毁，秘书处对这可能构成双重供资的可能性表示关切，因为淘汰四氯化碳的生产已经得到供资。

36. 根据四氯化碳生产淘汰协定，多边基金为淘汰四氯化碳的生产和消费提供资金，相关的供资额度为 5,200 万美元。这个协定是根据相互谅解达成的，即印度在生产诸如氯仿等甲烷氯化物时可能会无意中产生大量四氯化碳。根据这个协定，印度承诺确保不再进行协定规定消费限额以外的管制用途生产。并且，由印度自行决定，例如通过升级设备减少甲烷氯化物生产总量，可以减少无意中的生产，同时通过利用用于非管制用途的四氯化碳，如原料，或通过销毁四氯化碳，使目前产生的四氯化碳副产品的份额保持在较低水平上。开发计划署通知秘书处，印度制造商选择通过利用用于原料的四氯化碳，尤其是用于制造二氯乙烯酸性化合物的四氯化碳来减少用于管制用途的四氯化碳生产。但是，开发计划署指出，印度计划减少未来原料应用中四氯化碳的需求，因此可能导致四氯化碳的过量。开发计划署强调，需要安全处理超量的四氯化碳，否则可能进入消费市场并可能使印度违反协定。

37. 鉴于上述几点，由于同四氯化碳的销毁有关，秘书处有以下几点保留意见：

(a) 秘书处认为，印度政府和执行委员会之间的协定迫使印度确保生产的任何四氯化碳都不会被用于协定中具体规定额度之外的管制用途。实现这一目标的途径由印度决定，这些途径包括许多办法，其中就包括原料和销毁。因此，秘书处认为多边基金的任何供资需要都被纳入第三十八次会议上核准的印度四氯化碳行业协定中，拟议的活动似乎构成了双重供资。

(b) 市场环境和经济可行性的变化对于任何试图避免产生四氯化碳副产品的管制用途的办法似乎都未对协定的有效性产生任何影响。此外，应注意到，第 5 条和非第 5 条国家甲基氯的生产商都表明，甲基氯的大量生产可同时避免过量的四氯化碳进入消费市场；

(c) 考虑到根据《蒙特利尔协定》与执行委员会的协定，在 2010 年前完全淘汰管制用途的四氯化碳的义务，秘书处怀疑，印度是否能够证明任何碳供资活动需要额外贷款，即证明没有供资，此类销毁将无法实现。

38. 秘书处还寻求阐明提案的其他方面，该提案将明确着眼于消耗臭氧层物质而不是该国现有设备中来自消耗臭氧层物质库存的四氯化碳收集。秘书处指出，没有系统地收集老设备并从销毁老设备中提炼消耗臭氧层物质的办法，并提醒开发计划署，在试点项目下无法提供资金，除非该国现有努力已经开始着手进行。开发计划署回应说，私营部门已有设备

更换的试点计划，并且该提案的一个成果将通过与这些倡议发展伙伴关系，让这些计划更可行、更全面，从而加强可持续性。

39. 开发计划署进一步解释说，目前的提案将着重制定消耗臭氧层物质销毁的业务模式，在这个模式下，销毁设备的资金可能部分来自多边基金，部分来自私营企业，可能部分来自销毁的碳信贷。预计收集费用将由主办实体承担，交通、合规和监督将成为提交至多边基金申请供资的项目的一部分。

40. 秘书处注意到，需要的项目编制金额是合理的，同之前核准的此类项目编制资金一致。

41. 根据所提供的说明和与开发计划署的讨论，秘书处建议执行委员会审查所提交的将探讨销毁过量生产的四氯化碳办法的项目是否有资格成为试点项目，或者根据已经为淘汰四氯化碳生产提供的供资情况，是否构成重复计算。

秘书处的建议

42. 谨建议执行委员会根据上述信息和第 58/19 号决定审查印度消耗臭氧层物质处理问题试点项目的项目编制申请。

B2. 技术援助

全球：调动资源以解决氟氯烃淘汰中的共同气候惠益：250,000 美元

项目说明

43. 开发计划署向第五十七次和第五十八次会议提交了一个技术援助项目的请求，以 250,000 美元的供资额度调动资源以将氟氯烃淘汰中的气候惠益最大化。开发计划署将修订后的提案重新提交供本次会议审议。该项目说明在提交本次会议的开发计划署工作方案修正案中。

44. 提案进行了修订，以考虑各次会议的最新进展并使开发计划署可以跟踪关于额外收入可能机制目前工作的活动。本项目继续研究可能需要共同供资的具有增量气候惠益的活动，但将着重于两个领域：（1）消耗臭氧层物质处理项目，尤其是同家用电器报废管理有关的库存管理；以及（2）氟氯烃淘汰中的共同供资机会。

45. 修订后的提案现在着重关注在两个阶段中执行活动。第一阶段可能立即开始，并将从四个不同试点提案中提供具体的边学边做的案例研究。另一方面，第二阶段可能稍后开始，将涉及在执行委员会可能决定的任何资源调动机制情形中分析这些案例研究。

46. 下表介绍了开发计划署申请的 250,000 美元的详细账目：

费用名称	第一阶段	第二阶段	总计
技术协调国际顾问	45,000	0	45,000
技术/方法方面的四名技术专家	169,000	0	169,000
出差和间接成本	36,000	0	36,000
开发计划署投入的费用回收	150,000	100,000	250,000
总计	400,000 美元	100,000 美元	500,000 美元
开发计划署的实物配套共同筹资	(150,000)	(100,000)	(250,000)
请求多边基金供资净额	250,000 美元	0	250,000 美元

秘书处的评论

47. 第十九次缔约方大会第 XIX/6 号决定第 11(b)段指导执行委员会在考虑氟氯烃淘汰项目时要优先对待“将对环境的影响、包括对气候的影响降至最小的代替物和替代技术，并虑及全球变暖可能性、能源利用和其他相关因素”。执行委员会第五十四次会议商定了在编制氟氯烃淘汰管理计划中的一套准则，并在第五十五次和第五十六次会议上为 115 个国家氟氯烃淘汰管理计划的编制核准了资金。

48. 在第 54/39 号决定中商定的氟氯烃淘汰管理计划制定准则包括第 5 条国家在氟氯烃淘汰管理计划中考虑财政鼓励和共同筹资的机会，这将有助于确保氟氯烃淘汰按照上述第 XIX/6 号决定第 11(b)段产生惠益。

49. 秘书处指出，开发计划署所修订的这个提案结果可能有助于审查为氟氯烃淘汰气候惠益和消耗臭氧层物质处理项目共同筹资的办法。如在最初的提交文件中，开发计划署仍将审议新出现的方法，以评估二氧化碳排放量的削减情况，但就现在而言，这些目标将在第一阶段拟议的四种不同情形中完成。

50. 执行委员会在第五十七次会议上讨论了有关利用贷款和其他来源获得额外收入的机制（UNEP/OzL.Pro/ExCom/57/64 号文件），并在第 57/37 号决定中请求秘书处就该机制进行进一步分析，以供委员会第五十八次会议审议。

51. 在第五十八次会议上，执行委员会做出第 58/37 号决定，该决定包括将该提案和另一个类似提案推迟至以后会议审议。秘书处注意到，根据议程项目 11——关于利用贷款和其他来源获得额外收入的特别融资机制的进一步概念文件的讨论情况，又向本次会议提交了这一提案，以供执行委员会审议。

秘书处的建议

52. 谨建议执行委员会根据上述信息，并根据对议程项目 11——关于利用贷款和其他来源获得额外收入的特别融资机制的进一步概念文件的讨论情况，以便调动资源，使氟氯烃淘汰的气候惠益最大化。

附件一

体制建设项目提案

阿根廷：延长体制建设

项目摘要和国家概况	
执行机构：	开发计划署
以前核准的体制建设供资数额（美元）：	
第一阶段：1994 年 7 月	359,500
第二阶段：1999 年 11 月	239,700
第三阶段：2002 年 11 月	311,413
第四阶段：2005 年 7 月	311,567
第五阶段：2007 年 11 月	311,567
共计	1,533,747
为延长所申请金额（第六阶段）（美元）：	155,784
建议为第六阶段核准的金额（美元）：	155,784
机构资助费用（美元）：	11,684
多边基金体制建设第六阶段的总费用（美元）：	167,468
由于体制建设第六阶段同等数量氟氯化碳淘汰成本为 12.1 美元/公斤（ODP 吨）：	暂缺
国家方案核准日期：	1994 年
国家方案所报告的消耗臭氧层物质消费量（1994 年）（ODP 吨）：	3,407.8
受控物质基准消费量（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）（1995-1997 年平均数）	4,697.2
(b) 附件 A 第二类物质（哈龙）（1995-1997 年平均数）	167.8
(c) 附件 B 第二类物质（四氯化碳）（1998-2000 年平均数）	187.2
(d) 附件 B 第三类物质（三氯甲烷）（1998-2000 年平均数）	65.7
(e) 附件 E（甲基溴）（1995-1998 年平均数）	411.3
依照第 7 条最新报告的消耗臭氧层物质消费量（2008 年）（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）	50.9
(b) 附件 A 第二类物质（哈龙）	0
(c) 附件 B 第二类物质（四氯化碳）	-52.8
(d) 附件 B 第三类物质（三氯甲烷）	17.4
(e) 附件 E（甲基溴）	282.4
(f) 附件 C 第一类物质（氟氯烃）	356.9
共计	654.8
报告国家方案执行数据的年份：	2008 年
项目核准金额（美元）：	63,555,025
已发放金额（截至 2009 年 9 月）（美元）：	53,778,793
将要淘汰的消耗臭氧层物质（ODP 吨）：	7,111.4
已淘汰消耗臭氧层物质（截至 2009 年 9 月）（ODP 吨）	6,061.8

1. 活动摘要及执行委员会核准的供资数额：

活动摘要		核准的供资数额（美元）
(a)	投资项目：	56,935,605
(b)	体制建设：	1,533,747
(c)	项目编制、技术援助、培训和其他非投资项目	5,085,673
	共计：	63,555,025

进度报告

2. 阿根廷体制建设项目的第五阶段期间实现了几个不同目标。在这些目标中，优先完成提高公认意识运动。通过这些运动，分发了许多包括印刷宣传册和海报在内的各种提高认识的材料。2008 年 12 月在阿根廷举办了讲习班以开始氟氯烃淘汰管理计划项目编制，工发组织和开发计划署代表、私营部门和商会参加了讲习班。

行动计划

3. 体制建设第六阶段的主要目标是继续规划、组织、执行和协调阿根廷政府要求的所有行动。下一个阶段期间，臭氧机构将拥有的具体目标如下：加强国家联络点和国家主管单位与基金组织、臭氧秘书处和《蒙特利尔议定书》执行机构之间的联络，协调和监测直接参与的各公共和私营利益攸关方之间的活动，以便在 2010 年 1 月 1 日前实现彻底消除氟氯化碳和四氯化碳的消费，同时预防非法贩运，执行必要的控制措施，以便使国家遵守允许的甲基溴和甲基氯仿消费量，确定氟氯烃国家消费基准，根据第十九次蒙特利尔议定书缔约方会议期间通过的各项条款对第一阶段消除氟氯烃的国家战略的编制和执行进程进行管理。

哥斯达黎加： 延长体制建设

项目摘要和国家概况	
执行机构：	开发计划署
以前核准的体制建设供资数额（美元）：	
第一阶段：1992 年 10 月	213,160
第二阶段：1997 年 2 月	108,087
第三阶段：1999 年 3 月	105,568
第四阶段：2001 年 12 月	104,224
第五阶段：2003 年 12 月	139,737
第六阶段：2005 年 11 月	140,513
第七阶段： 2007 年 11 月	140,513
共计	951,802
为延长所申请金额（第八阶段）（美元）：	70,257
建议为第八阶段核准的金额（美元）：	70,257
机构资助费用（美元）：	5,269
多边基金体制建设第八阶段的总费用（美元）：	75,526

由于体制建设第八阶段同等数量氟氯化碳淘汰成本为 12.1 美元/公斤（ODP 吨）：	暂缺
国家方案核准日期：	1992 年
国家方案所报告的消耗臭氧层物质消费量（1992 年）（ODP 吨）：	647.6
受控物质基准消费量（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）（1995-1997 年平均数）	250.2
(b) 附件 A 第二类物质（哈龙）（1995-1997 年平均数）	0
(c) 附件 B 第二类物质（四氯化碳）（1998-2000 年平均数）	0
(d) 附件 B 第三类物质（三氯甲烷）（1998-2000 年平均数）	0
(e) 附件 E（甲基溴）（1995-1998 年平均数）	342.5
依照第 7 条最新报告的消耗臭氧层物质消费量（2008 年）（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）	13.9
(b) 附件 A 第二类物质（哈龙）	0
(c) 附件 B 第二类物质（四氯化碳）	0
(d) 附件 B 第三类物质（三氯甲烷）	0
(e) 附件 E（甲基溴）	212.4
(f) 附件 C 第一类（氟氯烃）	10.7
共计	236.69
报告国家方案执行数据的年份：	2008 年
项目核准金额（美元）：	8,671,702
已发放金额（截至 2009 年 9 月）（美元）：	7,444,911
将要淘汰的消耗臭氧层物质（ODP 吨）：	616.5
已淘汰消耗臭氧层物质（截至 2009 年 9 月）（ODP 吨）：	505.4

4. 活动摘要及执行委员会核准的供资数额：

	活动摘要	核准的供资数额（美元）
(a)	投资项目：	5,697,868
(b)	体制建设：	951,802
(c)	项目编制、技术援助、培训和其他非投资项目：	2,022,032
	共计：	8,671,702

进度报告

5. 臭氧技术办公室继续规划、组织、指导和协调活动，以便在减少并最终淘汰消耗臭氧层物质有关的所有领域执行国家淘汰战略，以符合《蒙特利尔协定》的要求。在哥斯达黎加体制建设的第七阶段期间，消耗臭氧层物质的进口工作执行了修改后的许可证制度，该制度对消耗臭氧层物质的消费做了更严格的控制。设立了提高认识和教育支助方案，以便就臭氧层有关的问题向教育部提供指导。为从事保护臭氧层工作的教师出版了各种文件。还开始与国立大学和全国气象局协作开展项目，目的是监测紫外线辐射并说明紫外线指数。

行动计划

6. 下一阶段，哥斯达黎加将继续对《蒙特利尔协定》监管物质实施许可证制度，包括设备和其他产品中的氟氯烃。还将严密监测检疫和装运前消毒处理甲基溴的进口。还将继续与海关总署合作侦测消耗臭氧层物质中的非法贸易，鉴于同这个主题的相关性，同时开展关于保护臭氧层的提高公众认识活动。还将着手制定氟氯烃淘汰管理计划，从而完成第一阶段氟氯烃淘汰管理计划的制定，达到 2013 年和 2015 年的控制措施。

古巴：延长体制建设

项目摘要和国家概况	
执行机构：	开发计划署
以前核准的体制建设供资数额（美元）：	
第一阶段：1993 年 6 月	171,995
第二阶段：1998 年 11 月	114,666
第三阶段：2001 年 7 月	114,666
第四阶段：2003 年 7 月	149,066
第五阶段：2005 年 11 月	149,066
第六阶段：2007 年 11 月	149,066
共计	848,525
为延长所申请金额（第六阶段）（美元）：	74,533
建议为第六阶段核准的金额（美元）：	74,533
机构资助费用（美元）：	5,590
多边基金体制建设第六阶段的总费用（美元）：	80,123
由于体制建设第六阶段同等数量氟氯化碳淘汰成本为 12.1 美元/公斤（ODP 吨）：	暂缺
国家方案核准日期：	1993 年
国家方案所报告的消耗臭氧层物质消费量（1993 年）（ODP 吨）：	564.5
受控物质基准消费量（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）（1995-1997 年平均数）	625.1
(b) 附件 A 第二类物质（哈龙）（1995-1997 年平均数）	0
(c) 附件 B 第二类物质（四氯化碳）（1998-2000 年平均数）	2.7
(d) 附件 B 第三类物质（三氯甲烷）（1998-2000 年平均数）	0
(e) 附件 E（甲基溴）（1995-1998 年平均数）	50.5
依照第 7 条最新报告的消耗臭氧层物质消费量（2007 年）（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）	74.4
(b) 附件 A 第二类物质（哈龙）	0
(c) 附件 B 第二类物质（四氯化碳）	0
(d) 附件 B 第三类物质（三氯甲烷）	0
(e) 附件 E（甲基溴）	0
(f) 附件 C 第一类物质（氟氯烃）	13.3
共计	87.7
报告国家方案执行数据的年份：	2008 年
项目核准金额（美元）：	13,178,242

已发放金额（截至 2009 年 9 月）（美元）：	9,461,444
将要淘汰的消耗臭氧层物质（ODP 吨）：	587.8
已淘汰消耗臭氧层物质（截至 2009 年 9 月）（ODP 吨）：	413.5

7. 活动摘要及执行委员会核准的供资数额：

活动摘要		核准的供资数额（美元）
(a)	投资项目：	9,870,660
(b)	体制建设：	848,525
(c)	项目编制、技术援助、培训和其他非投资项目：	2,459,057
	共计：	13,178,242

进度报告

8. 在 2008-2009 年体制建设项目的第六阶段期间，古巴政府实现了几个目标，其中包括通过计量吸入器工厂“Reinaldo Gutierrez”的转产，在生产用于医疗和医药的计量吸入器中执行消除 CFC-11 和 CFC-12 的项目。回收和再循环方案非常成功，改造了大量国内制冷设备并回收了制冷剂。5,000 多名技术人员和制冷机械师接受了良好制冷做法方面的培训，并对国家经济和制冷行业产生了重大影响。示范项目的目的在于更换开发计划署和古巴政府之间签署的使用 CFC-11 的空调制度冷风机，目前正在执行。已安装四个新的冷风机系统，正在筹建另外 5 个冷风机地点。

行动计划

9. 延长第七阶段体制建设的目的是大力促进古巴政府所采取的努力，从而履行《蒙特利尔议定书》下商定的消耗臭氧层物质淘汰目标。这一项目的主要目标是协助创建必要的条件，以坚持在 2009 年 100%减少氟氯化碳、甲基溴和四氯化碳的基础消费量并减少 70%的甲基氯仿。这些是 2010 年的全部目标。在此期间，氟氯烃淘汰管理计划的制定将开始包括设立氟氯烃基准消费量。

印度尼西亚：延长体制建设

项目摘要和国家概况	
执行机构：	开发计划署
以前核准的体制建设供资数额（美元）：	
第一阶段：1993 年 6 月	314,780
第二阶段：1997 年 11 月	208,385
第三阶段：2000 年 12 月	208,564
第四阶段：2003 年 12 月	271,245
第五阶段：2005 年 11 月	271,245
第六阶段：2007 年 11 月	271,245
共计	1,545,464
为延长所申请金额（第七阶段）（美元）：	135,623

建议为第七阶段核准的金额（美元）：	135,623
机构资助费用（美元）：	10,172
多边基金体制建设第七阶段的总费用（美元）：	145,795
由于体制建设第七阶段同等数量氟氯化碳淘汰成本为 12.1 美元/公斤（ODP 吨）：	暂缺
国家方案核准日期：	1994 年
国家方案所报告的消耗臭氧层物质消费量（1994 年）（ODP 吨）：	5,557.2
受控物质基准消费量（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）（1995-1997 年平均数）	8,332.7
(b) 附件 A 第二类物质（哈龙）（1995-1997 年平均数）	354
(c) 附件 B 第二类物质（四氯化碳）（1998-2000 年平均数）	0
(d) 附件 B 第三类物质（三氯甲烷）（1998-2000 年平均数）	13.3
(e) 附件 E（甲基溴）（1995-1998 年平均数）	40.7
依照第 7 条最新报告的消耗臭氧层物质消费量（2008 年）（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）	0
(b) 附件 A 第二类物质（哈龙）	0
(c) 附件 B 第二类物质（四氯化碳）	0
(d) 附件 B 第三类物质（三氯甲烷）	0
(e) 附件 E（甲基溴）	0
(f) 附件 C 第一类物质（氟氯烃）	299.9
共计	299.9
报告国家方案执行数据的年份：	2008 年
项目核准金额（美元）：	55,618,429
已发放金额（截至 2009 年 9 月）（美元）：	52,512,081
将要淘汰的消耗臭氧层物质（ODP 吨）：	11,211.4
已淘汰消耗臭氧层物质（截至 2009 年 9 月）（ODP 吨）：	10,710.8

10. 活动摘要及执行委员会核准的供资数额：

活动摘要		核准的供资数额（美元）
(a)	投资项目：	47,977,390
(b)	体制建设：	1,545,464
(c)	项目编制、技术援助、培训和其他非投资项目：	6,095,575
	共计：	55,618,429

进度报告

11. 体制建设第六阶段的关键目标和结果将是通过对执行队伍的培训和能力建设，改进非检疫和装运前消毒处理的甲基溴和氟氯化碳进口禁令所执行的现有控制，继续执行消耗臭氧层物质监管；改进制度，加大对当地政府的支持力度，以便使其参与监测和执行。制定、分发并实施了标准作业程序；加大与执行机构的合作和协作；采购了额外的消耗臭氧层物质侦测设备并配发给海关出入联络点和当地政府；在三个省（约 60 个地区）举办了几个培训讲习班，以推动公众和政府利益攸关方机构支持执行淘汰消耗臭氧层物质方案的认识。完善投资项目的绩效评价继续通过利益攸关方的及早参与为氟氯烃淘汰管理计划的编制提

供便利。在广泛参与下举办了国家氟氯烃淘汰管理计划首届讲习班。

行动计划

12. 体制建设第七阶段的关键组成部分是要继续执行消耗臭氧层物质监管，尤其要通过强化当地政府的参与使监测分散，强化执行和监测力度，改进监测和评价的质量；坚持通过引入制冷讲习班注册制度和执行技术人员认证规定来淘汰氟氯化碳，从而通过建立监测网络，使紫外线/臭氧监测体制化；有效调动以编制印度尼西亚的氟氯烃淘汰管理计划；继续加强针对一般公众、产业和政府利益攸关方的目标性意识行动。

特立尼达和多巴哥：延长体制建设

项目摘要和国家概况	
执行机构：	开发计划署
以前核准的体制建设供资数额（美元）：	
第一阶段：1996 年 10 月	60,777
第二阶段：2000 年 12 月	44,000
第三阶段：2002 年 11 月	57,200
第四阶段：2004 年 12 月	60,000
第五阶段：2006 年 11 月	60,000
共计	281,977
为延长所申请金额（第六阶段）（美元）：	30,000
建议为第六阶段核准的金额（美元）：	30,000
机构资助费用（美元）：	2,250
多边基金体制建设第六阶段的总费用（美元）：	32,250
由于体制建设第六阶段同等数量氟氯化碳淘汰成本为 12.1 美元/公斤（ODP 吨）：	暂缺
国家方案核准日期：	1996 年
国家方案所报告的消耗臭氧层物质消费量（1996 年）（ODP 吨）：	120.4
受控物质基准消费量（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）（1995-1997 年平均数）	120
(b) 附件 A 第二类物质（哈龙）（1995-1997 年平均数）	46.6
(c) 附件 B 第二类物质（四氯化碳）（1998-2000 年平均数）	0
(d) 附件 B 第三类物质（三氯甲烷）（1998-2000 年平均数）	0.7
(e) 附件 E（甲基溴）（1995-1998 年平均数）	1.7
依照第 7 条最新报告的消耗臭氧层物质消费量（2008 年）（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）	0
(b) 附件 A 第二类物质（哈龙）	0
(c) 附件 B 第二类物质（四氯化碳）	0
(d) 附件 B 第三类物质（三氯甲烷）	0
(e) 附件 E（甲基溴）	0.4
(f) 附件 C 第一类物质（氟氯烃）	56.4
共计	56.8
报告国家方案执行数据的年份：	2008 年

项目核准金额（美元）：	1,502,022
已发放金额（截至 2009 年 9 月）（美元）：	1,222,468
将要淘汰的消耗臭氧层物质（ODP 吨）：	123.6
已淘汰消耗臭氧层物质（截至 2009 年 9 月）（ODP 吨）：	113.5

13. 活动摘要及执行委员会核准的供资数额：

活动摘要		核准的供资数额（美元）
(a)	投资项目：	579,570
(b)	体制建设：	281,977
(c)	项目编制、技术援助、培训和其他非投资项目：	640,475
	共计：	1,502,022

进度报告

14. 体制建设项目第五阶段的主要目标是保持氟氯化碳零进口，以实现《蒙特利尔议定书》下完全淘汰消耗臭氧层物质的履约目标。体制建设项目第五阶段期间开展了许多活动。在这些活动中，通过海关培训学校为海关官员开设了进修课程，这导致合格官员的增加。国家使用氟氯化碳替代技术的消费者也有所增加，这减少了对氟氯化碳的需求。还开展了重大提高公众认识的活动，这些活动包括庆祝世界臭氧日、电视和无线广播宣传、在报纸和科学博览会上发布广告和消费者信息。

行动计划

15. 特立尼达和多巴哥体制建设项目第六阶段的主要目标是整合项目前几个阶段中列出的目标。下一阶段的一些目标是加强海关官员在监测和控制消耗臭氧层物以及依赖臭氧层物质技术中所使用的系统，目的是查找差距，升级目前的系统，从而确保国家阻止非法消耗臭氧层物质贸易的能力。其他目标包括管理国家氟氯烃的进口，确保顺利淘汰氟氯烃消费。还将通过制定更严格的政策和零售、批发及检疫和装运前消毒处理中具体用途的甲基溴立法，以减少甲基溴的进口。这些目标还包括加强国家臭氧机构的体制能力，增强公众对氟氯烃及其替代物的认识。特立尼达和多巴哥随后审查了甲基溴用途并协助编制氟氯烃淘汰管理计划。

附件二

执行委员会对提交第五十九次会议的延长体制建设项目申请的看法

阿根廷

1. 执行委员会审查了阿根廷与延长体制建设项目请求一同提交的报告，并赞赏地注意到，阿根廷正逐步实现《蒙特利尔议定书》的目标。执行委员会大力支持阿根廷为此阶段所做的努力，并指出，优先重点将放在坚持淘汰氟氯化碳上，并着手编制氟氯烃淘汰管理计划以及随后的投资和非投资活动的编制，从而实现 2013 年稳定和 2015 年削减 10%氟氯烃的目标。因此，执行委员会希望阿根廷将继续执行其国家方案和国家淘汰活动，期望在削减目前的消耗臭氧层物质消费水平上获得极大成功。

哥斯达黎加

2. 执行委员会审查了哥斯达黎加与延长体制建设项目请求一同提交的报告，并赞赏地注意到，哥斯达黎加正逐步实现《蒙特利尔议定书》的目标。执行委员会还指出，在环境、能源和通信部内设立的结构完善的臭氧机构有助于带领国家实现《蒙特利尔议定书》规定的目标。执行委员会支持该国的努力，指出未来两年对于哥斯达黎加的《蒙特利尔议定书》方案至关重要，特别是将氟氯烃纳入其许可证制度和需要落实的活动中，以完成氟氯烃淘汰管理计划，确保可持续的长期成果。因此，执行委员会希望哥斯达黎加将继续执行其国家方案和国家淘汰活动，期望在削减目前的消耗臭氧层物质消费水平上获得极大成功。

古巴

3. 执行委员会审查了古巴与延长体制建设项目请求一同提交的报告，并赞赏地注意到，古巴正逐步实现《蒙特利尔议定书》的目标。执行委员会还指出，未来两年古巴将面临严重挑战，因为古巴坚持淘汰氟氯化碳的消费，并根据 2009 年和 2010 年的消费量建立了氟氯烃基准。在此关键时刻期间，受到具有强有力的臭氧机构这一事实的鼓舞，支持延长体制建设项目，从而保持这一势头。因此，执行委员会希望哥斯达黎加将继续执行其国家方案和国家淘汰活动，期望在前沿减目前的消耗臭氧层物质消费水平上获得极大成功。

印度尼西亚

4. 执行委员会审查了印度尼西亚与延长体制建设项目请求一同提交的报告，并赞赏地注意到，印度尼西亚正逐步实现《蒙特利尔议定书》的目标。执行委员会还赞赏地注意到了印度尼西亚政府有效监测和控制消耗臭氧层物质的不同政策和监管倡议。执行委员会还指出，印度尼西亚将继续通过强化当地政府实体来下放其监测和执行职能，从而确保消耗臭氧层物质淘汰的可持续性。执行委员会还期望印度尼西亚顺利完成执行其方案的活动，并

取得极大进展，在履行《蒙特利尔议定书》规定义务中在控制消耗臭氧层物质上保持并巩固其成就。

特立尼达和多巴哥

5. 执行委员会审查了特立尼达和多巴哥与延长体制建设项目请求一同提交的报告，并赞赏地注意到，特立尼达和多巴哥正逐步实现《蒙特利尔议定书》的目标。执行委员会还指出，目前该国氟氯烃的消费量对像特立尼达和多巴哥这样规模的国家而言偏高，并鼓励该国利用这些体制建设资金建立能够在制定国家氟氯烃战略中发挥主导作用的强大臭氧机构，从而实现 2013 年冻结目标。委员会还期望特立尼达和多巴哥顺利完成执行其方案活动，并取得极大进展，在履行《蒙特利尔议定书》规定义务中在控制消耗臭氧层物质上保持并巩固其成就。

United Nations Development Programme
Montreal Protocol & Chemicals Unit

59th Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

(10 - 14 November, Port Ghalib, Egypt)

AMENDMENT TO THE 2009 WORK PROGRAMME

16 September 2009
(Final 07 October 2009)

UNDP
AMENDMENT TO THE 2009 WORK PROGRAMME

I. INTRODUCTION

UNDP's 2009-2011 Business Plan and the 2009 Work Programme were approved at the 57th Meeting of the Executive Committee in March 2009. This document represents an Amendment to the 2009 approved Work Programme and is being submitted for consideration at the 59th Meeting of the Executive Committee, to be held in November 2009. The funding requests submitted as part of this Amendment, after review by the MLF Secretariat, are presented in the document under item II. Section III presents the Policy Issues. Relevant documents are in the Annexes to this WPA.

II. FUNDING REQUESTS

Institutional Strengthening Extensions

The requests for funding for extensions of Institutional Strengthening projects are made for five countries, namely, Argentina, Costa Rica, Cuba, Indonesia and Trinidad & Tobago **(Annex 1**). All these requests cover funding requirements for two years duration. As requested by the Secretariat, the amounts for a one-year duration are also provided and tabulated below (based on an extension for two years):

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
Argentina	INS	Institutional Strengthening Extn (Phase VI)	24	311,567	23,368	334,935	N/A
Costa Rica	INS	Institutional Strengthening Extn (Phase VIII)	24	140,513	10,538	151,051	N/A
Cuba	INS	Institutional Strengthening Extn (Phase VII)	24	149,066	11,180	160,246	N/A
Indonesia	INS	Institutional Strengthening Extn(Phase VII)	24	271,245	20,343	291,588	N/A
Trinidad & Tobago	INS	Institutional Strengthening Extn (Phase VI)	24	60,000	4,500	64,500	N/A
Total (5 requests)				**932,391**	**69,929**	**1,002,320**	

The amounts calculated for a one-year extension period for the above would be as tabulated below:

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
Argentina	INS	Institutional Strengthening Extn (Phase VI)	12	155,784	11,684	167,468	N/A
Costa Rica	INS	Institutional Strengthening Extn (Phase VIII)	12	70,257	5,269	75,526	N/A
Cuba	INS	Institutional Strengthening Extn (Phase VII)	12	74,533	5,590	80,123	N/A
Indonesia	INS	Institutional Strengthening Extn(Phase VII)	12	135,623	10,172	145,795	N/A
Trinidad & Tobago	INS	Institutional Strengthening Extn (Phase VI)	12	30,000	2,250	32,250	N/A
Total (5 requests)				**466,197**	**34,965**	**501,162**	

The relevant supporting documents are submitted separately.

Agency Programme (Core Unit support)

Funding request for UNDP's administrative costs (core unit support) for 2010 has been requested as below, reflecting a 3% increase from the previous year, consistent with ExCom Decisions 46/35, 56/41 and 56/42. Submitted separately from this WPA document.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
Global	TAS	Agency programme (core unit support)	12	1,913,365	N/A	1,913,365	N/A
Total (1 request)				**1,913,365**	**N/A**	**1,913,365**	

Preparation funding requests for ODS Disposal Pilots

Funding requests for preparation of pilot/demonstration projects are being submitted for countries as tabulated below (**Annex 2** contains the detailed project concepts/proposals).

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
Colombia	PRP	Pilot project for ODS Disposal/Bank Mgmt	12	40,000	3,000	43,000	None
Cuba	PRP	Pilot project for ODS Disposal/Bank Mgmt	12	40,000	3,000	43,000	None
India	PRP	Pilot project for ODS Disposal	12	80,000	6,000	86,000	None
Total (3 requests)				**160,000**	**12,000**	**172,000**	

The proposals are in response to the Decision XX/7 (2) of the Meeting of Parties (for ODS disposal), and take into account the stipulations of Decision 58/19 of the Executive Committee. These requests for preparation of ODS disposal pilots will result in proposals for achieving destruction of unwanted ODS and generate practical data and experience on technologies, operational issues, costs, synergies with other related initiatives and opportunities for leveraging additional finance. This will help determine technical, economic, institutional, market and other conditions required to have cost-effective ODS disposal systems in place.

HCFC Activities

(a) Additional preparation funding for HCFC investment and associated activities

Funding requests for preparation of investment and associated activities are being made for 2 countries, Trinidad & Tobago and the Philippines, in accordance with ExCom Decision 56/16 (d).

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
Trinidad & Tobago	PRP	HCFC investment activities	12	65,000	4,875	69,875	NA
Philippines	PRP	HCFC investment and associated activities in the Refrigeration and Air Conditioning Sector including the Servicing Sector (excluding the air-to-air air conditioning sector)	12	65,000	4,875	69,875	UNIDO
Total (requests)				**130,000**	**4,875**	**69,875**	

For Trinidad and Tobago, UNDP requested at the 55 meeting 85,000 US$ for the preparation of the HPMP. At that time, the national ozone unit in T&T and UNDP were under the impression that all HCFC consumption in T&T was for servicing. Meanwhile however the country's latest HCFC consumption (2008) was reported to be 1,032.94 metric tons, which is much higher than anticipated. In addition to this, it has come to known during the preparation of the HPMP that HCFCs are also used for manufacturing (Foam and Commercial Refrigeration). It has also been revealed that HCFC 141b has been imported in premixed systems and have therefore not been detected by customs. Preliminary results confirm the presence of 3 foam companies and 1 commercial refrigeration manufacturer. This

number could be higher, and this needs further investigation during the HPMP preparation. UNDP would therefore like to request an additional 65,000 US$ (150,000 US$ in total) to take the high consumption into account, and to include the manufacturing sector in the development of the HPMP.

For the Philippines, a request for additional preparation funding for HCFC investment and associated activities in the Refrigeration and Air Conditioning Sector (excluding air-to-air air conditioning sector) is being made for the Philippines (related project concept and government endorsement letter are in the **Annex 3**):

(b) Preparation funding for HCFC pilot/demonstration projects

Please see Section III: Policy Issues.

Global Activities

UNDP had submitted a request for funding for a global technical assistance activity to the 57th ExCom meeting, for resource mobilization for maximizing climate co-benefits in HCFC phase-out. This request is being resubmitted for the 59th ExCom meeting **(Annex 4).**

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
Global	TAS	Resource mobilization for climate co-benefits	12	250,000	18,750	268,750	N/A
Total (1 request)				**250,000**	**18,750**	**268,750**	

Investment Projects

TPMPs and Sector National Plans

A total of 11 requests for annual tranches of TPMPs and Sector/National Plans are being submitted, supported by progress reports on the implementation of annual plans for the previous year and performance verification reports wherever required, which are submitted separately.

Funding requests for tranches of approved ongoing TPMPs and Sector/National Plans are tabulated below (the relevant progress reports and performance verification documentation are submitted separately):

Country	Type	Title	Amount	Agency Fee	Total	Cooperating Agency
Bahrain	INV	TPMP 2nd tranche	40,000	3,000	43,000	UNEP lead
Brazil	INV	CFC Phase-out Plan 8th tranche	100,000	5,000	105,000	UNDP lead
China	INV	Solvents Sector Plan	1,480,000	111,000	1,591,000	N/A
Costa Rica	INV	MeBr 5th tranche	726,792	54,509	781,301	N/A
Cuba	INV	National CFC Phase-out Plan 5th / 6th tranches	156,000	11,700	167,700	UNDP lead
Grenada	INV	TPMP 3rd tranche	30,000	2,700	32,700	UNEP lead
Guyana	INV	TPMP 2nd tranche	91,000	8,190	99,190	UNEP lead
Kyrgyzstan	INV	TPMP 3rd tranche	60,000	4,500	64,500	UNEP lead
Mozambique	INV	TPMP 2nd tranche	17,000	1,530	18,530	UNEP lead
Nigeria	INV	National CFC Phase-out Plan 7th/ 8th tranche	454,200	36,518	490,718	UNDP lead
Swaziland	INV	TPMP 2nd tranche	40,000	3,600	43,600	UNEP lead
Total (11 requests)			**3,194,992**	**242,247**	**3,437,239**	

HCFC investment projects

Two HCFC phase-out investment projects (one in Mexico and one in Dominican Republic) are being submitted. Funding requests for those projects are tabulated below. The relevant documents are being submitted separately.

Subst.	Type	Sector	Title	Amount	Agency Fee	Total
HCFC	INV	FOA	HCFC phase-out project in Dominican Republic (1 request)	395,500	29,663	425,163
HCFC	INV	FOA	HCFC phase-out project in Mexico (1 request)	2,790,660	209,300	2,999,960
Total (2 requests)				**3,186,160**	**238,963**	**3,425,123**

III. POLICY ISSUES

Requests for Renewal of Institutional Strengthening Projects

During the 29th Open Ended Working Group Meeting held in July 2009, intensive deliberations were made on the issue of funding of Institutional Strengthening projects beyond 2010. A decision pertaining to this issue will be considered at the upcoming XXIst Meeting of the Parties (MOP) in November 2009, preceding the 59th ExCom Meeting. In light of this, UNDP had requested a number of institutional strengthening extensions (see relevant section above) with a duration of 24 months, with the understanding that these durations could be affected by the decisions of the XXIst MOP and 59th ExCom Meeting in November 2009.

The MLF Secretariat asked UNDP to submit proposals for renewal of Institutional Strengthening projects with a duration of 12 months only. Since clear policy guidance on this issue is likely to be available prior to the 59th ExCom Meeting, UNDP has submitted the above requests for both 12 months and 24 months durations.

Preparation funding (PRP) requests for HCFC pilot/demonstration projects

The Secretariat has requested that the following submissions of preparation funding requests for three HCFC pilot/demonstration projects (two projects in the Solvents Sector in China and one project in the XPS Foam Sector in China) should not be included in the work programme amendment for the 59th ExCom meeting, as they were removed from UNDP's business plan in the 57th ExCom Meeting:

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total	Coop Agency
China	PRP	HCFC Demonstration project in Solvents	12	30,000	2,250	32,250	N/A
China	PRP	HCFC Demonstration project in Solvents	12	30,000	2,250	32,250	N/A
China	PRP	HCFC Demonstration project in XPS Foam	12	80,000	6,000	86,000	N/A
Total (3 requests)				**140,000**	**10,500**	**150,500**	

China has requested UNDP to bring this to the Committee's attention and requests that the Committee considers these requests at the 59th ExCom Meeting, although these are technically not in UNDP's 2009 business plan. Justification is provided in **Annex 5.**

HCFC Demonstration project in XPS(full project)

A request to consider inclusion back in the UNDP 2009 Business Plan came from Turkey. The funding request for a full-fledged HCFC demonstration project in the XPS Foam Sector was removed from the business plan at a previous ExCom meeting. The project, as per request of Turkey, was re-submitted separately but not recommended by the Secretariat due to the above reason.

Subst.	Type	Sector	Title	Amount	Agency Fee	Total
HCFC	DEM	XPS	HCFC demonstration project in Turkey (1 request)	192,500	14,500	207,000
Total (1 request)				**192,500**	**14,500**	**207,000**

Amendment to the UNDP Work Programme
Annexes

Annex 1. **Institutional Strengthening Renewal Requests (Argentina, Costa Rica, Cuba, Indonesia and Trinidad & Tobago)**

Annex 2. **Justification/Concepts for PRP Requests for Pilot Projects on ODS Disposal/Destruction (Colombia, Cuba, India)**

Annex 3. **Request for additional preparatory funding for the Philippines**

Annex 4. **Resource Mobilization for Climate Co-Benefits**

Annex 5. **Justifications for preparatory funding requests for HCFC pilot/demonstration (China)**

Annex 1. Institutional Strengthening Renewal Requests

(Argentina, Costa Rica, Cuba, Indonesia and Trinidad & Tobago)

Annex 2. Justification for PRP Requests for Pilot Projects on ODS Disposal/Destruction

COLOMBIA

In behalf of the Government of Colombia UNDP is requesting funding for the preparation of a pilot project on ODS destruction. The project complies with the criteria established by Decision 58/19 and it is focused on specific aspects not previously addressed by pilot projects. Previous pilot projects approved in the region were addressed to countries where there is already ODS destruction technologies in place and there is potentially a major supply of ODS from banks that could justify investments (CFC baselines above 4,000 tonnes). The case of Colombia has the following particularities:

1. Medium Size country without destruction facilities in place. This is the situation of many countries in the region, which makes this pilot attractive as the information produced could be used by other countries with comparable characteristics. The destruction of CFC 11 will be analyzed for at least one incineration technology of CFC 11 contained in the PU Foams (the information obtained could be compared with the technology being used in other pilots that consist of extracting the CFC from the foam and destroying it, which requires high volumes of CFC 11 to be economically feasible). For CFC 12 at least one destruction technology will be analyzed against mobilizing the CFCs to other countries through private operators using their existing waste management expertise and infrastructure..
2. ODS banks management and destruction research in an advanced stage. Previous and current initiatives have set the conditions to work on destruction, data has been collected and partnerships with the private sector and other governmental entities exist. This will make the pilot easier to implement.
3. Geographic conditions in the country make ODS banks fragmented in regions not always easily communicated. The project is considering including ten cities representing three climate areas (1 to 1,000; 1,000 to 2,500, and higher than 2,500 m above the sea level), each one of these areas will generate ODS from different sources (i.e. higher zones will focus more in refrigeration and lower zones in air conditioning).

The government of Colombia has been working for several years in looking for solutions to destroy the CFCs contained in banks and have implemented pilots on collection of ODS from existing banks. The present project will build from this learning experience and put the last step in the waste management chain in Colombia. We are presenting attached a comprehensive proposal explaining the background of the work being done in Colombia and what is required. Below is a summary on how the project complies with the Decision 58/19:

i. An indication of the category or categories of activities for the disposal of ODS (collection, transport, storage, destruction), which will be included in the project proposal;

This proposal will cover transport, storage and destruction (or export for destruction) of ODS already in cylinders coming from different sources as presented in the table presented in section iii below. This pilot project does not aim to duplicate what a pilot initiative in early retirement of appliances (collection) already did. Instead, it will be complementary by tackling the areas not covered yet by that pilot (transport, storage and actual destruction of the ODS). The Government has already tackled and created the partnerships required to work in collection, by having resolved the issues related to destruction

through the present proposal; the government will be able to implement in a large scale a complete ODS waste management system including collection, transportation, storage and final destruction of ODS.
Once information on logistics, costs and technical requirements to undertake these 3 categories (transport, storage and actual destruction) is generated, decisions will be made on how each one of them is going to be addressed and all the elements for the ODS waste management and disposal will be in place. At this point the country will be able to combine these steps with the existing collection scheme and expand operations. The collection efforts will provide a portion of the ODS for destruction but as mentioned before, the collection scheme is already tackled and funded by other sources.
An important aspect to consider is that Colombia is a country with several climate areas, which turns complex the management of a national project. In this sense, taking into account the regionalized infrastructure created by the National Phase Out Plan, the work will be done in 10 cities that include the three climate areas (0 to 1.000 m, 1 000 m to 2 500 m, and higher than 2500 above sea level). For each city the project will include the stockpiling, storage, transport and destruction of CFCs both concentrated and diluted. With regards to financial incentives for ODS collection to complement the destruction pilot, the following are being considered:

- Identification of national sources, through funds coming from the generation and distribution stages.
- Financial sources have also been identified and there is advance in an investment program with the Clean Technology Fund (through the IDB).
- Clean Development Mechanism, in correspondence with the indirect decrease of GHG as consequence of the Energy Efficiency improvement of the equipments.
- Voluntary carbon markets, (applied to the CFC destruction case).
- Economical instruments being identified as feasible by the Government and that incentive the buyer to change his equipment.
- Payment terms of the equipments, through traders' policies.

ii. An indication whether disposal programmes for chemicals related to other multilateral environmental agreements are presently ongoing in the country or planned for the near future, and whether synergies would be possible;

Completed activities directly related to ODS destruction:

Colombia has been one of the countries leading the discussion on ODS waste management within the Montreal Protocol framework, and has provided inputs to the studies requested by the Executive Committee on the subject. As part of this work, the following activities have been completed at the national level:

- National research on identification of ODS banks (2003, 2004)
- Research on national capacity for ODS destruction (2004)
- Research on energy consumption of national locally used refrigerators and air conditioners (2006)
- Pilot project on refrigerators early retirement and scrap processing (2008) (Explained in detail in numeral v)
- Halon banks management project completed under the NPP with the export of 7,940 kgs for critical uses in other countries (2009)

Related activities that will contribute or that could have synergies with the pilot project:

- National Plan: Though the regional centers created by the NPP the pilot project will operate at the same time in different local markets taking advantage of local expertise built and recovery & reclaiming infrastructure in place to handle CFCs.
- Chillers project: This project which is just starting will generate CFC 11 and CFC 12 that will need to be destroyed.
- National Context on Energy Efficiency: The Ministry of Mining and Energy and its subsidiary bodies have been configuring the national framework on the Policy about Energy's Rational Use. Within this framework, the substitution of domestic refrigerators has been identified as a priority activity, since in a 20-year scenario analysis the savings on consumption would be of about 198 GWH per year. For boosting this work, a Committee has been formed in which the Ministries of Mining and Energy and of Environment participate, as well as the NOU, UPME (electric utility) and the national refrigerators manufacturers.
- National Context on Wastes: Since December 2005, Colombia has a Environmental Policy for the Integral Management of Hazardous Wastes, set out with long term strategies, in the frame of the integrated product life cycle management, which general objective is to prevent the generation of hazardous wastes or residues and to promote the environmentally sound management of those being generated, with the purpose of minimizing the risks. Within the Action Plan of the Policy, it has been established as goal for the period 2006-2018 to achieve 40% elimination of hazardous wastes that are a priority under the international commitments, for the ODS case, expressed in tonnes of phased out ODS wastes, with the intermediate goal for year 2010 of having a program for the management and final disposal of ODS wastes.
- POPs and Hazardous Wastes: Within the development of the Stockholm Convention on POPs, Colombia has managed in the past years the exportation of PCBs for their destruction outside the country. Currently the Ministry of Environment submitted with UNDP to the GEF a project to manage and destroy PCBs, which includes the analysis of alternatives for destruction. There are potential synergies with ODS destruction that should be explored .
- Other initiatives include the national policy of electric and electronic equipment post-consumption and the collection of disused cellular phones and Computers.

iii. An estimate of the amount of each ODS that is meant to be handled within the project;

The current inventory of CFC and HCFC ready for destruction is 10 tonnes. Secondly, there is one tone of ODS retained in customs ready for destruction. Finally and most importantly the ODS destruction pilot will destroy the CFC contained in existing appliances that will be collected through the government collection scheme. The CFC installed banks in domestic refrigerators is 240 tonnes of CFC 12 and 10,200 tonnes of polyurethane foam containing CFC 11. For this particular pilot project the collection scheme will contribute with CFCs from 300,000 domestic refrigerators, 5,000 commercial refrigerators and 5,000 air conditioners that can be collected in one year. Taking into account the average data obtained from the pilot project carried out in year 2008 (80 grams of refrigerant gas and 3,4 kilograms of polyurethane foam recovered per refrigerator), it is expected to recover 24 tonnes of refrigerant gas and 1.020 tonnes of polyurethane foams with CFC-11. In the commercial refrigeration sector it is estimated a removal of 5,000 refrigerators, each one with a recoverable charge of one (1) kilogram of gas and 5,000 domestic air conditioners with a recoverable charge of nearly 0.5 kg of refrigerant.

The table below presents a summary of all the sources of waste ODS to be destroyed:

SOURCE	EQUIPMENT /SUBSTANCE	MATRIX	ODS Amount to be Destroyed
Current inventory of waste ODS from regional centers	Residual CFC coming from servicing and other operations through the R&R centers	CFC-11 and CFC-12	10
CFC extraction from domestic refrigerators	300.000 domestic refrigerators	CFC 12 0.080 kg/unit*	24
CFC extraction from domestic refrigerators	300.000 domestic refrigerators	3.4 kg de PU Foam/unit = 1020 ton of Foams, out o it 10% is CFC 11*	102
CFC extraction from air conditioning units	5.000 air conditioning units	Refrigerant	2,5
CFC extraction from commercial refrigerators	5.000 commercial refrigerators	Refrigerant	5
Current inventory of waste ODS retained in customs	Illegal ODS	Stored ODS	1
TOTAL			**144.5**

** Source: Information obtained from the early retirement project implemented in 2008*

The table above presents the amount of waste ODS that the country can commit to destroy directly through the present project (subject to the level of funding approved). However, it is expected that having resolved the destruction issues through the pilot project, the conditions to destroy additional ODS will be in place.

iv. The basis for the estimate of the amount of ODS; this estimate should be based on known existing stocks already collected, or collection efforts already at a very advanced and well-documented stage of being set up;

Known existing stock: 10 tonnes of CFC and HCFC (source regional centers). One additional tone of ODS waste is retained in customs for destruction (source customs department). The information on the CFCs contained in appliances is a very conservative estimation made based on real data obtained from the information gathered during the collection project on early retirement done in 2008 in Bogota. Details on this initiative can be found in the document submitted by the Government of Colombia, attached to this justification.

v. For collection activities, information regarding existing or near-future, credible collection efforts and programmes that are at an advanced stage of being set up and to which activities under this project would relate;

A pilot initiative on early retirement of domestic refrigerators took place in 2008 during four months in Bogota, with the objective of establishing a scheme by which old CFC based refrigerators of different

sizes and trademarks in the hands of end users (consumers) could be replaced by more energy efficient CFC free refrigerators, and all the materials obtained from the old refrigerators, including the ODS, could be disposed of in an environmentally sound manner. The project was funded by the participants (government, manufacturers and retailers) and a total of 2000 final users were benefited by this initiative as their energy bills were reduced. But most importantly, the project helped to establish the scheme for collection of domestic refrigerators and extraction of the ODS for destruction. Among the results obtained, the project identified all the steps required for this kind of operation (logistical, administrative and financial), identified all the involved stakeholders and engaged them to participate, measured costs, and measured quantities of ODS and other materials recoverable by unit. The main outcome of this pilot is that the conditions and the approach for collection of domestic refrigerators and extraction of ODS were established.

Having progressed on the collection phase, the issues to be tackled now by the present pilot proposal are the ones related to the ODS destruction. The collection scheme is ready to be expanded to the 10 regional centers created by the National Phase Out Plan. With participation of the 3 of the largest retail stores chains and participation of all manufacturers and importers of domestic refrigerators. This will absorb a good portion of the CFC based domestic refrigerators (and other appliances) currently functioning in the country; however, in order to expand this operation a solution has to be found for the ODS destruction. The present proposal aims to find solutions for the ODS destruction in Colombia.

vi. For activities that focus at least partially on CTC or halon, an explanation of how this project might have an important demonstration value;

The present project will focus on CFCs. With regards to halons Colombia has already taken action to manage its banks as part of the National Phase Out Plan. A national inventory of the installed quantities was performed and it was found that the main user was a company that generates and commercializes electric power. With the assistance of the National Ozone Unit this company was able to procure with the company REMTEC INTERNATIONAL the disposal of 7,940 kilograms of Halon-1301, contained in 94 cylinders, which were stored in the Hydroelectic Power Stations of San Carlos and Jaguas located in the eastern part of Antioquia. This substance was acquired by REMTEC as raw material to subsequently commercialize it in the Halon Bank of Critical Uses of the United States of America. At the end of May 2009, the packing activities for Halon-1301 were carried out as well as the container loading, which was exported from the port of Cartagena in mid-June.

DETAILED COUNTRY PROPOSAL COLOMBIA
DEMONSTRATION PROJECT PROPOSAL FOR ODS WASTES MANAGEMENT

1. BACKGROUND AND NATIONAL CONTEXT ON ODS WASTES IN COLOMBIA

Colombia has made efforts to implement a coherent environmental strategy in the management of Ozone Depleting Substances, reason for which notwithstanding the technological and economical limitations, we have tried to generate management alternatives for ODS wastes. Among the main activities where work has been done the following are highlighted: national researches for the identification and quantification of ODS banks, assessment of national management capacities for these wastes, pilot project for the substitution of domestic refrigerators (year 2008), halons management, proposal for ODS wastes management in the Montreal Protocol negotiation scenarios, etc.

1.1. National researches for the identification of ODS banks

During years 2003 and 2004 the TOU (Technical Ozone Unit) coordinated a research project with the support of the domestic refrigerators manufacturers that are part of the National Businessmen Association of Colombia (Asociación Nacional de Empresarios de Colombia - ANDI), the National University of Colombia and University of Los Andes, with the objective of gathering the information on banks of CFC-based domestic refrigerators and on the perspective of building a disassembling plant for domestic refrigerators in Colombia.

1.2. Research on national capacities for CFC destruction

With the support of the National University of Colombia, a research task was carried out for revising the national capacities for ODS destruction in Colombia (2004).

1.3. Research on the energy consumption of domestic refrigerators and air conditioners at national level (2006)

The Unit of Energy and Mining Planning (UPME by its initials in Spanish) of the Ministry of Mining and Energy and the National University performed a research on the energy consumption of air conditioners and domestic refrigerators in 4 Colombian cities. This study was used for the identification of refrigerators substitution as a core program of the national strategy of Energy's Rational Use.

1.4. Pilot project of domestic refrigerators scrap processing (2008).

The project consisted in carrying out a pilot in the city of Bogotá, with a duration of four (4) months, from April 30 to August 31 2008, for the substitution of domestic refrigerators, of different sizes and trademarks, that contained chlorofluorocarbon compounds – CFC and that were still in the hands of the final users (consumers) and the management of the wastes coming from these equipments, which included the use of parts and the destruction of CFC from the refrigeration circuit and of the polyurethane foam used as thermal isolation.

The main participants were: Mabe Colombia S.A., Industrias Haceb S.A., Almacenes Éxito S.A. (13 stores in Bogotá), Ministry of Environment, Housing and Territorial Development (MAVDT per its initial in Spanish), United Nations Development Programme – UNDP. There was also participation from: Home Appliances Chamber of the Asociación Nacional de Empresarios de Colombia – ANDI, COMPRAVENTA DE EXCEDENTES INDUSTRIALES LITO LTDA. (solicitors in charge of the use

of materials and final disposal of the wastes) and Codensa S.A., ESP. (payment financing of new equipments, support in the diffusion of the project).

1.5. Handling of the issue inside the discussion scenarios of the Montreal Protocol (2003-2009)

Colombia has led the discussion on the need of managing ODS wastes, within the framework of the different instances of the Montreal Protocol (Meetings of the Parties, TEAP and EXCOM). Resulting from one of these negotiations, a consultancy at international level was carried out through the company ICF, which comprised an analysis of the "state of the art" of ODS wastes management in seven Article 2 countries and two Article 5 countries (Colombia was one of these two countries). Likewise, several decisions from the Parties related with this issue have been promoted with other countries.

2. ACTUAL STATUS ON ODS WASTES SITUATION

2.1 CFC-INSTALLED BANKS

It is calculated that a total of three million domestic refrigerators are in the hands of the final users in the whole country. Taking into account the average data obtained from the pilot project performed in year 2008 (80 grams of CFC-12 and 3,4 kilos of CFC-11 polyurethane foam recovered per refrigerator), there are approximately 240 tonnes of CFC-12 and 10 200 tonnes of CFC-11 polyurethane foam, regarding domestic refrigeration. Other sectors with CFC-installed banks are the commercial refrigeration and air conditioning.

2.2. CFC RESULTING FROM THE REFRIGERANTS' RECOVERING AND RECYCLING PROJECT.

While developing the National ODS Phase Out Plan, Colombia has improved its environmental management strategy for refrigerants, through a project of activities' regionalization, that has enabled knowing how each region of the country works regarding the maintenance of Refrigeration and Air Conditioning Systems. This has allowed the boost of the tasks related to the Technicians Certification and the commitment on the good handling of refrigerants, specially in the tasks of recovery and recycling of these substances.

As already known, a continuous claim from the technicians is not being able to access the proper mechanisms for handling the wastes of contaminated refrigerant, which causes its venting to the environment, with the negative consequences on the same. For solving this problematic, the TOU has established a complementary strategy, implementing as from the current year five regional Refrigerants reclaiming centers. These centers will improve the available quality of the recovered and recycled refrigerant, but will not be able to meet the needs of refrigerant destruction that is already in a well-advanced contamination state. Nowadays, a complete inventory of these refrigerants does not exist, but there is a deeply-felt demand among the certificated technicians and shops. A preliminary estimated inventory is of 10 tonnes of CFC and HCFC for destruction.

2.3. WASTES OF OTHER ODS

- Halons:

Colombia has stopped importing halons since year 2002. Through the National ODS Phase Out Plan project, a national inventory of the installed quantities was performed.

The main Halon user, ISAGEN S.A. – E.S.P., utilities company that generates and commercializes electric power, was advised by the Technical Ozone Unit and was able to procure with the company REMTEC INTERNATIONAL the disposal of 7940 kilograms of Halon-1301, contained in 94 cylinders, which were stored in the Hydroelectic Power Stations of San Carlos and Jaguas located in the eastern part of Antioquia. This substance was acquired by REMTEC as raw material to subsequently commercialize it in the Halon Bank of Critical Uses of the United States of America. At the end of May 2009, the packing activities for Halon-1301 were carried out as well as the container loading, which was exported from the port of Cartagena in mid-June.

Seizures conducted by Customs (DIAN)

The Direction of National Taxes and Customs – DIAN (as per its initials in Spanish) as part of the trade control activities has seized ozone depleting substances (R-12, R-502, other mixtures of unknown composition) in the cities of Cucuta, Barranquilla and Sincelejo. A preliminary inventory allows estimating the seized ODS stock for destruction in around one (1) tonne.

3. ANALYSIS OF NATIONAL SYNERGIES WITH POLICIES ON WASTES AND ENERGY EFFICIENCY

3.1. National context on wastes

Since December 2005, Colombia has a Environmental Policy for the Integral Management of Hazardous Wastes, set out with long term strategies, in the frame of the integrated product life cycle management, which general objective is to prevent the generation of hazardous wastes or residues – 'Respel' (as known in Spanish) and to promote the environmentally sound management of those being generated, with the purpose of minimizing the risks on human health and on the environment, thus contributing to sustainable development.
The specific objectives of this Policy are: 1) Preventing and minimizing the generation of hazardous wastes; 2) Promoting the environmentally-safe management and handling of hazardous wastes; and 3) Implementing the commitments of the International Conventions ratified by the country, related with hazardous substances and wastes. This third objective refers to the harmonization, cooperation and application of strategies and actions towards complying with the implementation of the National Application Plan of the Stockholm Convention and the Phase Out Plan for Ozone Depleting Substances – ODS and their wastes according to the Montreal Protocol.
Likewise, within the Action Plan of the Policy, it has been established as goal for the period 2006-2018 to achieve 40% elimination of hazardous wastes that are a priority under the international commitments, for the ODS case, expressed in tonnes of phased out ODS wastes, with the intermediate goal for year 2010 of having a program for the management and final disposal of ODS wastes.

3.2. Relation with projects and conventions on management of chemical substances, hazardous wastes and electric and electronic equipment wastes.

- POPs and Hazardous wastes

Within the development of the Stockholm Convention on POPs, Colombia has managed in the past years the exportation of PCBs for their destruction outside the country. Currently the MAVDT is developing the adjustments of the National Adoption Plan (PDA as per its initials in Spanish).

On the other hand, in the national context of the hazardous wastes management, the country has been strengthening its national capacities through the establishment of a specific legislation framework and the development of initiatives for the management of these residues. As consequence, Colombia has a consolidated group of solicitors of this type of substances (See Annex 1).

With FAO's support, the elimination outside the country of obsolete pesticides was procured, resulting from the agriculture programs of the 1970 decade. It was also procured the elimination of DDT's obsolete stock, resulting from the malaria control programs in the 80's and 90's decades.

- National policy of electric and electronic equipment post-consumption

Colombia is currently developing a national policy on post-consumption management, within which a Law in the Republic's Congress is under discussion and process for ruling on the life cycle of these products, with the objective of avoiding their inadequate final disposal. The following activities have been also developed:

- Collection of disused cellular phones

This program has up to date 155 collection points of disused cell phones and accessories, located in 34 cities of the country: Armenia, Barrancabermeja, Barranquilla, Bogotá, Bucaramanga, Buenaventura, Buga, Cali, Cartagena, Cartago, Caucasia, Cúcuta, Florencia, Ibagué, Ipiales, Manizales, Medellín, Montería, Neiva, Palmira, Pasto, Pereira, Popayán, Riohacha, San Andrés, San Gil, Santa Marta, Sincelejo, Tuluá, Tumaco, Tunja, Valledupar, Villavicencio and Yopal. Since the signature of the 'Compromise Agreement' (Convenio de Concertación in Spanish), in April 2007, until June 2009 2 933 010 pieces have been collected, distributed between accessories (1 851 625), cell phones (578 813), Li-on batteries (337 020), boards (68 473), network material (34 954) and other equipment (62 125), from which nearly 90% has been exported for its environmentally sound management outside the country.

- Computers collection

In April 2008, the Ministry of Environment, Housing and Territorial Development (MAVDT), the Ministry of Communications and the program Computers for Education with the support of the Basel Convention Regional Center for South America, EMPA Switzerland and Stores Carrefour, carried out the pilot project “Recycle this Used Computer and Connect with a Renewed World”, with the purpose of inviting homes and the general public to hand over the computers and printers no longer used or that had been discarded by any motive, at the four collection points established to such purpose in the city of Bogotá.

This campaign took place in the city of Bogotá during April 19, 20, 26 and 27 of 2008, in Carrefour stores Calle 80, Cra 30, Calle 170 and Santa Ana, it had the total participation of 626 donors during the two calls, which handed over a total of 2415 pieces distributed in monitors (638), keyboards (558), CPU (549), mouse (423), printers (223), and portables (24); with a larger attendance at the point located in Calle 80 (32%), followed by Carrera 30 (30%), Calle 170 (23%) and Santa Ana (15%).

- Seaflower, San Andrés Biosphere Reserve campaign, free of technological wastes

The Corporation for the Sustainable Development of the Archipelago of San Andrés, Providencia and Santa Catalina - CORALINA and the Ministry of Environment, Housing and Territorial Development launched in November 2008, the first campaign for collecting cell phones and their accessories,

computers, batteries and disused tires, with the purpose of carrying out an environmentally sound management of these wastes jointly with education strategies for residents and tourists on the importance of preserving this environmental treasure.

The results of this campaign are materialized in the collection of 16 398 pieces distributed in disused tires (6 100 units - 39 Ton), computers (3 407 units - 15 Ton), cell phones (1 653 units) and batteries (5 238), which were taken from the island with the support of the National Army Force and of the Colombian Air Force, for their environmentally sound management in the continent by solicitors specialized in the issue.

- Street Lights

On last 20th of November 2008, it was signed the "Compromise Agreement for a environmentally safe management of post-consumption wastes from electrical and electronic lighting devices (light bulbs with mercury and lead) within the integral management framework", between the manufacturers, Stores Éxito, Carrefour Colombia, General Electric, Greenlight, Havells Sylvania Colombia, Mecanelectro-Homesentry, Osram, Philips, Sodimac Colombia- Homecenter, Tronex Battery Company and the Ministry of Environment, Housing and Territorial Development, which objective is the environmentally sound management of post-consumption wastes from electrical and electronic lighting devices (light bulbs with mercury and lead).

3.3. National Context on Energy Efficiency

The Ministry of Mining and Energy and its subsidiary bodies have been configuring the national framework on the Policy about Energy's Rational Use. Within this framework, the substitution of domestic refrigerators has been identified as a priority activity, since in a 20-year scenario analysis the savings on consumption would be of about 198 GWH per year. For boosting this work, a Committee has been formed in which the Ministries of Mining and Energy and of Environment participate, as well as the TOU, UPME and the national refrigerators manufacturers.

4. PROPOSAL FOR THE MPMLF

4.1. Strategy for the substitution of CFC-based refrigeration and air conditioning equipment.

This proposal will cover transport, storage and destruction (or export for destruction) of ODS already in cylinders coming from different sources as presented in the table below. This pilot project does not aim to duplicate what a pilot initiative in collection did. It aims to tackle the areas not covered yet by that pilot. The Government has already tackled and created the partnerships required to work in collection, by having resolved the issues related to destruction through the present proposal; the government will be able to implement in a large scale a complete ODS waste management system including collection, transportation, storage and final destruction of ODS.
Once information on logistics, costs and technical requirements to undertake these 3 categories (transport, storage and actual destruction) is generated, decisions will be made on how each one of them is going to be addressed and all the elements for the ODS waste management and disposal will be in place. At this point the country will be able to combine these steps with the existing collection scheme and expand operations. The collection efforts will provide a portion of the ODS for destruction but as mentioned before, the collection scheme is already tackled and funded by other sources.

By resolving the destruction issue, the collection scheme can be scaled up to a minimum of 10 cities, with three (3) large retail stores chains with national coverage and the participation of all manufacturers and importers of domestic refrigerators. The Project duration will be of one (1) year. It is estimated that in this manner at least 300 000 domestic refrigeration units and 10 000 air conditioners could be changed. Advantage will be taken from the awareness campaign for motivating and performing the substitution of commercial refrigeration equipment and of the air conditioning equipment that still operate with CFC and that are considered to be at least 15% of the total of the installed equipment in the country (information that will be gathered during the project's preparation).

With the project's execution, compliance will be given to objective 7 of the Millennium, of chapter V of the National Development Plan 2006-2011 and to the objectives and goals of the Action Plan of the Environmental Policy on the Integral Management of Hazardous Wastes or Residues.

An important aspect is that Colombia is a country with several climate areas, which turns complex the management of a national project. In this sense, work will be done in 10 cities that include the following climate areas:

- From 0 meters to 1.000 m above sea level
- From 1 000 m to 2 500 m above sea level
- Higher than 2500 meters

The project will include the stockpiling, storage and transport in each identified city. The destruction activity will be developed in the identified plants either at national or international level for such purpose.

4.2. Indication of the categories that will be included in ODS phase out.

The project will include stockpiling, transport, storage and destruction of CFCs both concentrated and diluted.

a) Stockpiling (to be covered by the collection scheme, not paid by the ODS pilot project): the refrigerators and air conditioners that are changed, will be picked up and transported by the manufacturers, importers and traders that are participating in the project. Once placed in the stockpiling plants, the recovery of the refrigerant gas will take place, which will be stored temporarily to check its quality and proceed to give the proper final destination to the same. The isolation foams will also be stored for their subsequent destruction. Further components will be handled according to the possibility of use and in all cases, an environmentally-responsible management will be provided. This activity will be covered by the project's participants (manufacturers – importers – traders)
b) Transport: The foam will be taken to the final disposal sites nationally, to destruction centers having technologies approved by the Montreal Protocol. The refrigerant gas that is in good conditions will be taken to the reclaiming centers established nationally, within the national strategy framework of Refrigerants Recovery and Recycling. The gas that does not meet the specifications will be stores for its subsequent destruction, either in the country or outside of the same.
c) Storage: both foams and gas will be correctly stored by the solicitors of the scrap process, before their final destination.
d) Destruction: the national capacity for foam destruction will be assessed, which will eventually could be eliminated in incineration kilns that meet the requirements established by the Montreal

Protocol and the national legislation. For the destruction of the refrigerant gas that cannot be used again at national level, it will be analyzed the option of acquiring a plasma-technology equipment, of small or medium capacity, that may phase out the amounts generated by the project. Colombia has experience in mobilize hazard wastes to be destroyed in other countries trough enterprises that are established in Colombia. This experience may be used in order to structure a comprehensive strategy to eliminate SAO outside the country.

4.3. Energy framework

The National Program on Energy's Rational Use is being consolidated, which proposes the substitution of domestic refrigerators among its strategic projects. It currently has the participation of national entities (Ministry of Mining and Energy, UPME, participating entities, manufacturing companies, etc.). Amongst the achievements attained at this instance, it has been possible to agree on the minimum environmental characteristics and of energy efficiency that the new refrigerators must have to substitute the old CFC-based equipment, that would participate in the substitution program.

4.4. Financial and incentives framework for the substitution program.

Within the National Program framework on Energy's Rational Use, a consultancy is being developed with Corporación Andina de Fomento that will aid to the restructuring of the Program, which will include the economical and financial analysis, as well as the institutional framework that will enable to incentive the change of refrigeration and air conditioning equipment. Among the issues that have been preliminarily identified are:

- Identification of national sources, through funds coming from the generation and distribution stages.
- Financial sources have also been identified and there is advance in an investment program with the Clean Technology Fund (through the IDB).
- Clean Development Mechanism, in correspondence with the indirect decrease of GHG as consequence of the Energy Efficiency improvement of the equipments.
- Voluntary carbon markets, applied to the CFC destruction case.
- Economical instruments being identified as feasible by the Government and that incentive the buyer to change his equipment.
- Payment terms of the equipments, through traders' policies.

4.5. Calculation base and estimation of ODS amounts that will be managed in the project.

Calculation base: it will be used the value obtained from the pilot project in which 2.000 domestic refrigerators were changes.

It is estimated that a total of three hundred thousand (300.000) domestic refrigerators will be changed by the project in one year. Taking into account the average data obtained from the pilot project carried out in year 2008 (80 grams of refrigerant gas and 3,4 kilograms of polyurethane foam recovered per refrigerator), it is expected to recover 24 tonnes of refrigerant gas and 1.020 tonnes of polyurethane foams with CFC-11.

In the commercial refrigeration sector it is estimated a removal of 5.000 refrigerators, each one with a recoverable charge of one (1) kilogram of gas and 5.000 domestic air conditioners with a recoverable charge of nearly 0,5 kg of refrigerant.

COLOMBIA ODS DESTRUCTION PILOT ANNEX- LEGAL FRAMEWORK

Colombia is a signatory to the Montreal Protocol on Substances that Deplete the Ozone Layer. The status of the ratification of this protocol and its Amendments is as follows:

Instrument	Congress Law
Vienna Convention (1985)	# 30, 5-Mar-90
Montreal Protocol (1987)	# 29, 28-Dec-92
London Amendment (1990)	# 29, 28-Dec-92
Copenhagen Amendment (1992)	# 306, 5-Aug-96
Montreal Amendment (1997)	# 618, 6-Oct-00
Beijing Amendment (1999)	# 960, 28-Jun-05

1. Control Measurements

In chronological order, the regulations that apply to ODSs are:

- **Law 99 of 1993** (Congress): The Secretary of Environment, *Ministerio del Medio Ambiente*, was created, and the National Environmental System was organized. Environmental licenses -issued by the Secretary of Environment- for the importation and production of substances controlled by international treaties were established.
- **Resolution 528 of June 18, 1997** (Secretaries of Environment and Foreign Trade): The use of CFCs (refrigerant and blowing agent) for the production of domestic refrigerators was banned.
- **Resolution 304 of April 16, 2001** (Secretaries of Environment and Foreign Trade): Imports of ODS listed in the Annex A, Group I, were regulated[1]. Annual quotas per company, defined according to the Country Programme and the import history, were established. NOU approval is required for the expedition of the environmental license.
- **Resolution 734 of June 22, 2004** (Secretaries of Environment -now *Ministerio de Ambiente, Vivienda y Desarrollo Territorial*- and Foreign Trade -now called *Ministerio de Comercio, Industria y Turismo*-): Resolution 304 was modified to take into account the adjusted Country Programme.
- **Resolution 874 of July 23, 2004** (Secretaries of Environment and Foreign Trade): Resolution 734 is expanded. Methodology to quotas allocation is defined.
- **Government Decree 423 of February 21, 2005**: Exports of substances listed in Annex A, Groups I and II, Annex B, Groups I, II and III, Annex C, Groups I, II and III, and Annex E, Group I, are regulated. They required the approval of the Secretary of Environment (UTO)[2].
- **External Resolution 21 of April 1, 2005** (Secretary of Commerce, Industry and Tourism): The approval of UTO (Secretary of Environment) for the imports of HCFCs and Halons is established. The duty positions that require NOU approval are listed: Annex A, Groups I and II, Annex B, Groups I, II and III, Annex C, Groups I, II and III, Annex E, Group I, substitutes for HFCs, refrigerant blends containing ODS and HFCs and blends based on Methyl Bromide.
- **External Resolution 22 of April 1, 2005** (Secretary of Commerce, Industry and Tourism): The exports of substances listed in Annex A, Groups I and II, Annex B, Groups I, II and III, Annex C,

[1] Unfortunately, substances listed in Annex A, Group II, were not included.

[2] In 2003 it was estimated that 12 % of the imported ODS were exported.

Groups I, II and III, and Annex E, Group I are regulated. The Secretary of Environment (UTO) should established annual quotas per substance.

- **External Resolution 23 of April 7, 2005** (Secretary of Commerce, Industry and Tourism): The list of duty positions belonging to domestic refrigerators and freezers, whose imports require UTO approval, is updated.
- **Resolution 2188 of December 29, 2005** (Secretary of Environment): Exports are regulated with reference to Decree 423.
- **Resolution 901 of May 23, 2006** (Secretary of Environment): Imports of ODS listed in the Annex A, Group II, Halons, were regulated. Annual quotas per company, defined according to the Country Programme and the import history, were established. The use of halons in new installations was banned.
- **Resolution 902 of May 23, 2006** (Secretary of Environment): Imports of ODS listed in the Annex B, Group I, II and III, were regulated. Annual quotas per company, defined according to the Country Programme and the import history, were established. The use of halons in new installations was banned.
- Since 1999 HCFCs imports require environmental license.
- **Resolutión 2120 of October 31, 2006** (Secretary of Environment): Establish the measurements to control Annex C substances.

Since December 2005 Colombia has an overall policy for the management of hazardous waste, where ODSs are included. This policy is covered in the **Decree 4741 of 2005** based on the implementation of the Basel Convention.

Annex 2(cont). Justification for PRP Requests for Pilot Projects on ODS Disposal/Destruction

CUBA

On behalf of the Government of Cuba UNDP would like to request funding for the preparation of an ODS destruction demonstration project in Cuba. The project complies with the criteria established in decision 58/19. This project will be the first of its kind in the Caribbean region, and it will generate valuable information about possible models to establish a long term self sustained system to collect ODS from the banks and destroy them taking into consideration the specific characteristics and needs of Small Island Development States and in the Caribbean region. Furthermore, this information could also be helpful to Central American countries interested to undertake similar approaches to manage their ODS banks. Taking into consideration the amount of work already done by Cuba on this area (explained below) the pilot project will benefit from already existing data and its burden will be reduced to only the final stages of the establishment of this ODS disposal system.

Several factors make this project unique:

1) Out of the 33 ODS Destruction pilots included in the three agencies and Japan business plans, this is the only one addressing all the aspects of a complete ODS waste management system in a SIDS. Although one of the demonstration projects already approved will explore regional and sub-regional transportation of ODS among countries in Asia (probably including some islands), this is not the case in Cuba where local destruction will be considered part of the strategy. If destroying ODS in Cuba becomes possible, any learning regional transportation could be used by other islands and Central American countries to send their ODS to be destroyed in Cuba. It is important to remember that although there are two countries with operational ODS destruction capacity in the region, none of them is likely to receive ODS from other countries due to their national waste management policies.

2) The demonstration project will create the necessary conditions to set up the proper logistics for transport, storage and destruction of ODS in Cuba and will explore different options in order to assure the long term sustainability of ODS destruction in Cuba. It will build from a remarkable energy efficiency experience being implemented by Cuba during the last 4 years, by which 2.6 million CFC based domestic refrigerators have already been collected and dismantled, and 48.3 tones of CFC have been cumulated for destruction.

3) The project will demonstrate the feasibility of a destruction technology developed by Japan for Cement Kilns that has not previously been tested in the region. The economics and sustainability of ODS destruction in Cuba will be explored in view of the country's replacement programme mentioned above. In 2006 a technical delegation from the government of Cuba was invited by the government of Japan to attend a demonstration of the ODS technology in Japan. Subsequent to the demonstration it was considered that the technology could perfectly fit the needs of Cuba and countries with comparable characteristics and Cuba made a feasibility study to evaluate a possible site. It was determined that the Cement Kiln in "Fabrica de Siguaney" in the Sancti Spiritus Province would be a very good candidate.

4) None of the demonstration projects approved at ExCom 57 deals with the logistical characteristics of SIDS.

5) With regards to the financial sources to maintain the ODS destruction operations in the future, different to other demonstration projects the pilot project in Cuba is not considering a-priori market based mechanisms. The demonstration will focus on alternative solutions to the market based solutions tested in other countries.

6) With the exception of the Destruction technology, Cuba has already developed all the individual components that are needed for a comprehensive ODS destruction system (recollection, transport, storage and Destruction). There is available data that would take years to collect in a pilot where no previous collection efforts undertaken. The challenge is to set up the all the logistics that will bring all the individual pieces together and make it work as a sustainable comprehensive system coordinated by the central government.

7) Cuba has previously explored the possibility of exporting ODS for destruction in Mexico. Many barriers (economic, legal, Basel and Rotterdam conventions stipulations, etc.) finally make it difficult for Cuba to export ODS for destruction. Given the high quantity of Cuba already recollected as well as the perspectives for the future, it is considered of utmost importance to have a national based solution for ODS destruction. Other SIDS in the region could benefit from the destruction facility in Cuba.

8) The Caribbean is underrepresented in the global carbon market, and it would in practical terms be difficult to generate a project for the voluntary market for Cuba. However, the project would explore that as well as other potential co-financing options.

i. An indication of the category or categories of activities for the disposal of ODS (collection, transport, storage, destruction), which will be included in the project proposal;

Cuba introduced in 2006 the energy revolution year to promote the complete substitution of old energy inefficient domestic refrigerators and air-conditioning units. The programme has been actively supported by the National Ozone Unit in order to make sure that ODS have been properly recovered. The programme is aiming at replacing 3 million units of domestic refrigerators and an un-quantified number of old air-conditioning units. So far the ambitious recollection programme has replaced 2.6 million refrigerators and more than 276.000 air-conditioning units. The government of Cuba has funded the complete recollection, substitution and de-manufacturing programme with their own funds. Under the National CFC Phase Out Plan more than 80 Recovery and Recycling centers have been established and they have played an important role in the recovery of refrigerants. The main challenge in Cuba is related to setting up the logistics for transport, storage and destruction of ODS.

The present project will build from the experience gained and propose a sustainable long term collection, transportation, storage, destruction scheme that could expand to ODS extraction from other kind of banks (mostly commercial refrigeration and chillers)

ii. An indication whether disposal programmes for chemicals related to other multilateral environmental agreements are presently ongoing in the country or planned for the near future, and whether synergies would be possible;

There are currently no other ongoing chemical disposal programmes in Cuba.

iii. An estimate of the amount of each ODS that is meant to be handled within the project;

Cuba has under the national recollection programme recovered a total of 133.164 tons of ODS (48.3 tons of CFC and 84.9 tons of HCFC). The estimation is that up to a total of 299 tons of ODS could be recovered before the end of 2010 under the NPP, the Chillers project, and the continuation of the substitution programme of Domestic refrigerators and air-conditioning units.

Description	**Quantity (T)**	**R-12**	**R-11**	**R-22**
National substitution programme of Domestic refrigerators and inefficient air-conditioning units.	**133,1**	**48,3**	**-**	**84,8**
Recovery and Recycling programme in 750 workshops through out the country.	**130**	**129**	**1**	**-**
Chillers Replacement Project	**2,5**	**-**	**2,5**	**-**
Commercial Retrofit Programme under the NPP	**35**	**35**	**-**	**-**
Total	**299,16**	**212,**	**3,5**	**84,8**

iv. The basis for the estimate of the amount of ODS; this estimate should be based on known existing stocks already collected, or collection efforts already at a very advanced and well-documented stage of being set up;

As mentioned in iii) more than 133 tons of SAOs have already been recollected and are currently store in large cylinders in Cuba.

v. For collection activities, information regarding existing or near-future, credible collection efforts and programmes that are at an advanced stage of being set up and to which activities under this project would relate;

The substitution of domestic refrigerators and air-conditioning units programme is under full implementation and has been so for several years. It has been fully funded by the Government of Cuba. The Commercial Retrofit programme under the National Plan as well as the Chillers replacement project will promote additional recovery of CFCs.

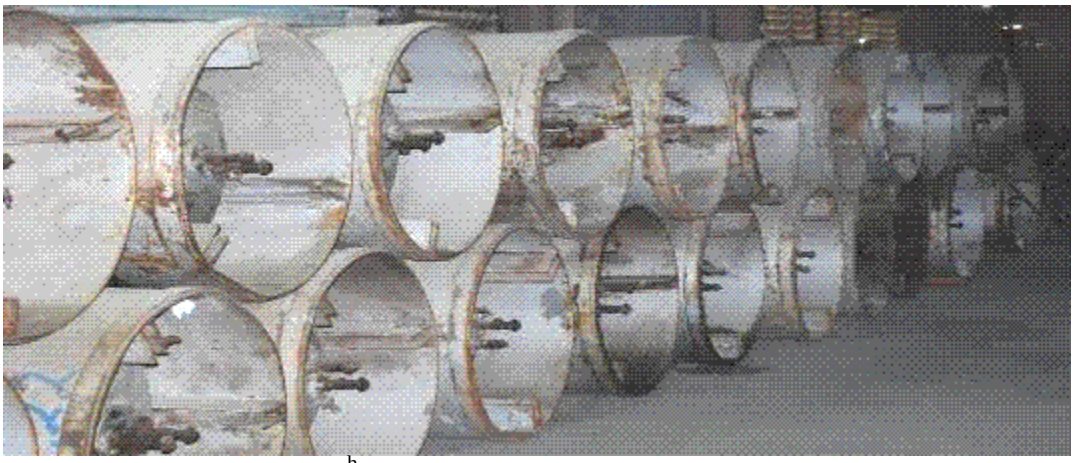
vi. For activities that focus at least partially on CTC or halon, an explanation of how this project might have an important demonstration value;

This project will focus exclusively on the destruction of contaminated CFCs and HCFCs.

Detailed information on the Cuban experience and proposal can be found in the attached document.

59h Executive Committee Meeting

ODS DISPOSAL DEMOSTRATION PROJECTS FOR CUBA



59h Executive Committee Meeting

Proyecto Demostrativo de Destrucción de SAO para Cuba.

ODS DISPOSAL DEMOSTRATION PROJECTS FOR CUBA

Pais: **CUBA**

Región: **CENTROAMÉRICA Y EL CARIBE**

Sector: **DESTRUCCIÓN DE SAO**

PROJECT DURATION:	1 years (Dec 2009 - Nov 2010)
PROJECT IMPACT:	
PROJECT COST:	
AGENCY SUPPORT COST:	
TOTAL COST TO THE MLF:	
SOURCE OF FUNDS:	Multilateral Fund (MLF) for the Implementation of the Montreal Protocol.
NATIONAL IMPLEMENTING AGENCY:	Technical Ozone Office; Ministry of Science, Technology and Environment
IMPLEMENTING AGENCY:	UNDP
SUBMISSION DATE:	November 2009 (59h Executive Committee Meeting)

1. BACK GROUND

La 20 Reunión de las Partes del Protocolo de Montreal aprobó la decisión XX/7 que indica al Excom incluir en sus planes de negocios proyectos Demostrativos de Destrucción de SAO para países articulo 5 y que cubran los aspectos de recolección , transportación, almacenamiento y destrucción de SAO con una muestra representativa regional de países articulo 5.

La 58 reunión del Excom aprobó los lineamientos para la asignación de fondos a los proyectos demostrativos para la destrucción de SAO de acuerdo al párrafo 2 de la decisión XX/7 de la 20 Reunión de las Partes.

Cuba implementa el plan Nacional de eliminación de CFC con PNUD que le permitirá en el 2009 eliminar la importación-consumo total de CFC y prepara su Plan nacional de Eliminación de HCFC que le permite actualmente de disponer de volúmenes importante de SAO que de no ser destruidos de forma acelerada se convertirían en un peligro potencial de emisión a la atmósfera de no acometerse un proyecto de destrucción de forma acelerada.

Cuba tiene un levantamiento de equipos de refrigeración y aire acondicionado que va a ser actualizada y que permite estimar el equipamiento existente, los talleres y el personal técnico existente en Cuba, las importaciones de equipamiento realizada en los últimos años, así como se capacitaron mas de 5,300

técnicos y mecánicos en buenas Practicas de refrigeración que permiten realizar una razonable valoración del Banco de equipos con CFC y SAO y los volúmenes disponibles de SAO a destruir.

Cuba desarrolla un grupo importantes de proyectos nacionales y el Fondo Multilateral del Protocolo de Montreal mediante las agencias PNUD, Canadá y Alemania en su momento que le permiten de disponer de proyectos importantes que garantizan la disponibilidad de tecnología y equipamientos por esta vía.

Se contó con la ayuda de Japón y una visita a ese país que permitió el acceso a varias tecnologías y definir la más conveniente para Cuba así como recibir la tecnología japonesa, definir las bases del proyecto, la tecnología y los equipos y materiales necesarios para utilizar la tecnología de Hornos de cemento desarrollada en Japón.

Por otra parte se valoraron las fábricas de cemento disponibles en Cuba y se determino la Fábrica de Siguaney en la Provincia de Sancti Spiritus como la que más se adecuaba, y realizando un estudio preliminar para realizar el proyecto de la instalación y la adecuación de la tecnología dada por Japón.

2. País y Región

La Republica de Cuba es un país en desarrollo clasificado como articulo 5, situado en la **Región de Centroamérica y el Caribe, país insular**, clasificado como país de no bajo consumo en el Protocolo de Montreal el cual ratifico el Protocolo de Montreal en 1992 así como todas sus enmiendas y cumple todos sus compromisos con el Protocolo de Montreal de forma precisa y completa.

1. CONSUMO DE SAO EN CUBA

Año	Consumo

1993	125	ODP Tonnes
1994	150	ODP Tonnes
1995	546.2	ODP Tonnes
1996	663.8	ODP Tonnes
1997	665.4	ODP Tonnes
1998	531.4	ODP Tonnes
1999	571.4	ODP Tonnes
2000	533.6	ODP Tonnes
2001	504.0	ODP Tonnes
2002	488.8	ODP Tonnes
2003	481	ODP Tonnes
2004	445.1	ODP Tonnes
2005	208,6	ODP Tonnes
2006	239.6	ODP Tonnes
2007	83.5	ODP Tonnes
2008	74.4	ODP Tonnes

Substance	ODS Consumption by Sector in Tons/Year 2008							
	Aerosol	Foam	Fire	Refriger-ation	Solvents	Fumiga-tion of soils	Quarantine and pre-shipment	Total
CFC-11	7.00			0				7.00
CFC-12	55.93			11,49				67,42
CFC-113								0
CFC-114				0				0
CFC-115				0				0
halons				0				0
carbon tetrachloride					0,01			0,01
methyl chloroform					0			0
HCFC-22 HCFC-141b		0 9,19		230,21				230,21 9,19
HCFC-123 HCFC -124				0,54 0,34				0,54 0,34
methyl bromide						0	1,5	1,5

2. ACCIONES QUE SE DESARROLLAN EN CUBA POR EL GOBIERNO DE CUBA Y EL PROTOCOLO DE MONTREAL Y QUE CONTRIBUYEN AL PROYECTO DE DESTRUCCIÓN DE SAO.

Programa de sustitución de refrigeradores y aires acondicionados domésticos ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país.

Como parte del de la Revolución Energética el gobierno de Cuba desarrolla el Programa de sustitución total de refrigeradores y aires acondicionados domésticos ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país, El Programa se encuentra en una etapa muy avanzada prácticamente en la etapa de finalización.

El Programa tiene como objetivos fundamentales

- **El Ahorros de valores importantes de energía eléctrica** mediante la sustitución 3 Millones de los refrigeradores domésticos (prácticamente el total de los existentes) y 300,000 aires acondicionados ineficientes en su gran mayoría de entre 20 y 60 años de uso por equipos nuevos de muy bajo consumo de energía, Estos ahorros posibilitan disminuir la quema de miles de toneladas de combustibles fósiles, y liberar grande capacidades de generación de termoeléctricas evitando la inversión de nuevas capacidades necesarias para el desarrollo del país
- **La Preservar el Medio Ambiente** especialmente la Protección de la Capa de Ozono mediante la recuperación de cientos de toneladas de CFC y HCFC ,

La eliminación definitiva del uso y consumo de CFC en la refrigeración domestica en Cuba y creando las bases para la eliminación de los HCFC cumpliendo los compromisos de Cuba en el Protocolo de Montreal

Evitando la emisión de millones de toneladas de carbono a la atmósfera, potentes gases de efecto invernadero mitigando de forma importante los efectos del cambio climático.

- **Elevación de la calidad de la vida de la población cubana** al sustituir los refrigeradores viejos e ineficientes con tiempo de vida entre 20 y 60 años por nuevos, modernos con mayores prestaciones y eficientes, logrando disminuciones importantes en el pago eléctrico por la población, así como la entrega de los equipos en condiciones muy favorables al suministrarse a precio de costo y facilidades de varios años de pago en correspondencia con el poder adquisitivo de cada uno,

El proyecto beneficia a toda la población del país y no a una parte y se desarrolla con la participación de los organismos del estado, gobiernos provinciales, municipales, locales y la comunidad en cada territorio que permite vincular a toda la población cubana a este programa.

Mediante el Programa se han sustituido ya mas de 2 millones 600,000 refrigeradores y 276 mil aires acondicionados domésticos, altos consumidores de energía y que utilizan SAO como gas refrigerante.

También permite el reciclando y reventa de muchos otros materiales tal como metales, aluminio, vidrio y plásticos

Para su implementación se contó con **una gran inversión de mas de $700,000 millones de dólares realizada por el Estado cubano.**

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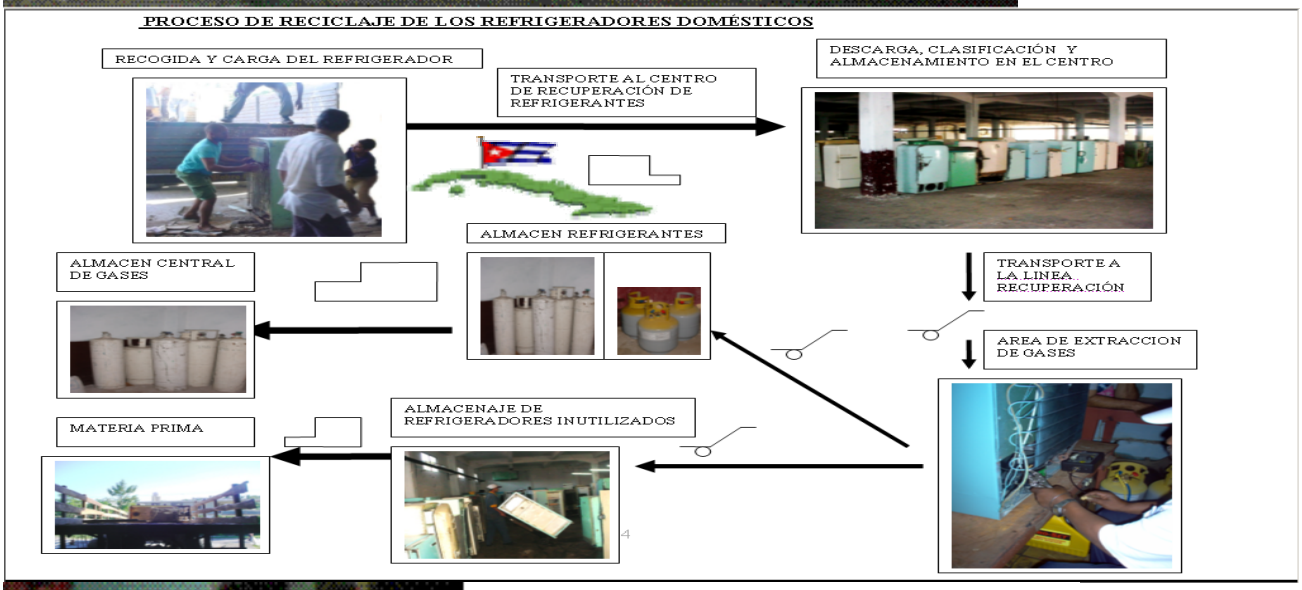
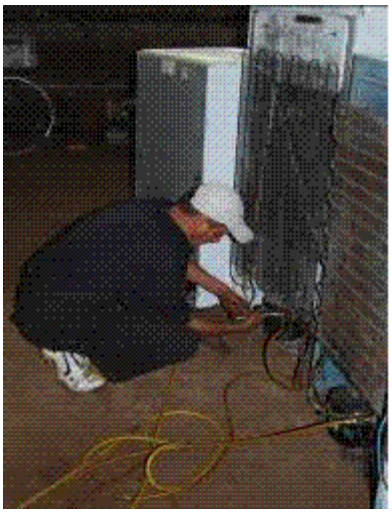
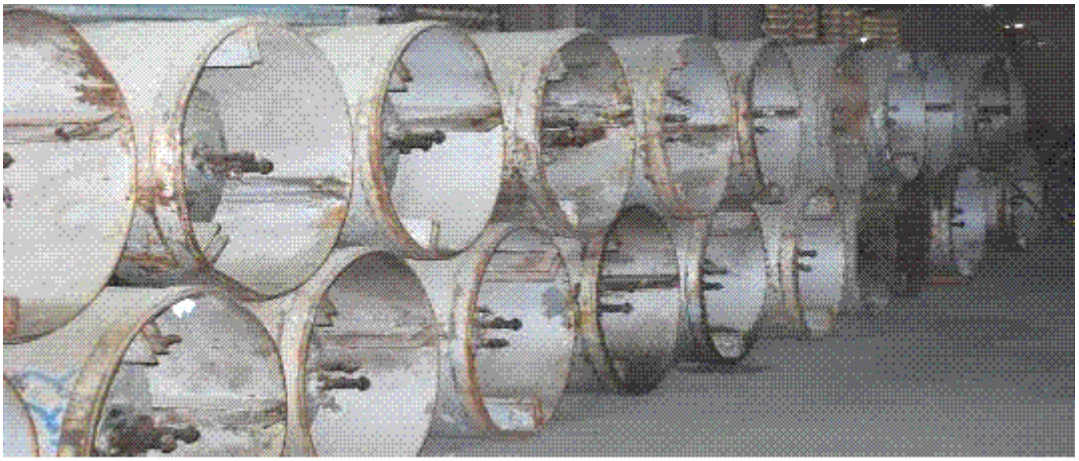

PROCESO DE RECICLAJE DE LOS REFRIGERADORES DOMÉSTICOS
RECOGIDA Y CARGA DEL REFRIGERADOR
TRANSPORTE AL CENTRO DE RECUPERACIÓN DE REFRIGERANTES
DESCARGA, CLASIFICACIÓN Y ALMACENAMIENTO EN EL CENTRO
ALMACEN REFRIGERANTES
ALMACEN CENTRAL DE GASES
TRANSPORTE A LA LINEA RECUPERACIÓN
AREA DE EXTRACCION DE GASES
ALMACENAJE DE REFRIGERADORES INUTILIZADOS
MATERIA PRIMA


Ciudad de La Habana
La Habana
Matanzas
Villa Clara
Sancti Spíritus
Pinar del Río
Camagüey
Las Tunas
Cienfuegos
Isla de la Juventud
Ciego de Ávila
Holguín
Granma
Santiago de Cuba
Guantánamo



Se crearon más de 80 centros especializados de Recuperación de Refrigerantes en todo el país donde se han recuperado un total de 133,16 T de SAO, encontrándose almacenadas especializados en almacenes Nacionales, provinciales y de centros) del MINCIN en espera de su destrucción (existe peligro de por el tiempo almacenado se produzcan fugaz a la atmósfera de SAO),



SAO ALMACENADAS PARA DESTRUIR

Refrigerantes Almacenados para destrucción.	TOTAL (Kg)
R-12	48,308.45
R-22	84,855.46
Total	**133,163.91**

AHORROS MÁS IMPORTANTES ALCANZADOS

En un año se logro

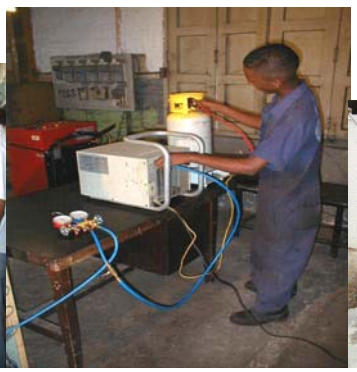
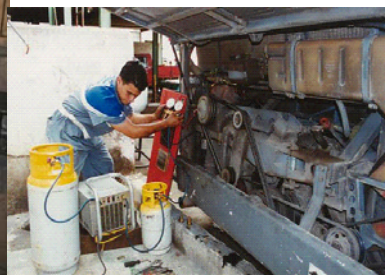
- La Reducción de la demanda máxima en 248,3MW

Equivalente a una inversión de 248 millones de dólares.

- Ahorro de 2 476 GWh en un año equivalente a 705662 toneladas de combustible por la sustitución de refrigeradores,,
- La Sustitución de 270,000 aires acondicionados Ineficientes, altos consumidores de energía se logra un Ahorro de 360 GWh en un año equivalente a 102,572 toneladas de combustible y
- En Total se logra un Ahorro de 2 836 GWh en un año y en 10 años 28,360 GWh
- Equivalente a 808,000 toneladas de combustible en un año, y en 10 años 8,080,000 toneladas de combustible

POR AHORRO DE ENERGÍA ELÉCTRICA Y SAO EN UN AÑO SE DEJARON DE EMITIR UN TOTAL DE 3, 730, 000 TONELADAS DE CO2,
EN 10 AÑOS SE DEJARAN DE EMITIR EN TOTAL 37, 300,000 TONELADAS DE CO2 UNA IMPORTANTE CONTRIBUCIÓN AL CAMBIO CLIMATICO

Programa de Recuperación y Reciclaje en la refrigeración domestica, móvil, comercial e industrial en más de 750 talleres en todo el país. Esto permitirá una recuperación de mas 130 T de refrigerante R-12 y R-11 en mas de 5000 equipos estimados que se encuentran en los en uso en estos momentos. Ello esta vinculado a varios proyectos de Recuperación y reciclaje que se llevan a cabo desde 1995 con el PNUD y Canadá.

Proyecto demostrativo de sustitución de chillers con R-11 CFC en hospitales, centros científicos y culturales.

El Proyecto incluye la sustitución de mas de 10 Chiller de entre 150 y 250 T de refrigeración que utilizan R-11 por nuevos chillers más eficientes con una disminución de un 30-40% del consumo de energía y con refrigerante que no afectan la capa de Ozono, libre de CFC, que se lleva a cabo con PNUD y Canadá. Posteriormente se prevé la sustitución de unos 32 chillers en otras instituciones y áreas como resultado de la extensión de los resultados del proyecto

Esto prevé recuperar más de 2.5 T de refrigerante R/11 que serán llevadas a destruir en el programa de destrucción.

. **Programa de reconversión de equipos de refrigeración y climatización** comerciales e industriales como parte del Proyecto Plan Nacional de eliminación de CFC en Cuba que se lleva a cabo con el PNUD y CANADA. Incluye la reconversión de mas de 800 equipos de diferentes magnitudes con CFC a refrigerantes alternativos. Esto permitirá recuperar más de 35 Toneladas de R-12 en los equipos reconvertidos que posteriormente serán destruidos.

2.5 Proyecto de purificación, separación y obtención de hidrocarburos refrigerantes LB-12, 600ª. Y 290ª mediante la instalación de una nueva planta de separación de gas licuado del petróleo y la obtención de gases puros y mezclas refrigerantes con una capacidad de 60 T por año en la refinería Hermanos Gomes de de Santiago de Cuba.

Con el auspicio de Canadá y Alemania, su principal objetivo es garantizar en el mercado interno un refrigerante de producción nacional con calidad y que no daña la Capa de Ozono, para ser empleado en la refrigeración doméstica y en pequeñas instalaciones de refrigeración comercial sustituyen el uso de los CFC y los HCFC.

Esto tendrá un impacto positivo en el mejoramiento de la eficiencia energética y la disminución de los gases de efecto invernadero.

Vista de la moderna planta para producir el refrigerante cubano LB 12, ubicada dentro de la refinería de petróleo "Hermanos Díaz" de Santiago de Cuba.

3. CANTIDAD DE SAO QUE SERÁN TRATADAS MEDIANTE EL PROYECTO DEMOSTRATIVO DE DESTRUCCIÓN.

RESUMEN DE LAS CANTIDADES A DESTRUIR MEDIANTE EL PROGRAMA DE DESTRUCCION

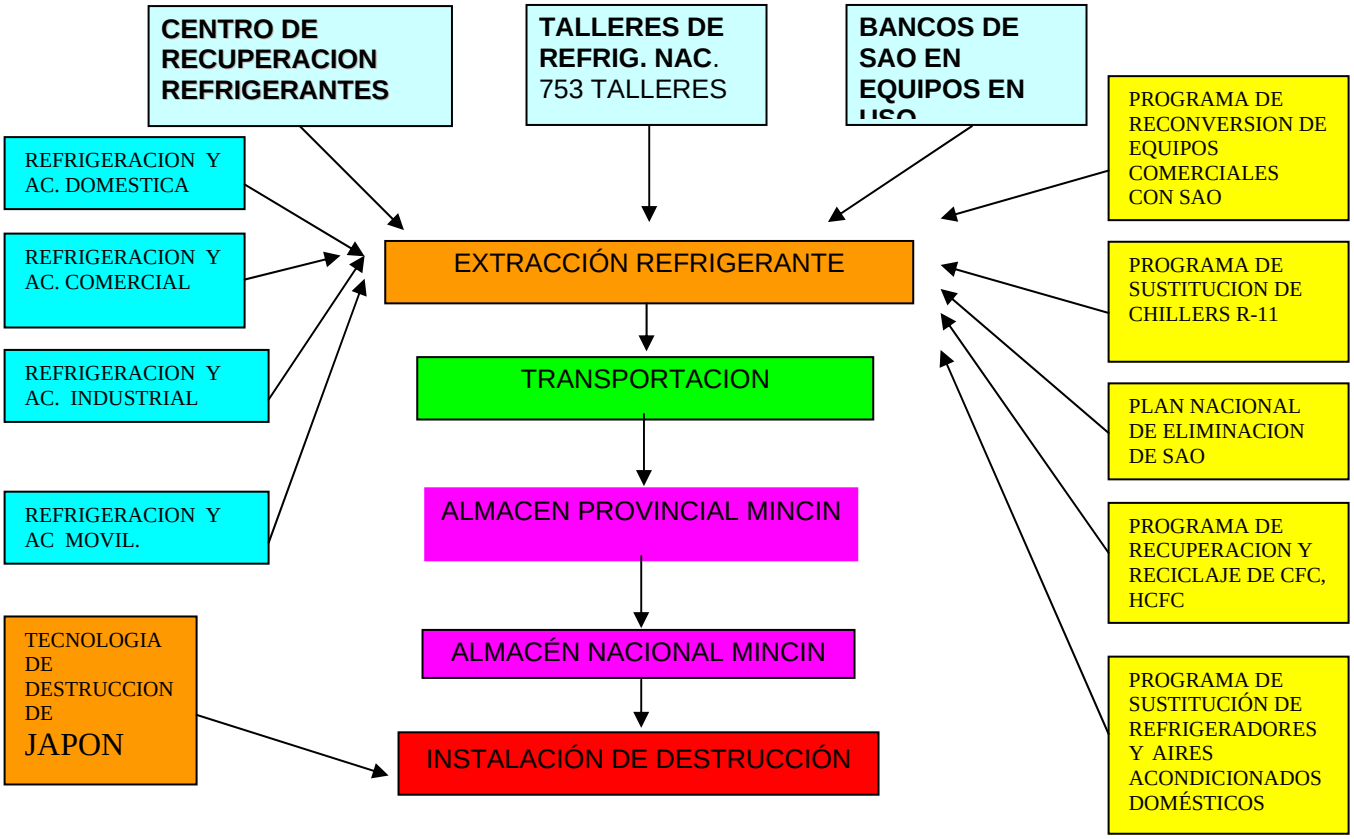
Descripción	Cantidad (T)	R-12	R-11	R-22
Programa de sustitución de refrigeradores y aires acondicionados domésticos ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país	**133,1**	**48,3**	**-**	**84,8**
Programa de Recuperación y Reciclaje en la refrigeración domestica, móvil, comercial e industrial en más de 750 talleres en todo el país	**130**	**129**	**1**	**-**
Proyecto demostrativo de sustitución de chillers con R-11 CFC en hospitales, centros científicos y culturales.	**2,5**	**-**	**2,5**	**-**
Programa de reconversión de equipos de refrigeración y climatización comerciales e industriales como parte del Proyecto Plan Nacional de eliminación de CFC en Cuba.	**35**	**35**	**-**	**-**
Total	**299,16**	**212,**	**3,5**	**84,8**

4. PROGRAMAS PARA LA DESTRUCCION DE QUIMICOS

En Cuba no existen proyectos y programas para la destrucción de químicos relacionados con otros acuerdos ambientales.

5. PROCESO DE RECOLLECCION, RECUPERACION, TRANSPORTACION, ALMACENAMIENTO Y DESTRUCCION

Abarca desde que se le extrae al equipo el refrigerante en el taller, centro de recuperación de refrigerantes o lugar en que se encuentre instalado el equipo, hasta lograr la segura destrucción del refrigerante.



7. Tecnologías de destrucción

En colaboración con el gobierno de Japón se realizo una valoración de las alternativas viables para la destrucción de las SAO bajos las condiciones de Cuba. Se realizó una visita a Japón a la División de Medio Ambiente Global del Ministerio de Medio Ambiente y la Oficina de control de CFC Ministerio del Ambiente de Japón, a la fabrica de cemento “Sumimoto Osaka Cement co ltd en Osaka ciudad de

Ako y a la planta de destrucción de desechos del grupo sanyu situada en la ciudad de YOKOHAMA donde pudimos obtener la tecnología y los posibles insumos necesarios.

Se determino que la tecnología mas factible técnico y económicamente viable era la destrucción en Hornos de fabricas de cemento, gracias al gobierno de Japón se puso la tecnología a disposición de Cuba, incluida el listado de materiales a adquirir (suministrador, precios etc.) para crear las condiciones y facilidades en una fabrica de cemento en Cuba. Quedando pendiente a la creación de lineamientos y aprobaciones de proyectos en el FMPM.

Por otra parte se valoraron las fábricas de cemento disponibles en Cuba y se determino la Fábrica de Siguaney en la Provincia de Sancti Spiritus situada en el centro del país como la que más se adecuaba, realizando un estudio preliminar para realizar el proyecto de la instalación y la adecuación de la tecnología dada por Japón

Los hornos cementeros son una excelente opción técnica para eliminar residuos debido a las características especiales que presentan como son:

- **Altas temperaturas.** Se alcanzan temperaturas en la llama de 1800-2000 Cº y de 1400-1500 Cº en el material, garantizando la destrucción de cualquier sustancia orgánica.
- **Altos tiempos de residencia.** Como consecuencia del tamaño del horno y de los caudales de aire operados, los tiempos de residencia de los gases se encuentran en el orden de 6 segundos en el horno propiamente dicho, sin considerar el tiempo de residencia en las torres de intercambio térmico. Esto permite que todas las sustancias orgánicas en fase gaseosa se oxiden completamente.

- **Ambiente altamente alcalino** en el interior del horno de clinker, lo cual garantiza la neutralización de los compuestos ácidos tales como ácido clorhídrico, fluorhídrico y otros como los compuestos de azufre (SO_2 y SO_3).
- **No se genera ningún residuo**. No se producen escorias ni cenizas. Los metales pesados son incorporados, de forma estable, a la estructura del clinker sin mermar sus propiedades ni su calidad final.

A partir de que las temperaturas en el horno rotatorio de las plantas cementeras alcanza valores superiores a los 1500 ºC y de que el tiempo de permanencia de los gases a esta temperatura excede los 6 segundos, este se comporta como un incinerador ideal para la destrucción de compuestos orgánicos de elevada estabilidad química como los CFC y los HCFC.

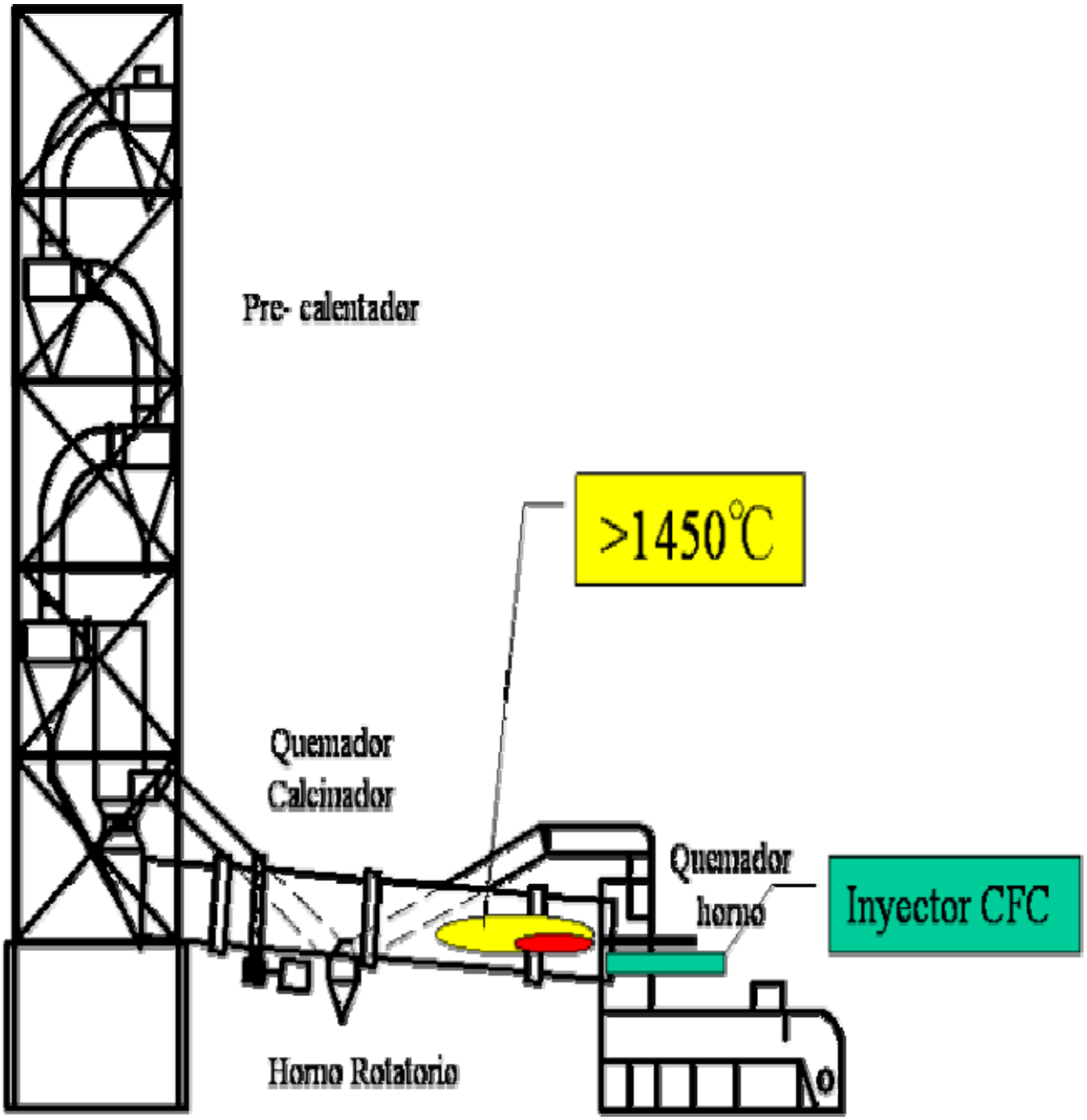
La destrucción de los gases freones en las fábricas de cemento, resuelve uno de los principales problemas que genera la incineración de estas sustancias, la emisión de gases ácidos (HCl y HF), pues estos reaccionan con las sales de calcio presentes en la materia prima, formando $CaCl_2$ y CaF_2, los cuales no se emiten con los gases de salida; si no pasan a formar parte del clínker sin afectar las características del mismo.
Por otra parte el cloro contenido en estos gases constituye el principal problema porque puede afectar la calidad del cemento y la operación del horno. Excesos de cloro (Cl^-) presente en los gases calientes que circulan, contribuyen a desarrollar ilimitadamente el espesor de la costra interior adherida al material refractario que puede llegar a reducir marcadamente el interior del horno afectando el rendimiento productivo del mismo; este efecto se acentúa en los hornos de proceso seco con precalentador de ciclones, donde la concentración de cloro se enriquece en los ciclones inferiores de 100 a 250 veces con relación a la concentración en el clinker; provocando la formación de minerales de bajo punto de fusión en su combinación con los óxidos de calcio, sílice y azufre, lo que origina incrustaciones y tupiciones que impiden la operación del horno.

Por lo anteriormente dicho es de vital importancia el control de la dosificación de los CFCs que se alimentan al horno.

La dosificación de los gases al horno se realizará en función de la concentración de CFC en el flujo alimentado, de modo que no afecte la operación estable de los hornos y la calidad del clínker.

Esquemas de las instalaciones de CFCs

Destrucción en Horno de Cemento



CONCLUSIONES:

1. **En el Fondo Multilateral del Protocolo de Montreal no existen proyectos demostrativos de destrucción de SAO aprobados para la Región de Centro América y el Caribe en países de medio-bajo consumo**, ni para ninguna región insular en el mundo por lo que es un proyecto único.

2. **Cuba dispone de cantidades importante de SAO almacenadas**, más de 133 T de SAO listas para la destrucción inmediata. sin solución en estos momentos y en peligro de escape a la atmósfera por el tiempo almacenadas, lo que constituye una singularidad en el mundo.

3. **Cuba ya no importa CFC** desde el 31 de Diciembre del 2008 y las cantidades almacenadas se incrementan y la necesidad de destrucción se hace imprescindible e inminente darle solución a este grave problema ambiental.

4. **Cuba posee un avanzado Programa de sustitución <u>total</u> de refrigeradores y aires acondicionados domésticos** ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país, destacándose que abarca a toda la población del país y no a una parte del mismo. El Programa se encuentra en una etapa muy avanzada prácticamente en la etapa de finalización no obstante ya mas de 2 millones 600,000 refrigeradores y 276 mil aires acondicionados domésticos, altos consumidores de energía y que utilizan SAO como gas refrigerante se han sustituido

5. **En Cuba no existen proyectos y programas para la destrucción de químicos** relacionados con otros acuerdos ambientales, por lo que esta es la única alternativa viable.

6. **Cuba dispone de una cantidad importante de Programas y proyectos** que le garantizan una continuidad en la disponibilidad de SAO a destruir.

7. **Cuba posee experiencia en la implementación de proyectos de sustitución de refrigeradores AC, recuperación de refrigerantes, instalaciones de recuperación, centros de recuperación**, instalaciones y personal preparado y capacitado listo para iniciar las tareas de recolección y almacenamiento de las SAO a destruir. Lo que constituye un gran adelanto y una singularidad a destacar.

8. **Cuba posee una importante infraestructura y personal capacitado, creados por los proyectos del Fondo Multilateral** del Protocolo de Montreal vinculados al sector de la refrigeración y AC. Así como del gobierno de Cuba en la recuperación de refrigerantes que podrían usarse para el desarrollo del proyecto y acelerar su desarrollo.

9. **Cuba dispone de la tecnología en Hornos de cemento que le fue brindada de forma cooperativa y amable por Japón,** así como los listados de materiales fundamentales que es una base importante para el comienzo de forma inmediata de los trabajos. Lo que constituye un gran adelanto y una singularidad a destacar.

10. **Cuba tiene seleccionada una planta de cemento en SIGUANEY y hecho los estudios iniciales** para comenzar de forma acelerada los trabajos de destrucción de

SAO en esta instalación. Lo que constituye un gran adelanto y una singularidad a destacar.

11. **El gobierno de Cuba posee una fuerte voluntad política y una gran vocación ambiental para impulsar en forma decidida los trabajos de destrucción en forma acelerada** así como asumir la inversión de infraestructura y de personal calificado que se requiera. Ello garantiza la sostenibilidad del proyecto y la garantía de su acelerado desarrollo.

12. **Cuba posee un grado elevado de avance de las actividades a realizar que constituyen una gran fortaleza** y lo ponen en posición única en estos momentos en el mundo y la región.

13. **Todo ello permite reproducir las experiencias con gran rapidez tanto en la región así como en los países insulares de cualquier otra región** Lo que constituye un gran adelanto y una singularidad a destacar

Annex 2(cont). Justification for PRP Requests for Pilot Projects on ODS Disposal/Destruction

INDIA

PROJECT CONCEPT

COUNTRY:	INDIA **IMPLEMENTING AGENCY:** UNDP
PROJECT TITLE:	Preparation of a demonstration project for disposal of CTC and other ODS in accordance with MOP Decision XX/7 and ExCom Decision 58/19
PROJECT IN CURRENT BUSINESS PLAN:	Yes
SECTOR:	ODS Destruction (DES)
SUB-SECTOR:	N/A
ODS USE IN SECTOR:	N/A
PROJECT IMPACT:	Up to 1,500 ODP tonnes/year (CTC) and up to 100 ODP tonnes (other ODS)* *Preliminary estimates. More accurate estimates would be available in the actual project proposal.
PROJECT DURATION:	12 months
PROJECT COST:	US$ 80,000
REQUESTED GRANT:	US$ **80,000**
AGENCY SUPPORT COSTS:	US$ 6,000
TOTAL COST TO MULTILATERAL FUND:	**US$ 86,000**
PROJECT MONITORING MILESTONES:	Included
NATIONAL COORDINATING BODY:	Ozone Cell, Ministry of Environment and Forests

PROJECT SUMMARY

This project will establish facilities for disposal of a variety of ODS in India, using innovative organizational, operational and financial mechanisms, that would ensure sustainability.

India has a robust chloromethane production, of which CTC is a significant co-product. Due to the imminent phase-out of CTC in the consumption sector, and based on industry forecasts of feedstock uses of CTC in the foreseeable future, there is a high likelihood of excess co-production of CTC. Since CTC is a potent ozone depleting substance as well as a greenhouse gas, it is essential to institute facilities and mechanisms to closely monitor CTC co-production and to ensure that unwanted CTC does not enter the consumption market. Preliminary estimates of future CTC co-production and its possible uses, indicate that there is likely to be excess availability of CTCs in the medium-term and it is therefore critical that sustainable destruction facilities are available with appropriate management mechanisms, to address undesirable emissions.

India is also a large producer of ODS-based appliances and equipment. There is a large existing population of CFC-based appliances, such as household refrigerators, freezers as well as commercial and industrial refrigeration equipment containing CFCs. Estimates of the total size of these banks in India are available from many sources and generally range widely from 5,000 to 50,000 metric tonnes, however this needs to be established. It is expected that during the medium to long term, a significant proportion of the population of CFC-based appliances and equipment would need to be replaced due to various reasons such as end of useful life, energy efficiency considerations, consumer preferences, business reorganization, etc., potentially making large quantities of CFCs available for disposal, along with the consequent challenges to minimize emission risks.

The proposed pilot project for ODS disposal in India would:

a) Establish estimated quantities of unwanted CTC and establish sizes of accessible CFC banks
b) Demonstrate disposal technology and its synergies with environmental objectives across conventions, as well as multi-source financial mechanisms
c) Propose policy and regulatory interventions which would support successful scaling up
d) Identify and assess risks associated with the above interventions and propose mechanisms to manage these risks
e) Assess and document the comprehensive environmental impact of the above interventions.

INDIA- PROJECT PROPOSAL

This document presents the project concept relating to a ODS disposal pilot project in India. The proposed project is expected to handle multiple ODSs, namely, CFCs, CTC and HCFCs. The model for operations would involve a combination of cost compensation and profit-sharing mechanisms with relevant stakeholders. ***This proposed project is not expected to address Halon banks.***

Background

1. India was one of the largest ODS producing and consuming countries in the last decade. By 1 January 2010, the country is expected to phase out all CFC consumption except CFC use in MDI applications, halons and CTC. Of these uses, CFCs used in refrigeration applications have been largely replaced with HFCs and this has resulted in an increase in HFC consumption over the last 8 to 10 years It must also be noted that small quantities of HFCs are also used in foam applications as replacement to CFC-11.

2. HCFC consumption is primarily in RAC applications and foam applications. There has been a significant growth in both these applications due to general economic growth due to the expansion of the middle class over the last decade.

3. Keeping in mind decision 58/19, the following ODSs/applications given below are proposed to be addressed through this project.

Substance	**Applications**
CFC-11	Foam products, RAC appliances in chillers
CFC-12	Foam products, RAC appliances in chillers
CTC	Excess CTC
HCFC-22	RAC appliances (in future)
HCFC-141b	Foam appliances

4. The following sections provide a summary of estimated banks/sources of ODS in each of these applications along with method of collection of ODSs in different applications.

CFC Banks including CFC-11 and CFC-12

5. As indicated in the table above, CFC banks are primarily expected in RAC and foam applications. Based on estimated population of CFCs using RAC applications as per National CFC Consumption Strategy adjusted for (a) use of HCs and HCFCs in foam applications and (b) drop-ins used in refrigeration applications, the banks of CFCs in refrigeration and foam applications is about **10,800 MT.**[3]
   Of the above, about **7,800 MT** is estimated to be available in domestic refrigerators (**7,100 MT**) and MACs (**700 MT**).

[3] These are estimates based on secondary data available from National CTC Phase-out Project and would be updated during the actual ODS destruction project preparation activities.

These banks can be accessed through various consumer driven programs in close cooperation with industry and equipment service agencies. Buy-back schemes in refrigeration equipment for conversion of old equipment to new equipment with clearly defined parameters relating to age, equipment condition etc. can help in consolidating collection of CFCs from this equipment. Service agencies can play an important role in collecting CFCs from MAC and this can be promoted through automobile manufacturing enterprises through appropriate collaborations.

CTC for destruction

6. India is one of the producers of carbon tetrachloride (CTC). Currently, in India, there are four manufacturers of CTC as given in the table below.

Name of the manufacturer	Location	Chloromethane Manufacturing capacity in tons per annum*	CTC production levels (% of manufacturing capacity)	
			Maximum	Minimum
Chemplast Sanmar Limited	Southern India	35,500	23	15
Gujarat Alkalies & Chemicals Limited	Western India	25,200	28	25
SRF Limited	Northern India	30,000	57	15
Gujarat Fluorochemicals Limited	Western India	NA	NA	5

** Chloromethane manufacturing capacity. The CTC co-production is a variable percentage of this, broadly within the ranges mentioned in the last two columns.*

This translates to about 18,000 tons of CTC production at minimum capacity. Companies are undertaking steps to minimize CTC production through redesign of plant operations parameters, identifying products where CTC can be used as a chlorinating agent feedstock, etc.

Chloromethane plants produce Chloroform, Methylene Chloride and CTC as co-products. Demand of Methylene chloride is in solvents and process agent applications and this is on the rise. India is import-dependent on Methylene Chloride. Chloroform is used in manufacturing HCFCs and PTFE. While demand for chloroform is expected to fall on account of accelerated phase-out of HCFCs under Montreal Protocol, industry sources believe increase in chloroform demand for PTFE would compensate for the shortfall. Thus, demand for chloroform is expected to increase.

7. Of the listed Chloromethane producers, only CSL and GFL have destruction facilities. While CSL uses the facility for destruction of its Vinyl Chloride Monomer (VCM) plant operating at around 100 Tons per annum, GFL's CTC destruction facility is aimed at destroying minimum quantities of CTC produced in their facility (estimated minimum CTC generation capacity is about 1,500 - 2,000 metric tonnes per annum).

8. CTC is a controlled substance under Montreal Protocol with the following phase-out schedule.

- Consumption (Baseline level – average annual consumption of 1998-2000)

- 85% reduction compared to baseline levels of CTC consumption by 1 January 2005;
- 100% reduction compared to baseline levels of CTC consumption by 1 January 2010;

- Production (Baseline level – average annual production of 1998-2000)
  - 85% reduction compared to baseline levels of CTC production by 1 January 2005;
  - 100% reduction compared to baseline levels of CTC production by 1 January 2010.

While non-feedstock applications of CTC are subject to this control schedule, quantities used for feedstock applications are not subject to this control schedule.

9. As per National CTC phase-out plan of India approved in the 45th Meeting of the Executive Committee, the following is the phase-out schedule of CTC.

Particulars in ODP tons	2005	2006	2007	2008	2009
CTC production control limits	1726	1147	706	268	48
CTC consumption control limits	1726	1147	706	268	48

Source: National CTC phase-out plan approved in the 45th Meeting of the Executive Committee.

CTC phase-out activities in India for non-feedstock applications are almost complete and by 01 January 2010, India is likely to phase-out all its domestic CTC consumption for non-feedstock applications. This has been achieved through a combination of projects whereby companies have eliminated their dependence on CTC in solvent and process agent applications as well as stringent national regulations for controlling and monitoring CTC.

10. CTC use in feedstock applications in India was primarily in CFC manufacturing and CFC use in DV Acid Chloride Manufacturing.

CTC used in CFC production: Over the last 9 years, CFC production decreased from about 22,000 MT to nil after 1 August 2008. This resulted in decrease in CTC demand for CFC use of about 28,600 MT. Since CFC manufacturers were importing CTC and procuring CTC from domestic market for these uses, this decrease in demand reduced CTC import demand for CFC manufacturing and CTC domestic manufacturing demand for CFC manufacturing. The latter required product mix optimisation at CTC production facilities to ensure no excess CTC for sale in the market particularly after CY 2005 and this also resulted in changes in the manufacturing plans for co-products produced in a chloromethane facility namely methylene chloride and chloroform.

CTC used in DVAC production: Currently, CTC is used in manufacturing DV Acid Chloride manufacturing operations and this feedstock demand is about 15,400 MT in the year 2008 as shown below.

Particulars in MT	**2007**	**2008**
CTC use in DVAC production	13,848	15,411

Source: Estimates based on CTC reports. Future projections at an assumed 10% growth rate.

Production growth in DVAC industry is subject to demand of products (namely synthetic pyrethroids) which use DVAC as active ingredient. Synthetic Pyrethroids are used in applications for controlling pests and insects.

Research studies undertaken in the past have indicated that these substances pose health hazards to the users on account of their toxic nature and in the long run may be eliminated from use. This poses a risk to CTC manufacturing industry which would be saddled with excess CTC available over feedstock demand post 2010.

In addition to this, CTC used for manufacturing synthetic pyrethroids can be procured locally and from international markets. Higher procurement from latter would result excess stocks of locally manufactured CTC in the domestic market. This is a function of availability of CTC as well as price of CTC manufactured in domestic market compared to import factory-gate price. In the past, it has been seen that favorable international prices have attracted DV Acid manufacturers to importing CTC rather than procuring from domestic market.

MLFS evaluation report (doc no. 51/12) has requested Executive Committee to consider *"… Recommending to CTC producers in India to use a precautionary approach to CTC management by installing destruction facilities, if not yet available, in case the feedstock outlets – essentially for DVAC – should not grow as expected or would be squeezed by increasing CTC imports"*. Based on this, the Executive Committee as per decision 51/11 para (f) has recommended to *recommend to CTC producers in India that they use a precautionary approach to CTC management by installing destruction facilities, if not yet available, in case the feedstock outlets, essentially for DV acid chloride, should not grow as expected or would be squeezed by increasing CTC imports.*

It must also be recognized that DVAC industry need not use CTC as a raw material for manufacturing. DV ester is also used as a raw material for manufacturing DVAC – particularly manufacturing using this process is undertaken by companies in China. Use of the substitutes to CTC in DVAC manufacturing process can also result in excess CTC.

11. CTC destruction facilities are not currently mandatory in India. It must, however, be noted that the chloromethane manufacturing facility of GFL had a destruction facility in-built into the manufacturing process. This was required for GFL as a safeguard for avoiding any excess CTC production which cannot be sold in the market for feedstock applications. While the CTC destruction capacity of GFL is not published, it is estimated to be about 1,500 - 2000 MT per annum.

It must also be noted here that high-boiler chemicals are produced in chloromethane plants in small quantities (i.e., of the order of about 100 – 150 tons per annum per manufacturing plants). These chemicals have certain proportion of CTC which is very difficult extract in the manufacturing plant. These chemicals are sold in the open market as "solvent chemicals" or sent for destruction.

12. From the above, the following factors pose risks affecting sustainability of CTC demand from domestic manufacturers for feedstock applications and consequent compliance challenges:

- ❖ Sudden decrease in DVAC products on account of substitute input chemicals for manufacturing DVAC (e.g., DV ester) and non-chemical pest control products (which would, in turn, reduce the demand of pesticides manufactured using DVAC) in the different markets.

- ❖ Import of CTC which could cater to domestic manufacturing of DV Acid Chloride driven by favorable import cost economics.

- ❖ Chloromethane plant optimization needs for production of methylene chloride and chloroform which results in consequential CTC production. As explained in earlier, growth in demand for the above two products is expected to result in growth in CTC production. This would also be a factor that would contribute to oversupply of CTC.

13. The following table gives an overview of how the CTC excess supply situation in India would appear under different scenarios.

Scenario	CTC demand in DV Acid Chloride manufacturing falls	Increase in CTC imports to substitute local CTC manufacturing
What if	Demand decreases to 60% of 2008 levels.	Demand from domestic CTC manufacturers decreases by say about 8000 MT.@
CTC minimum capacity	12,000 MT	12,000 MT
Demand of CTC for DVAC manufacturing	Approx 15,000 MT	Approx 15,000 MT
Excess CTC at minimum economic capacity	3,000 MT per annum	5,000 MT per annum
Known destruction capacity*	1,500 MT per annum	1,500 MT per annum
Excess CTC that needs to be destroyed	1,500 MT per annum	3,500 MT per annum

* *This needs to be confirmed / verified as the actual capacity is not known.*
@ Imports of CTC in the past have been of the order of about 15,000 MT. This is purely driven by market factors such as price of CTC in international markets, availability of CTC, duty exemption on CTC which is imported for producing products which are exported and collaboration among different users to import in bulk. It must be noted that this CTC includes both DVAC as well as CFC producers.

The quantities of CTC that would flow into the destruction facility are also dependent on the trend in fall in CTC demand over the years. Also it must be noted that a combination of the factors highlighted above can also affect overall CTC demand.

14. It must be noted here that Decision XVIII/17 indicates that CTC produced in a particular year for use in a future year as a feedstock chemical needs to be reported to the implementation committee. Under the current Montreal Protocol conditions, this excess quantity in one year can result in non-compliance of the producing country in that year. This decision is subject to review in the 21st MOP.

15. In light of these challenges, it becomes imperative that CTC destruction capacities are established to avoid risks of market demand decreases and consequent oversupply of CTC. Further, given the uncertainty in such a situation, it may be prudent to examine a multi-chemical ODS destruction facility which would also address CTC destruction.

Since CTC is manufactured by four established manufacturers as mentioned above, the collection process for destruction is expected to be cost-effective. Except for defining processes for CTC material movement and monitoring for destruction, additional interventions are not envisaged.

HCFCs for destruction (future)

16. The estimated quantity of HCFC-22 in banks, as of 31 December 2009, is about **40,000 + MT**. This includes banks of HCFCs in air-conditioning equipment and water coolers (which have started using HCFCs in the recent past). This bank is expected to grow

17. Estimated quantities of HCFC-141b in foam are also high. Of the banks in foam, rigid foam in applications in refrigeration and air-conditioning applications is estimated at **10,000-11,000 MT** as of 31 December 2009**.** This quantity of foam products is widely distributed and in use in different parts of the country. Over the last 8-10 years, a large number of companies have switched over in foam applications from CFC-11 to HCFC-141b in other rigid foam and integral skin applications. These are estimated to constitute **11,700 MT** and **1,300 MT** of foams, respectively by 31 December 2009.

These banks can be accessed through various consumer driven programs in close cooperation with industry and equipment service agencies. In case of air-conditioning equipment, (a) buy-back schemes, (b) programs focusing on large institutional uses (e.g., Military, Railways, Container Corporation which handles container movements in railways and exports, National Dairy Development Board etc.), (c) recovered unusable gas from service agencies, (d) linked replacement programs for industrial air-conditioning equipment, chillers using HCFCs etc. could be adopted for supply of destroyable HCFC-22. In case of HCFC-141b, the collection process is more complex as the users are widely distributed. As mentioned earlier in the document, the proposed project would target at destruction of HCFC-141b in rigid foam in RAC applications and other foam applications.

Others

18. It must also be noted that ODS destruction needs to be made sustainable through carbon financing and other mechanisms. The following table summarises the GWP of ODSs that are under consideration in the current project.

ODSs	**GWP**	**ODSs**	**GWP**
CFC-11	4,700	CTC	1,400
CFC-12	10,800	HCFC-22	1,700
		HCFC-141b	713

While CCX-based carbon finance can be accessed for CFCs and CTC (which have final phaseout date of 31 December 2009), such mechanisms are not available for HCFCs. In case of HFCs, CDM mechanism can be used for carbon financing under suitable methodologies for the same. It must be noted for access of each of these mechanisms, suitable methodologies may need to be defined and applied to the projects under consideration.

19. HFCs are used in Indian market mainly in refrigeration and air-conditioning and foam applications. However, the quantities of HFCs need to be ascertained in detail and hence, is not included in the present analysis. HFCs are estimated to be used in domestic market in refrigeration appliances, MAC appliances and certain foam appliances.

Objective

To develop and implement ODS destruction facility (ies) at suitable locations in India in a sustainable manner to help avoid emissions of ODSs and HFCs.

Approach

The following approach is proposed to be adopted to undertake this assessment. This defines the approach for undertaking this assessment and does not cover implementation costs which would be undertaken in the next stage.

- Carry out an analysis of potential banks of CFCs, HCFCs and HFCs ("identified chlorofluorochemicals") in the market. This analysis would be done based on expert inputs, already available data for assessing these banks with Ozone Cell and contacts with limited industry experts and technical experts.

- Carryout an analysis of CTC use in DVAC in the future with inputs from industry players and international experts.

- Based on the size of banks available, define quantities of the identified substances that are likely to be accessed for disposal after accounting for potential reuse by substance (e.g., CFC-11, CFC-12 etc.)

- Define process for collection and consolidation of the substances through both centralized and decentralized mechanisms along with players involved (including industry through buy-back schemes) and associated costs. Given the size of the country, it is envisaged that for the identified chlorofluorochemicals would be collected from different end-use applications at different locations in the country. In case of CTC, the supply would flow from the 4 CTC manufacturers.

- Define technical parameters for ODS destruction facility – it is envisaged that this would be a multi-product destruction facility. Since this facility is expected to operate through funding from carbon finance facility, the technical standards of operations is to be defined to conform to CDM, CCX or other VCM market standards.

- Develop a business model addressing:

Investment costs components

- ❖ Levels of funds required for the facility – at centralized level and decentralized levels (if found necessary)
- ❖ Funds flow from different sources – MLF, other donor funding, local enterprises
- ❖ Categories of instruments – grant funds, equity and debt funds
- ❖ Structure of these funds and their linkages to specific operational performance parameter for destruction facility

Operating costs and returns

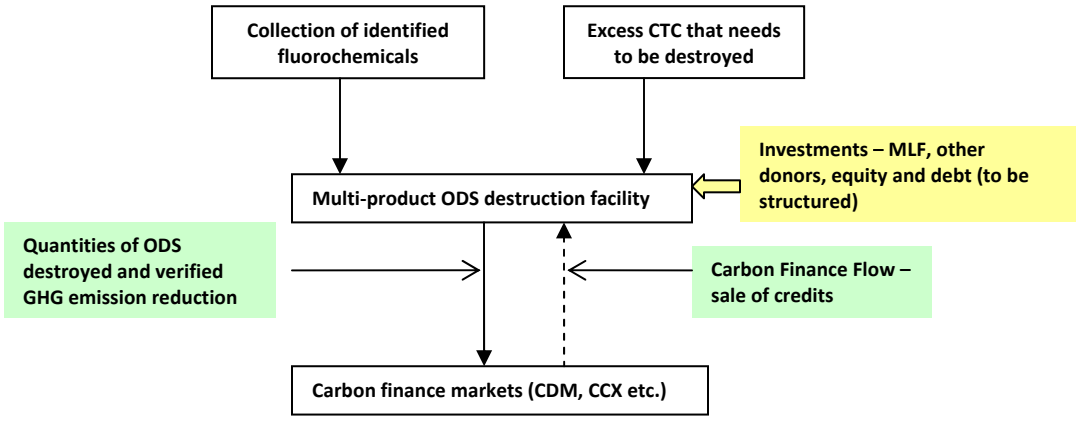
- ❖ Expected returns to ODS destruction facility – voluntary carbon funds and CDM revenues (as found feasible)
- ❖ Assess operating costs of ODS destruction facility
- ❖ Structuring investments to optimize tax impacts
- ❖ Mechanisms of sharing profits among different stakeholders

It is envisaged the operational effectiveness and viability of the business model would be driven by multiple fluorochemicals flow into the facility as well as returns from carbon finance markets. Therefore, the project would focus on structuring a viable proposition to ensure access to (a) all identified fluorochemicals and CTC and (b) carbon finance.

- Agree with national stakeholders including Ozone Cell, other regulatory institutions that may be identified during the course of the study and industry players on the project document and its operational parameters.

Exhibit below provides an overview (illustrative) of how this facility could operate in terms of investments and operations. Details of operational modalities and implementation modalities would be developed at the next stage of this project.

Exhibit – Indicative Structure for Operating this facility



Depending upon return levels for the facility, suitable instruments to "risk-proof" operation costs, return sharing with project participants would be defined. Further, this facility can also be operated for ODS destruction from other countries in the region if necessary.

Benefits

- ✓ Avoiding ODS emissions from accessible banks in India and (if found feasible) from countries in the region.
- ✓ Helping India avoid risks of non-compliance due to excess CTC supply in the domestic market.
- ✓ Development of a model which can be replicated both within the country and outside the country on ODS destruction.

- ✓ Development of infrastructure for access to ODS banks and banks of high-GHG HFC banks. This infrastructure would help in addressing HCFC banks at a future date.

- ✓ Demonstration of effective sustainable operationalizing of ODS banks in conformance with other chemical conventions namely Basel, Stockholm and Rotterdam Convention.

UNDP Response to comments from MLF Secretariat

.India: Project *preparation* of ODS Destruction Pilot

12. In reviewing this submission, the Secretariat notes that there is another request for project preparation for an ODS disposal project for India (and Bangladesh) submitted by UNEP for unwanted ODS in ship breaking yards. Has any discussion taken place between UNEP and UNDP to ensure that there is no overlap in the activities proposed?

UNDP and UNEP have discussed and exchanged notes on the respective proposals. These two proposals would in fact be complementary. As advised by UNEP, their proposed interventions will be cover capacity-building and policy/regulatory support for safe disposal of ODS. UNDP's proposal covers the demonstration of the destruction facility structured within a replicable and sustainable management and financing model. There are existing quantities of ODS already collected and stored at the ship-breaking yards (estimated at about 20 metric tonnes currently in India). Since ship-breaking is a significant business in India, in fact the continuing availability of already collected ODS would contribute to the sustainability of the proposed facility.

13. The Secretariat has the following observations and comments on the submitted proposal:

a. It is understood that on priority, this project would like to look at destruction of excess co-production of CTCs. The Secretariat is concerned that this may not necessarily be something that falls within the guidelines for pilot ODS projects and would like UNDP to reconsider what exactly will be done under the project. In addition, you may wish to also look at the assistance that India has already received for the complete phase out of CTC and determine whether this may be considered double counting.

UNDP's proposal is well aligned to the requirements specified in MOP Decision XX/7. Specifically, the proposal (a) addresses excess stocks of CTC which would be potentially emitted, (b) conceives of an innovative models which would include public-private partnerships and co-financing through appropriate carbon markets (c) would facilitate replication of not only the technology but also of the model (d) will result in a facility for destruction a variety of ozone depleting and global warming chemicals, ensuring the sustainability of the model and the related investments. Based on this UNDP believes that the proposal is consistent with ExCom Decision 58/19 (particularly para a) iv) a i to vi). The proposal goes beyond just destroying collected quantities of ODS, but has an important demonstration value, as well as significant environmental benefits, both for ozone layer protection and global warming.

India has received assistance for phase-out of CTC production and consumption for non-feedstock applications. For feedstock applications, due to market and technology trends, the

demand for CTC is projected to reduce and result in excess CTC. It is critical that this excess CTC would need to be safely disposed otherwise it may enter the consumption market and present consequent emission and non-compliance risks. Thus, it is clear that there is no double-counting involved.

b. We also noted that while the there is an estimate of the possible volume of the excess CTC for the production of chloromethane, decision 58/19 is very clear that there should be an existing amount of ODS that are really identified as waste ODS and need to be phased out.

The project provides details of estimated stocks of ODSs in banks and expected excess quantities of CTC. These are ODSs which have no use or "waste ODS" and need to be destroyed / disposed without being emitted.

Please note that CTC is co-produced in Choromethane production continually and is therefore easily accessible without complex programmes for collection. It is also conveniently measurable. Thus, for practical purposes the CTC quantity mentioned is already available during a given span of time, as long as Chloromethane production continues. It is important that the destruction facility is sustainable. It will not be economically viable for only one-time destruction of a fixed amount of collected ODS. Such sustainability is ensured only when the supply of unwanted ODS is assured on a continuing basis with minimal risks and uncertainties. Further, if such a facility is designed to be versatile for destruction of a range of ODS and other chemicals, this will add to its viability and sustainability.

In this proposal, the banks of CFCs referred, will only add to the sustainability of the facility. The facility will be viable with CTC alone.

c. In looking at the objectives of the pilot project, it is clear that this preparation will still include estimating the quantities of unwanted CTC and other ODS banks. We believe that the intention of the pilot project is for a country to implement a project that could actually destroy a specific amount of ODS already identified for destruction, with the added benefit of understanding the operation of a technology that will allow the eventual continuous destruction of unwanted ODS that are stored in banks, in future.

As mentioned in the proposal and in the earlier paragraph, the quantities of CTC are already identified. With the understanding that this proposal is a request for preparation funding, the actual proposal will indeed provide more accurate information on the quantities. In this regard the information provided in the proposal is consistent with the requirements of ExCom Decision 58/19 (particularly para a) iv) a i to vi) and UNDP believes that the pilot project once prepared, will fulfill the intention behind such pilot projects.

As per the audit report of CTC producers and feedstock users under the National CTC phase-out plan in India, the quantities of CTC stocks available with the CTC producers and feedstock users aggregate to 1,116 MT and 3,600 MT, respectively. A stock increase has been reported in the year 2008 (i.e., between 1 Jan 2008 to 31 Dec 2008) by about 1170 MT. The quantity allowed for consumption in CY 2009 in India is only around 44 MT. Hence, the stocks of CTC with dealers/distributors in the consumption market are negligible.
We would also like to draw your attention to ExCom Decision 58/35 (d), where the risks posed by excess stocks of CTC meant for feedstock use have been acknowledged.

d. The Secretariat also noted that the proposal mentions that two of the four CTC manufacturers in the country already have destruction facilities, with that of GFL specifically being used to destroy CTC. If the destruction technology is already known and available in the country, you may wish to review your proposal in this light to see how this existing technology can be used for other ODS and design your pilot project around aspects for which this existing facility/technology can play a larger role.

The only CTC destruction technology implemented in India which is currently operational is in Chemplast Sanmar Limited (CSL). This facility is of a very small capacity and is integrated into the Vinyl Chloride Monomer (VCM) manufacturing process of CSL. The CTC destruction facility at GFL is not yet operationalized and its capacity is not verified. Furthermore, these facilities are integral to the existing manufacturing process and are not designed for handling multiple ODS and other fluorinated chemicals. We will of course endeavor to examine existing destruction capacities to the extent relevant to the project objective and model.

e. Can you also please describe to us whether there is an existing approach for systematically collecting old equipment and taking out the waste ODS in the country, and what is the progress of this? Would there be any information about a specific amount of already collected waste ODS that may be disposed of in this pilot project?

Currently, there are some pilot schemes for appliance replacements, initiated by private-sector players. Indeed one important result of the present proposal would be to make such schemes more viable and comprehensive; otherwise the waste collected from such appliance replacement programmes will present environmental and occupational risks. UNDP will seek to carefully develop partnerships with such initiatives to enhance the sustainability of programmes on both sides.

f. If the pilot project is for the development of a business model for ODS destruction, then this should be the focus of the submission. It would be interesting to understand how this business model (as shown in the schematic provided in the submission) will work, and how each box will be funded. The Secretariat would like to understand where MF funding will be in this proposed structure.

The proposal indeed aims to develop a project, which will address precisely these issues. As earlier clarified and as mentioned in the proposal, the business model is critical and so is its replicability.

At present, the following funding options/possibilities are being considered. These will be further developed, refined and clarified in the actual project proposal:

- *<u>Destruction facility</u>: Funded with support from MLF, equity investment by private enterprises and debt funds. It is projected that returns on these investments would accrue partially from carbon credits from destruction.*

- *<u>Collection costs</u>: Expected to be borne by the host entity, which at present is conceived as a special purpose vehicle (SPV). This would be further articulated in the actual project proposal. As per decision 58/19, this cost would not be funded by MLF.*

- *Transport, regulatory compliance and monitoring: These costs would be funded partly through MLF and partly through co-financing. The financial structure of the facility will be defined in more clarity in actual project proposal, after consultations with partners and stakeholders.*

Financing from the carbon markets, both voluntary and compliance, will be estimated based on the mix of chemicals that will be processed for destruction and this exercise will be an important element of the actual project proposal.

Ensuring long-term sustainability and replicability would be critical considerations in designing the business model and the actual project proposal.

14. While we acknowledge that one of the objectives why this project is being submitted is to look at setting up a facility that could eventually be done with little assistance from the Multilateral Fund in its operation, this current project preparation submission does not seem to have the information required by decision 58/19. It is therefore our view that we cannot recommend this to the Executive Committee unless some other justification and information can be provided to support this as soon as possible, which is clearly in line with decision 58/19(iv)a.

We trust that the proposal as well as additional clarifications provided in the preceding responses meet the requirements of the ExCom Decision 58/19 (particularly para a) iv) a i to vi). UNDP believes that this proposal brings important value to addressing the issue of ODS disposal and will result in an innovative project, which will provide a replicable and sustainable model for addressing unwanted ODS.

Annex 3. Request for additional preparatory funding for the Philippines (Letter from the Government attached)

PROJECT CONCEPT

COUNTRY:	PHILIPPINES **IMPLEMENTING AGENCY:** UNDP
PROJECT TITLE:	Preparation of investment and associated activities in the Refrigeration and Air Conditioning Sectors (except residential air conditioning)
PROJECT IN CURRENT BUSINESS PLAN:	No
SECTOR(S):	Refrigeration
SUB-SECTOR(S):	All (except residential air conditioning)
ODS USE IN SECTOR:	3,200 metric tonnes (2008)*
PROJECT IMPACT:	To be established*
	* More accurate estimates would be available in the actual project proposal
PROJECT DURATION:	12 months
PROJECT COST:	US$ 65,000
REQUESTED GRANT:	US$ **65,000**
AGENCY SUPPORT COSTS:	US$ 4,875
TOTAL COST TO MULTILATERAL FUND:	**US$ 69,875**
PROJECT MONITORING MILESTONES:	Included
NATIONAL COORDINATING BODY:	Philippines Ozone Desk, Environment Management Bureau, Department of Environment and Natural Resources

PROJECT SUMMARY

Objective:	Preparation of individual projects and/or sub-sector/sector phase-out plan(s) in the Refrigeration Sector (excluding the residential air conditioning sector) in Philippines, for compliance with the 2013/2015 control targets
Sector Background:	The Refrigeration Sector in Philippines (including servicing) consumed about 3,200 metric tonnes of HCFCs in 2008. The survey of this sector is to be ongoing as part of the activities under the overarching HPMP, very little information is currently available on sub-sector-wise consumption patterns. Based on the Article-7F and CP Progress data reporting, HCFC-22 is the predominant substance used with small quantities of HCFC-123 used mainly in servicing of chillers. There is manufacturing activity in the sector that covers domestic and commercial refrigeration and air conditioning equipment, mostly for domestic consumption. Preliminary estimates indicate about 500-600 metric tonnes of HCFC consumed in manufacturing activities.
Funding request:	The present funding request for US$ 65,000 would cover the cost of national and international technical experts, project personnel, and technical workshops for targeted technology information dissemination to support development of proposals for investment and associated activities for individual projects and/or sub-sector/sector phase-out plans, consistent with policy directions from Philippines.
Impact:	The key output of this request would be the development and submission of individual projects and/or sub-sector/sector phase-out plans to facilitate HCFC reductions for compliance with the 2013/2015 control targets.

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Guidance in the Preparation of Sector Investment Proposals for HCFC Phaseout Management in the Philippines

Further to the communication of the Undersecretary Atty. Mary Ann Lucille L. Sering, National Coordinator, Phase out of Ozone Depleting Substances, Department of Environment and Natural Resources (DENR) to the Multilateral Fund Secretariat, the following agencies are requested to include in their business plans for submission to the 59th Meeting of the Executive Committee of the Montreal Protocol appropriation for investment plan preparation for the following sectors:

Sector	Implementing Agency	Indicative Amount for proposal preparation
Foam	United Nations Industrial and Development Organization (UNIDO)	US $ 70,000.00
Refrigeration	United Nations Development Programme (UNDP)	US $ 65,000.00
Total Amount		US $ 135,000.00

Fund summary:

Total amount that the can be availed of (180 ODP tones consumption for 2007)	Amount to be requested by UNIDO and UNDP	Balance
US $ 200,000.00	US $ 135,000.00	US $ 65,000.00

The balance of US $ 65,000.00 is proposed to be requested to cover the additional sector(s) that will be identified upon completion of the sectoral survey to be conducted by the World Bank.

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Annex 4. Resource Mobilization for Climate Co-Benefits

Resource Mobilization to Address Climate Co- Benefits in HCFC Phaseout - UNDP

1. Amended Proposal

1.1 Resubmission of the Amended Proposal

In accordance with ExCom Decision 58/37 (g), UNDP is resubmitting this proposal for consideration at the 59th Meeting. This new version of the proposal has been amended to take recent developments into account and, in particular, to allow for UNDP to proceed in parallel to the ongoing work on a possible Facility for Additional Income (FAI) under the MLF.

As such, in summary, the activities under this amended proposal are now split into two phases:

- *Phase I*, which can commence immediately, will provide concrete, learning-by-doing case studies from four distinct pilot project proposals. These case studies will be of value irrespective of the eventual design of any FAI.
- *Phase II*, which can commence at a later stage, will involve UNDP collectively analyzing these case studies in the context of any MLF mechanism for resource mobilization. The timing of this phase can align with future studies on any FAI.

1.2 Recent Developments

UNDP submitted an earlier version of this proposal prior to the 57th Meeting. In the interim period there have been a number of developments:

- Initial studies on the FAI are now being conducted under the Multilateral Fund. The Secretariat submitted a first report on the FAI at the 58th Meeting of the Executive Committee, focusing on preliminary issues related to legal, structural and administrative issues, as well as potential uses of the FAI. The Committee has now requested a further concept paper for the 59th Meeting to focus on clarifying the definition of the FAI, and has requested that the Secretariat explore the carbon market aspects of any FAI.
- The Workshop on Management and Destruction of ODS Banks and Implications for Climate Change was held in Geneva in July 2009. As part of this workshop, an interim report on the costs of bank management was presented by the TEAP, and a report on funding opportunities was presented by the Ozone Secretariat.
- UNDP presented a side-event at the 57th Meeting on carbon markets as a potential funding source for climate co-benefits. This presentation was intended as a thought-piece and concluded that any move into carbon finance should be conducted in a considered and phased manner, in order to build market credibility, send appropriate forward signals and manage risk. The presentation recommended that any move into carbon finance have 3 phases: commencing with pilot projects, moving to a facility/fund structure, and then finally linking fully to the compliance carbon markets. The presentation also stated that the Montreal Protocol bodies could play an active role in any mechanism.

1.3 Continued Rationale for Exploring Carbon Markets as a Co-Financing Source

UNDP is working on a number of fronts to address the important issue of potential sources of financing to address incremental climate benefits.

In UNDP's view, the carbon markets remain particularly attractive as a medium/long-term funding source. As identified in the recent Interim TEAP report presented in Geneva, the funding requirement for realizing climate co-

benefits from destruction of ODS from banks will be significantly high, in the tens, if not hundreds, of US$ billion[4]. Funding of this magnitude will be difficult, if not impossible, to meet through traditional donor or fund-based sources. On the other hand, carbon markets, given their size (annual investment currently stands at $7bn[5]), rapid growth, and political momentum, could be an interesting financing source with the appropriate scale.

UNDP stands ready to assist the Montreal Protocol community to explore carbon markets as a potential financing source. UNDP believes such an exploration should be carefully pursued, taking into account all risks, but if addressed in a timely fashion can provide valuable early learning experiences and an initial platform which can, if deemed appropriate, be rapidly built upon.

2.1 UNDP's Capabilities in this Field

UNDP is an active participant in the carbon finance arena with established procedures, staff and expertise in place. In terms of direct emission reductions, UNDP is active in the following areas:

- The MDG Carbon Facility, which offers project development services for projects under the Clean Development Mechanism (CDM) and other carbon markets.
- UN REDD, which is pioneering carbon finance in 9 pilot countries in the area of avoided emissions from deforestation. As a new area of carbon finance, there are a number of similarities between avoided deforestation and any possible ODS-related carbon finance.

UNDP is now combining the experience of its carbon finance teams with the long-standing expertise UNDP has as an Implementing Agency for the Multilateral Fund since 1991. UNDP's current role as the Lead Agency for HPMPs in a significant number of key Article-5 countries places it in a unique position to identify and develop appropriate projects.

3. Proposed Activities

3.1. Overview of ODS Project Opportunities

UNDP sees clear opportunities for projects in at least two areas:

1. Bank management and ODS disposal projects – particularly related to the end-of-life management of appliances.
2. Co-financing opportunities in HCFC phase-out where climate co-benefits can be generated and maximized through additional investments for conversion to appropriate technologies.

For example, there are clear possibilities to use linkages with other programmes such as energy efficiency actions under the GEF to develop projects for leveraging access to inefficient ODS-based appliances in order to ensure appropriate end-of-life management, and tap into country specific initiatives towards energy savings gains in appliance replacement programmes.

It is recognized that both project areas would be of interest to the Executive Committee of the Multilateral Fund, since the Committee is mandated by MOP Decision XIX/6 to prioritize funding of cost-effective projects and programmes that maximize climate benefits. The mechanisms for assessing and accounting such benefits are under development, and UNDP will continue to cooperate closely with the MLF Secretariat to ensure that approaches to the subject are consistent.

[4] The interim TEAP report estimated that cost for Low/Medium ODS bank management in developing countries was USD 70-94 billion for a saving of around 5 billion tonnes CO2-eq. of potential GHG emissions.
[5] State of the Carbon Markets 2008, World Bank

3.1. Phase I Activities: Pilot ODS Projects

UNDP has significant experience in the carbon financing sector which it can leverage to assist in the development of a sound approach to the financing of climate co-benefits (whether from the market or on a cost-coverage basis). The Montreal Protocol Unit of UNDP has long experience in implementing ODS phase-out projects and programmes but has no dedicated budget to seek to apply the carbon financing 'best practice' and expertise existing within UNDP via the MDG Carbon Facility.

Under Phase I of the proposed activities, UNDP has identified four different project scenarios, selected for their distinct illustrative value, which could benefit from co-financing of climate co-benefits. For each of these four areas, UNDP will provide technical assistance for translating these concepts into concrete pilot project proposals, addressing each project type's methodological, structural, commercial and legal aspects. UNDP will then seek to work with project entities to implement these projects. Finally, for each project type, UNDP will evaluate its experience in a detailed case-study report.

The activities under Phase I can commence immediately. Phase I will produce concrete, learning-by-doing case studies at the project level which will be useful for the Montreal Protocol bodies irrespective of the final design of any FAI.

The four different project scenarios are:

a. An MLF funded project where climate co-benefits can be realized at a cost exceeding $25 per tonne of CO2 saved
b. An HCFC phase-out project in an Article-5 country, which is not eligible for funding by the MLF but could be funded from the proceeds of realizing climate co-benefits.
c. An Energy Efficiency project (e.g. GEF) in which end-of-life management of ODS would bring incremental ozone and climate benefits.
d. A stand-alone bank management./ODS destruction project which could be based on an existing methodology for funding of climate co-benefits

For each project scenario UNDP will perform the following activities:

1) An analysis of the project type and its potential climate benefits.
2) Identification of potential stakeholders who may act as the project entity.
3) Review of emerging methodologies for assessing CO2 emission reductions in support of the project type and commissioning of new methodologies, where appropriate.
4) Review of financing options, including carbon markets, assessing risks and cost effectiveness of different options, and identifying potential financing partners
5) Preparation of project proposals for each project type
6) Evaluation of experiences and preparation of stand-alone case-study reports for each project type

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3.2 Phase II Activities: Report Analyzing Phase I Pilots in Context of any MLF Mechanism for Resource Mobilization

There are currently a number of ongoing studies into potential frameworks for resource mobilization for financing climate co-benefits, including the ExCom's request to the MLF Secretariat for a concept note to be prepared on the FAI for the 59th Meeting.

In Phase II, UNDP will produce a report analyzing the results of the Phase I pilot projects in the context of any MLF mechanism or framework that may arise from these ongoing studies, including any FAI. This Phase II report will provide inputs to the design of any such mechanism, covering aspects such as identifying how each of the four pilot project types would fit into such a mechanism, and where likely benefits or challenges would be found, particularly in scaling up such activities under a mechanism. The report would leverage the hands-on experience of the Phase I case-studies, as well as the carbon markets expertise of UNDP's carbon finance team which has been involved in establishing a number of carbon finance mechanisms.

4. Resource Requirements

The total costs are estimated as below (all figures in US dollars):

Cost Head	Phase-I	Phase-II	Total
International Consultant for technical coordination	45,000	0	45,000
Four technical experts for analysis/methodologies	169,000	0	169,000
Travel and overhead costs	36,000	0	36,000
Cost recovery for inputs from UNDP	150,000	100,000	250,000
Total	**$400,000**	**$100,000**	**$500,000**
Matching in-kind co-financing from UNDP	(150,000)	(100,000)	(250,000)
Net MLF Funding Requirement	**$250,000**	**0**	**$250,000**

As set out above, UNDP will be making a matching contribution of in-kind services amounting to US$250,000 when considering both phases. The inputs from UNDP will cover staff time and costs of its in-house carbon finance and other teams for providing technical services related to analysis and development of methodologies and for developing the structural, commercial, legal and policy elements.

The Phase-I costs of US$250,000 are being requested for consideration at the 59th ExCom meeting.

Annex 5. Justifications for Preparatory Funding Requests for HCFC pilot/demonstration (China)

Demonstration projects in the Solvents Sector(2) and XPS Sector (1)

Since submission of UNDP's Business Plan and deliberations on HCFC pilot/demonstration projects, China has progressed in the sectoral data collection for the HPMP. Based on the recent survey of the Solvents and XPS Foam Sectors carried out after the 57th ExCom meeting in April 2009, new and additional information has become available.

Demonstration Project in the Solvent Sector

The use of HCFCs in Solvents Sectors is concentrated mainly in the Medical Sector and Electronics Sector and as is well known, solvent uses of HCFCs are 100% emissive. Further, the Medical Sector serves critical social needs and has very specific and imminent challenges for adaptation of low-GWP and safe alternative technologies, which serve the needs of both the organized enterprises and SMEs. Therefore the government and other stakeholders have prioritized this sector for early interventions.

The technologies selected for demonstration are low-GWP and safe. In terms of time, an earliest possible demonstration of the technologies identified is necessary, as the two proposals address the needs of both the organized sector and SMEs. Such demonstration, if moved to the next business planning cycle, will lead to delays in technology selection, which needs to feed into the HPMP for this sector, which is targeted to be finalized by mid-2010. The government and other stakeholders spent the past several months in collecting data for developing these concepts, with the expectation that 7-8 months would be saved if these requests could be considered at the last meeting of 2009. For this reason, China has asked UNDP strongly to include these requests for submission to the 59th ExCom Meeting.

Demonstration Project in the XPS Foam Sector

- The XPS foam sector in China has experienced remarkable growth in the past several years. Due to the steep growth in the construction industry, demand for XPS foam boards for building insulation has increased significantly, ascribed also to enhanced energy-efficiency standards. The 2008 estimated HCFC consumption in the sector in China is about 30,000 metric tonnes.

- Based on information from ongoing surveys, there are about 20 indigenous manufacturers of XPS extrusion lines and an estimated 500 manufacturers of XPS foam in the sector, most of which are small/medium-sized. Another defining characteristic of this sector is that most of the polystyrene raw material used by SMEs in XPS foam manufacturing originates from recycled polystyrene scrap of unknown composition/contaminants.

- Recent zero-ODP XPS foam technologies introduced by multinational corporations are expensive and have been closely guarded in terms of intellectual property. Due to this, these technologies are not cost-effectively accessible for SMEs and may not be compatible to operate with a high proportion of recycled polystyrene scrap. It would be a challenge for the SMEs to comply with the enhanced energy-efficiency standards if they have to convert to non-ODS technologies. There is thus, a clear and present need for a cost-effective and environmentally safe technology alternative

for SMEs, in order to remain sustainable and maintain product quality. At a broader level, this affects an important part of the economy in China.

- The selected technologies are ozone and climate-friendly and potentially cost-effective, as compared to other alternatives. The development and demonstration of the proposed technology would be particularly facilitated cost-effectively due to the unique situation of the enterprise as both a manufacturer of equipment as well as XPS foam. As an equipment manufacturer, this enterprise would be in a position to transfer this technology to a potentially large number of SMEs, who would be able to make XPS foam without using ODS-based blowing agents, while still being able to maintain the quality of products consistent with enhanced standards and remain techno-economically sustainable and viable. The technology will be provided through UNDP by internationally renowned XPS foam experts/firms.

- Much of this information has been available after the 57th ExCom decision referred to by the Secretariat regarding inclusion/exclusion from UNDP's 2009 Business Plan. In all other respects, this proposal will meet or exceed the requirements of ExCom Decision 55/43 for demonstration projects.

- It is critical to have safe and cost-effective technologies developed and demonstrated in this Sector at the earliest possible opportunity, given the size and consumption levels in this sector. In this regard, we would like to emphasize that as per ExCom Decision 56/16 the XPS Foam Sector is a separate and standalone sector and is not considered part of the a foam or polyurethane foam sector.

- Given that very short time is available for preparation and implementation of HPMPs, it is necessary that the results of such a demonstration project are available in a timely manner to feed into the HPMP for this sector which is targeted for finalization by mid-2010.

- Considering this background, the critical situation of this Sector and its importance for 2013/2015 compliance, China has strongly asked UNDP to submit this request to the 59th ExCom meeting itself, so that this request can be considered and deliberated by the Committee.

Concepts for the 3 demonstration projects mentioned can be found below.

PROJECT CONCEPT

COUNTRY:	CHINA **IMPLEMENTING AGENCY:** UNDP
PROJECT TITLE:	Preparation of a demonstration project for conversion from HCFC-141b to a combination of Isopropyl Alcohol and Hydrocarbon-based compounds in solvent cleaning applications at Kandelai Co. Ltd.
PROJECT IN CURRENT BUSINESS PLAN:	Yes
SECTOR:	Solvents (SOL)
SUB-SECTOR:	Medical
ODS USE IN SECTOR:	4,145 metric tonnes (2008)*
PROJECT IMPACT:	100 metric tonnes*
	*Preliminary estimates based on ongoing surveys. More accurate estimates would be available in the actual project proposal
PROJECT DURATION:	12 months
PROJECT COST:	US$ 30,000
REQUESTED GRANT:	US$ **30,000**
AGENCY SUPPORT COSTS:	US$ 2,250
TOTAL COST TO MULTILATERAL FUND:	**US$ 32,250**
PROJECT MONITORING MILESTONES:	Included
NATIONAL COORDINATING BODY:	Foreign Economic Cooperation Office, Ministry of Environment Protection

PROJECT SUMMARY

Objective:	This demonstration project will establish the suitability of a combination of Isopropyl Alcohol (IPA) and Hydrocarbon compounds to replace HCFC-141b in cleaning of disposable syringes, injector needles and other implantable medical devices at Kandelai Co. Ltd.
Sector Background:	The Solvents Sector is characterized by emissive use of HCFCs. The major applications include cleaning in the Medical, Metal (Compressors), Metal (Other), Electronics (LCD), Electronics (Precision), Electronics (Other) and Formulated Solvents sub-sectors. The Medical Applications sub-sector is important from a human health perspective and consumed about 1,120 metric tonnes of HCFCs in 2008. This sub-sector is expected to grow at 10% annually until 2012 and at 5% annually thereafter.
Enterprise Background:	Kandelai Co. Ltd. was established in 1987 and is one of the major manufacturers of a range of medical devices. The enterprise was selected for this demonstration project in view of its technical and managerial capacity and readiness to evaluate a suitable alternative technology to replace HCFC-141b use.
Technology:	Several alternative technologies such as HFE-7100, HFC-365mfc, Hydrocarbons, Alcohols, Low molecular weight halohydrocarbons, etc. are available. But in general, there has to be a trade-off between solvent properties, costs, toxicity issues and flammability issues. The enterprise has selected a combination of Isopropyl Alcohol and Hydrocarbon compounds, in view of its zero ODP, negligible GWP, no toxicity and favorable costs. However, flammability is an issue and will need to be addressed through introduction of appropriate safety measures. This technology has not been applied commercially so far in China and only in limited applications outside China.
Costs:	The preliminary estimate of the cost of the demonstration project is about US$ 300,000. This will include development costs for the appropriate solvent mixture, equipment modifications and additional equipment, safety measures, laboratory testing, product trials, evaluation and testing for biocompatibility, drug compatibility, suitability for radiation sterilization, etc.
Funding request:	The present funding request for US$ 30,000 would cover the cost of technical experts for developing the full-fledged proposal.
Impact:	The successful implementation of this demonstration project will provide a safe and cost-effective alternative for enabling replication of this technology in similar applications and enterprises in the Medical Applications sub-sector in China and facilitate HCFC reductions for compliance with the 2013/2015 control targets.

PROJECT CONCEPT

COUNTRY:	CHINA **IMPLEMENTING AGENCY:** UNDP
PROJECT TITLE:	Preparation of a demonstration project for conversion from HCFC-141b to Hydrocarbon-based compounds in solvent cleaning applications at Sunyun Co. Ltd.
PROJECT IN CURRENT BUSINESS PLAN:	Yes
SECTOR:	Solvents (SOL)
SUB-SECTOR:	Medical
ODS USE IN SECTOR:	4,145 metric tonnes (2008)*
PROJECT IMPACT:	20 metric tonnes*
	*Preliminary estimates based on ongoing surveys. More accurate estimates would be available in the actual project proposal
PROJECT DURATION:	12 months
PROJECT COST:	US$ 30,000
REQUESTED GRANT:	US$ **30,000**
AGENCY SUPPORT COSTS:	US$ 2,250
TOTAL COST TO MULTILATERAL FUND:	**US$ 32,250**
PROJECT MONITORING MILESTONES:	Included
NATIONAL COORDINATING BODY:	Foreign Economic Cooperation Office, Ministry of Environment Protection

PROJECT SUMMARY

Objective:	This demonstration project will establish the suitability of Hydrocarbon compounds to replace HCFC-141b in cleaning of disposable syringes, injector needles and other implantable medical devices at Sunyun Co. Ltd.
Sector Background:	The Solvents Sector is characterized by emissive use of HCFCs. The major applications include cleaning in the Medical, Metal (Compressors), Metal (Other), Electronics (LCD), Electronics (Precision), Electronics (Other) and Formulated Solvents sub-sectors. The Medical Applications sub-sector is important from a human health perspective and consumed about 1,120 metric tonnes of HCFCs in 2008. This sub-sector is expected to grow at 10% annually until 2012 and at 5% annually thereafter.
Enterprise Background:	Sunyun Co. Ltd. was established in 1988 and is one of the major manufacturers of a range of medical devices. The enterprise was selected for this demonstration project in view of its technical and managerial capacity and readiness to evaluate a suitable alternative technology to replace HCFC-141b use.
Technology:	Several alternative technologies such as HFE-7100, HFC-365mfc, Hydrocarbons, Alcohols, Low molecular weight halohydrocarbons, etc. are available. But in general, there has to be a trade-off between solvent properties, costs, toxicity issues and flammability issues. The enterprise has selected Hydrocarbon compounds, in view of its zero ODP, negligible GWP, no toxicity and favorable costs. However, flammability is an issue and will need to be addressed through introduction of appropriate safety measures. This technology has not been applied commercially so far in China and only in limited applications outside China.
Costs:	The preliminary estimate of the cost of the demonstration project is about US$ 150,000. This will include development costs for the appropriate solvent mixture, equipment modifications and additional equipment, safety measures, laboratory testing, product trials and evaluation.
Funding request:	The present funding request for US$ 30,000 would cover the cost of technical experts for developing the full-fledged proposal.
Impact:	The successful implementation of this demonstration project will provide a safe and cost-effective alternative for enabling replication of this technology in similar applications and enterprises in the Medical Applications sub-sector in China and facilitate HCFC reductions for compliance with the 2013/2015 control targets.

PROJECT CONCEPT

COUNTRY:	CHINA **IMPLEMENTING AGENCY:** UNDP
PROJECT TITLE:	Preparation of a demonstration project for conversion from HCFC-142b+HCFC-22 technology to Methyl Formate based compounds in the manufacture of XPS Foam at Feininger (Nanjing) Energy Saving Technology Co. Ltd.
PROJECT IN CURRENT BUSINESS PLAN:	Yes
SECTOR:	XPS Foams
SUB-SECTOR:	N/A
ODS USE IN SECTOR:	30,000 metric tonnes (2008)*
PROJECT IMPACT:	510 metric tonnes*
	*Preliminary estimates based on ongoing surveys. More accurate estimates would be available in the actual project proposal
PROJECT DURATION:	12 months
PROJECT COST:	US$ 80,000
REQUESTED GRANT:	US$ **80,000**
AGENCY SUPPORT COSTS:	US$ 6,000
TOTAL COST TO MULTILATERAL FUND:	**US$ 86,000**
PROJECT MONITORING MILESTONES:	Included
NATIONAL COORDINATING BODY:	Foreign Economic Cooperation Office, Ministry of Environment Protection

PROJECT SUMMARY

Objective: This demonstration project will establish the suitability of Methyl Formate-based compounds to replace HCFC-142b+HCFC-141b as blowing agent in the manufacture of XPS foam at Feininger (Nanjing) Energy Saving Technology Co. Ltd.

Sector Background: The XPS foam sector in China has experienced remarkable growth in the past several years. Due to the steep growth in the construction industry, demand for XPS foam boards for building insulation has increased significantly, ascribed also to enhanced energy-efficiency standards. The 2008 estimated HCFC consumption in the sector is about 30,000 metric tonnes. Based on information from ongoing surveys, there are about 20 indigenous manufacturers of XPS extrusion lines and an estimated 500 manufacturers of XPS foam in the sector, most of which are small/medium-sized. Another defining characteristic of this sector is that most of the polystyrene raw material used by SMEs in XPS foam manufacturing originates from recycled polystyrene scrap of unknown composition/contaminants. Recent zero-ODP XPS foam technologies introduced by multinational corporations are expensive and have been closely guarded in terms of intellectual property. Due to this, these technologies are not cost-effectively accessible for SMEs and may not be compatible to operate with a high proportion of recycled polystyrene scrap. It would be a challenge for the SMEs to comply with the enhanced energy-efficiency standards if they have to convert to non-ODS technologies. There is thus, a clear and present need for a cost-effective and environmentally safe technology alternative for SMEs, in order to remain sustainable and maintain product quality.

Enterprise Background: Feininger (Nanjing) Energy Saving Technology Co. Ltd. was established in 2002 and is one of the major manufacturers of XPS extrusion lines, XPS foam recycling machines and associated equipment and XPS foam. The enterprise manufactures XPS foam boards of 20 mm to 120 mm thickness. In 2008, the estimated production level of XPS foam was about 140,000 m^3. Due to the diversity of XPS foam-related products, this enterprise is particularly suited to be a conduit for introduction and transfer of technology.

Technology: Several alternative zero-ODP technologies such as HFCs, CO_2, Hydrocarbons, etc. with additives and co-blowing agents are available. However, XPS technologies involve a high level of process optimization and these new technologies are significantly expensive and/or involve intellectual property rights controlled by a small number of multinational corporations. Introduction of these technologies is a difficult challenge for SMEs. The selected technology, namely, Methyl Formate-based compounds, promises to be an optimal solution for SMEs. This technology has not been employed in developed countries or by multinationals elsewhere and is not subject to intellectual property rights limitations. Apart from some flammability issues associated with Methyl Formate, this technology is zero-ODP, negligible GWP, no toxicity and negligible occupational safety issues.

Technology (cont'd):	The enterprise has selected this technology based on the above considerations. Due to the unique situation of the enterprise as a manufacturer of XPS foam as well as processing equipment, the development and demonstration of this technology would be particularly facilitated cost-effectively. As an equipment manufacturer, this enterprise would be in a position to transfer this technology to a potentially large number of SMEs, who would be able to make XPS foam without using ODS-based blowing agents, while still being able to maintain the quality of products consistent with enhanced standards and remain techno-economically sustainable and viable. The technology will be provided through UNDP by internationally renowned XPS foam experts/firms.
Costs:	The preliminary estimate of the cost of this demonstration project is about US$ 450,000 at this enterprise and an additional about US$ 600,000 for technology transfer and conversion at minimum three downstream XPS foam manufacturers. This will include development costs for the appropriate process technology with Methyl Formate-based compounds and co-blowing agents as needed, equipment modifications and additional equipment, safety measures, laboratory testing, product trials, evaluation and in addition, development of extrusion line and related equipment designs and implementation, suited for this technology.
Funding request:	The present funding request for US$ 80,000 would cover the cost of national and international technical experts and related expenses for developing the full-fledged proposal. The final proposal would include at least three downstream XPS foam manufacturers, who would use the technology developed under the project, to effect conversion.
Impact:	The successful implementation of this demonstration project will provide an environmentally safe and cost-effective alternative for enabling replication of this technology in similar applications and SMEs in the XPS foam sector in China and facilitate HCFC reductions for compliance with the 2013/2015 control targets. It will also significantly contribute to the viability of SMEs in this sector, avoid industrial obsolescence and dislocation and maintain sustainable livelihoods dependent on employment in this sector.