



联合国



环境规划署

Distr.
GENERAL
UNEP/OzL.Pro/ExCom/56/15
14 October 2008
CHINESE
ORIGINAL: ENGLISH

执行蒙特利尔议定书
多边基金执行委员会
第五十六次会议
2008年11月8日至12日，多哈

开发计划署 2008 年增订工作方案

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 2008 年增订工作方案核准 3,183,231 美元，外加 214,217 美元的机构支助费用。
2. 开发计划署增订工作方案拟议的活动如下文表 1 所示：

表 1：开发计划署的增订工作方案

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. 氟氯烃淘汰管理计划的项目编制：			
孟加拉国	氟氯烃淘汰管理计划的项目编制	60,000	60,000
古巴	氟氯烃淘汰管理计划的项目编制	150,000	150,000
A1 节小计：		210,000	210,000
A2. 氟氯烃淘汰管理计划的补充项目编制			
尼日利亚	氟氯烃淘汰管理计划的补充项目编制	45,000	45,000
A2 节小计：		45,000	45,000
A3. 延长体制建设项目			
中国	体制建设（第八阶段）	390,000	390,000
加纳	体制建设（第八阶段）	139,100	139,100
伊朗伊斯兰共和国	体制建设（第七阶段）	173,511	173,511
黎巴嫩	体制建设（第六阶段）	155,090	155,090
乌拉圭	体制建设（第八阶段）	150,800	150,800
委内瑞拉	体制建设（第九阶段）	285,480	285,480
A3 节小计：		1,293,981	1,293,981
B 节：建议单独审议的活动			
B1. 氟氯烃示范项目的项目编制			
中国	为淘汰单式商业空调系统中的氟氯烃编制一个示范项目	30,000	
中国	为淘汰工业制冷和空调系统中的氟氯烃编制一个示范项目	30,000	
中国	为淘汰电子清洗溶剂中的氟氯烃编制一个示范项目	30,000	
中国	为医学设备清洗使用的溶剂编制一个示范项目	30,000	
尼日利亚	为确认将本地生产的碳氢化合物作为制冷行业中的制冷剂 是否有成本效益编制一个示范项目	50,000	
B1 节小计：		170,000	*

国家	活动/项目	所需数额 (美元)	建议数额 (美元)
B2. 氟氯烃投资项目的项目编制			
印度尼西亚	在氟氯烃淘汰管理计划框架内为空调及制冷制造行业编制项目	150,000	
印度尼西亚	在氟氯烃淘汰管理计划框架内为空调及制冷维修行业编制项目	150,000	
B2 节小计:		300,000	*
B3. 氟氯烃淘汰管理计划的编制			
印度	为气雾剂、消防、泡沫塑料、空调及制冷制造和溶剂编制一个总体性氟氯烃淘汰管理计划战略及行业计划, 以落实第一阶段的氟氯烃控制措施	578,750	
伊朗伊斯兰共和国	为气雾剂、消防、泡沫塑料、空调及制冷制造和溶剂编制一个总体性氟氯烃淘汰管理计划战略及行业计划, 以落实第一阶段的氟氯烃控制措施	420,500	
B3 节小计:		999,250	*
B4. 确认氟氯烃技术替代品的技术援助项目			
全球	为确认聚氨酯硬质和连皮泡沫塑料应用中的优化液态氢氟碳化物配方对环境的影响编制技术援助项目	50,000	
全球	为确认在使用碳氢化合物作为硬质泡沫塑料加工中的发泡剂的低成本选择编制技术援助项目	55,000	
B4 节小计:		105,000	
B5. 编制计量吸入器过渡战略			
加纳	计量吸入器过渡战略	30,000	
尼加拉瓜	计量吸入器过渡战略	30,000	
B5 节小计:		60,000	*
A 节和 B 节小计:		3,183,231	1,548,981
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、即 9%用于其他 250,000 美元以下的项目):		241,217	116,173
总计:		3,424,448	1,665,154

* 供个别审议或待定。

A 节: 建议一揽子核准的活动

A1. 氟氯烃淘汰管理计划的项目编制:

(a)	孟加拉国	氟氯烃淘汰管理计划的项目编制	60,000
(b)	古巴	氟氯烃淘汰管理计划的项目编制	150,000

项目说明

3. 开发计划署为编制氟氯烃淘汰管理计划提交了 2 份新的申请。这些国家只有下表所列氟氯烃消费：

国家	2007 年氟氯烃消费量 (ODP 吨)		所需金额 (美元)
	HCFC-22	HCFC-141b	
孟加拉国	32.2	4.9	60,000 美元
古巴	12.96	1.46	150,000 美元

基金秘书处的评论

4. 秘书处注意到，这两份申请符合第 55/13 号决定的要求，并且与执行委员会在其第五十五次会议达成的一致意见相符，即如果其最近的消费级别在 1-120 ODP 吨之间，则在消费和加工行业都在使用氟氯烃的国家将获得 150,000 美元的资金，以便用于编制其第一阶段的氟氯烃淘汰管理计划。

5. 就孟加拉国而言，开发计划署被指定为氟氯烃淘汰管理计划项目编制的牵头机构，环境规划署被指定为一个合作机构。在本次申请额中，有 25,000 美元是该国有资格申请的，环境规划署增订工作方案正在申请此项资金。

基金秘书处的建议

6. 基金秘书处建议一揽子核准孟加拉国和古巴氟氯烃淘汰管理计划项目编制的资金申请，供资数额见表 1 所示。

A2. 氟氯烃淘汰管理计划的补充项目编制

尼日利亚： 氟氯烃淘汰管理计划的补充项目编制（45,000 美元）

项目说明

7. 开发计划署提交了一份申请，要求为尼日利亚氟氯烃淘汰管理计划的补充项目编制供资 45,000 美元，执行委员会第五十五次会议已经根据第 55/13 号决定以及在该次会议上就氟氯烃淘汰管理计划标准供资问题达成的协议为该国核准了总额为 85,000 美元的供资额。提出这一申请的原因是尼日利亚已经报告 2007 年度第 7 条数据，该数据显示尼日利亚在 2007 年消费的 HCFC-141b 为 26.6 ODP 吨，另外还消费 69.3 ODP 吨 HCFC-22，因此，这使该国有资格申请 150,000 美元的氟氯烃淘汰管理计划的项目编制供资。

基金秘书处的评论

8. 秘书处注意到本次申请材料是根据执行委员会第五十五次会议上的讨论结果提出的，执行委员会在这次会议上商定，如果数据表明有 HCFC-141b 或其他氟氯烃的消费用于加工行业，则只消费 HCFC-22 的国家可以为氟氯烃淘汰管理计划编制工作提出补充供资申请。本次申请得到了尼日利亚报告的 2007 年度第 7 条数据的支持，因此，该国有资格申请补充供资 65,000 美元。秘书处还注意到，开发计划署和工发组织正在一起合作，执行尼日利亚氟氯烃淘汰管理计划的编制工作。

9. 在开发计划署申请 45,000 美元供资的同时，工发组织的增订工作方案也提出了 20,000 美元的供资申请，这也是尼日利亚有资格申请的供资额。

基金秘书处的建议

10. 基金秘书处建议按照上文表 1 所述供资数额一揽子核准此次补充供资申请，用于编制尼日利亚氟氯烃淘汰管理计划。

A3. 延长体制建设项目：

- (a) 中国（第八阶段）：390,000 美元
- (b) 加纳（第八阶段）：139,100 美元
- (c) 伊朗伊斯兰共和国（第七阶段）：173,511 美元
- (d) 黎巴嫩（第六阶段）：155,090 美元
- (e) 乌拉圭（第八阶段）：150,800 美元
- (f) 委内瑞拉（第九阶段）：285,480 美元

项目说明

11. 本文件的附件一载有关于以上国家的延长体制建设项目的说明。

基金秘书处的评论和建议

12. 基金秘书处和开发计划署已就延长以上所有体制建设项目的供资数额达成一致。谨建议执行委员会向本文件附件二所列有关国家政府提出补充评论意见。

B 节：建议单独审议的活动

B1. 氟氯烃示范项目的编制：

中国：为淘汰单式商业空调系统中的氟氯烃编制一个示范项目：30,000 美元

中国：为淘汰工业制冷和空调/冷风机中的氟氯烃编制一个示范项目：30,000 美元

中国：为淘汰电子清洗溶剂中的氟氯烃编制一个示范项目：30,000 美元

中国：为医学设备清洗使用的溶剂编制一个示范项目：30,000 美元

项目说明

13. 开发计划署提出上述供资申请的目的是为中国编制 4 个关于空调和溶剂行业的示范项目。上述提案所提供的信息概括如下：

- (a) 单式商业空调次级行业由写字楼、酒店、医院等商业（非住宅）用途的单式空调系统组成，是氟氯烃消费的重要来源，估计在 2006 年消费氟氯烃 40,000 公吨，主要是 HCFC-22。拟议的示范项目将对 R-410A、碳氢化合物等各种氟氯烃替代品的技术和商业生存能力进行评估，从而使利益攸关方能够买进这些替代品以便早日减少对氟氯烃的消费。它还将确定哪些企业有望成为未来转换项目的接受人。
- (b) 工业制冷和空调/冷风机次级行业由食品加工、化学品、制药和大型空调设备等工业用途的制冷和空调设备组成。这些设备包括大冷风机、冷藏库、冷藏室、加工冷却设备等。由于当前和预期经济增长，这个次级行业是氟氯烃消费的一个重要来源。拟议示范项目将对 R-410A、碳氢化合物等各种氟氯烃替代品的技术和商业生存能力进行评估，从而使利益攸关方能够买进这些替代品以便早日减少对氟氯烃的消费。考虑到存在若干用途，故有必要设计两三个示范项目以便为主要用途服务。
- (c) 溶剂行业在 2006 年消费的氟氯烃估计有 7,000 公吨，主要消费的是 HCFC-141b。该行业由大量企业组成，人均消费量不高。建议编制 2 个示范项目，一个用于电子清洗，另一个用于医学设备清洗。由于清洗用途具有排放性质，故有必要将该行业的示范项目列为优先事项，以便确保利益攸关方对技术选择和买进的信心。

基金秘书处的评论

14. 在第五十五次会议上，执行委员会通过第 55/14 号决定，一揽子核准了 410 万美元供资申请，以便用于编制中国氟氯烃淘汰管理计划，条件是不再为该国第一阶段氟氯烃淘汰管理计划项目编制核准供资。在这些核准供资中，开发计划署得到供资 604,000 美元以便用于工业和商业制冷和空调行业，并为溶剂行业供资 432,000 美元而且也附带一个与上述总核准供资额类似的条件（第 55/20 号决定(b)段）。有鉴于此，秘书处通知开发计划署，这些申请不符合条件，也不符合上述决定的要求。

15. 开发计划署解释称，这些申请是根据第 55/43 号决定(f)段要求提出的，除其他事项外，执行委员会尤其在该项决定中请各机构提出有限数量的、用于转换制冷和空调次级行业中使用的氟氯烃的示范项目，并确定所需的所有步骤及其相关成本。据开发计划署称，这些申请不属于执行委员会在第五十五次会议上就氟氯烃淘汰管理计划编制供资问题做出的决定的范围，因为它们的目的不同，并且它们的编制成本也没有被算作氟氯烃淘汰管理计划的一部分。

16. 秘书处通知开发计划署，中国确实可以根据第 55/43 号决定(f)段提供完全示范项目的供资申请，但申请的中国项目编制供资已被第 55/14 号和第 55/20 号决定所完全涵盖，因此，建议不再核准进一步的项目编制供资。

基金秘书处的建议

17. 有鉴于此，秘书处无法建议核准中国示范项目的编制供资申请。

18. 谨建议执行委员会考虑促请开发计划署和中国在第五十九次会议之前根据第 55/43 号决定(e)和(f)段要求，提出完全示范项目但不申请补充项目编制供资的申请，以供委员会审议。

尼日利亚：为确认将本地生产的碳氢化合物作为制冷行业中的制冷剂是否有成本效益编制一个示范项目（50,000 美元）

项目说明

19. 开发计划署提出供资申请的目的是为确认将本地生产的碳氢化合物作为制冷剂是否有成本效益编制一个示范项目。上述供资申请是开发计划署代表尼日利亚政府提出的，供资数额为 50,000 美元，用于检查是否可以用于由联邦环境部设计的、使用液态丙烷自然制冷剂的原型蒸馏设备。这个项目的目的是看看是否可以将这种原型作为商业规模生产设备的基础，支持利用本地生产的更廉价的碳氢化合物，从而为淘汰制冷加工行业及其相关服务行业使用的氟氯烃做出贡献。

20. 开发计划署指出，申请供资将为尼日利亚政府提供检测原形设备的机会，这样就可以通过私人建起实际商业工厂。项目编制拨款将为项目参数的检测和确认以及多边基金格式项目文件的编制提供支助。如果成功，生产设施不仅能够为尼日利亚，而且也能够为整个没有消耗臭氧层物质/全球变暖潜势低的撒哈拉以南地区提供可以替代目前所用氟氯烃的高纯度制冷剂。本地区一般还没有这种产品。

基金秘书处的评论

21. 秘书处告知开发计划署，严格来讲，本次申请不属于示范项目的定义范围，也就是说，要示范一种新的替代技术来取代消耗臭氧层物质，就本个案而言，也就是要有取代氟氯烃的新技术。这一项目的目的是要看看能否建立一个碳氢化合物生产设施以便生产出达到许多制冷用途所需纯度的碳氢化合物。据开发计划署称，因为这个项目试图在可以用碳氢化合物替代的用途中避免使用氟氯烃，所以它非常重要。该机构坚持认为它尤其能够使很多国家特别是撒哈拉以南地区的国家能够从中获益，因为它们的结束性淘汰管理计划中有许多是使用碳氢化合物的制冷设备，虽然这样的制冷设备越来越容易得到，但高品质的碳氢化合物却不易搞到。另外，开发计划署还称，有了碳氢化合物，目前现有使用氟氯烃的设备能够很容易向使用碳氢化合物转换。

22. 开发计划署还认为这次申请与执行委员会第 55/43 号决定(f)段的精神一致，除其他事项外，执行委员会还在该决定中特别请各机构提出有限数量的、用于将制冷和空调次级行业中使用的氟氯烃转换为全球变暖潜势低的技术的示范项目，并确定所需的所有步骤及其相关成本。它还指出，如果可以广泛利用全球变暖潜势低的碳氢化合物制冷剂，则最终将会促进尼日利亚及非洲地区使用氟氯烃的设备转换。

23. 虽然秘书处理解碳氢化合物的可利用情况可能会促进对这种全球变暖潜能低的制冷剂的使用，但不太清楚这一提案是否与第 55/43 号决定(f)段的精神一致，与该决定中有关泡沫塑料行业的(e)段不同，(f)段未提到优化和确认化学系统以替代制冷剂中的氟氯烃问题。另外，除其他事项外，执行委员会还在第 55/13 号决定(d)段要求秘书处为第五十六次会议编制一个关于确定投资及相关活动编制供资数额的成本结构，以供各双边和执行机构根据其在氟氯化碳行业计划和国家淘汰计划方面的经验提出意见。

24. 有鉴于此，本项目可以被视为属于第 56/13 号和第 56/58 号文件所讨论的范围之内。

基金秘书处的建议：

25. 议程项目 7(b) 有待讨论。

B. 2. 氟氯烃投资项目的项目编制

印度尼西亚：为空调及制冷制造行业编制行业计划作为氟氯烃淘汰管理计划的一部分（150,000 美元）

印度尼西亚：为空调及制冷维修行业编制行业计划作为氟氯烃淘汰管理计划的一部分（150,000 美元）

项目说明

26. 这两个项目是由开发计划署作为牵头机构为印度尼西亚补充项目编制成本提出的。申请的目的是要制定两个制冷行业计划，一个是加工制造行业，另一个是维修服务行业，印度尼西亚已将开发计划署指定为这两个行业的计划牵头机构。世界银行为泡沫塑料加工行业提出了一项补充供资申请，第 56/18 号文件将对此予以讨论。为了支持其申请，开发计划署已指出，为了使印度尼西亚能够完成其 2013 年和 2015 年承诺目标，该国需要尽快开展其在制冷行业的活动。

27. 就维修服务行业而言，开发计划署指出，印度尼西亚使用氟氯烃的设备数量增加将需要回收、再循环和再生方案，并且还需要培训活动和最佳做法，以便能够立即减少这一行业对氟氯烃的消费。开发计划署还指出，为了支持减少对氟氯烃的消费，需要尽快采取必要的管理干预措施对使用氟氯烃和禁止设备进行控制。维修服务行业的提案还表明，申请资金中将包括一位专家协助制定战略及其差旅费用以及举行行业协商研讨会以便最终确定这一计划以及所需要的其他协调会议的费用。文件表明，根据其 2005 年的调查结果，当前维修服务行业消费的氟氯烃占国内氟氯烃消费总量的 40%。

基金秘书处的评论

28. 在第五十五次会议上，执行委员会核准了总额为 195,000 美元的供资，以便用于编制印度尼西亚氟氯烃淘汰管理计划。根据在第五十五次会议期间进行的讨论和达成的协议，有一种理解认为，这一战略的第一部分（不包括第 55/13 号决定(d)段所涉加工制造行业）将涵盖包括维修服务行业在内属于非投资活动的所有部分。这在第五十四次会议上通过的氟氯烃淘汰管理计划指导原则中得以体现，它将使印度尼西亚能够在 2013 年和 2015 年落实氟氯烃淘汰管理计划第一阶段的控制措施。因此，开发计划署的这次申请属于总额为 195,000 美元氟氯烃淘汰管理计划编制工作第一部分的商定金额范围之内。

29. 在与开发计划署进行讨论之中，机构重申维修服务行业需要采取行动，并且认为这些活动不应该明确列于第五十五次会议核准的氟氯烃淘汰管理计划编制供资之中。开发计划署认为印度尼西亚的维修服务行业面临许多挑战，并且强调需要将它作为一个符合申请项目编制供资条件的独立行业加以考虑。它还证实，本次申请将涵盖该国维修服务行业第一阶段活动的全部要求，并且今后不需要再为此申请编制供资。

30. 关于制冷加工行业，执行委员会通过第 55/13 号决定(d)段请求秘书处为第五十六次

会议编制一个关于确定投资及相关活动编制供资数额的成本结构，以供各双边和执行机构根据其在氟氯化碳行业计划和国家淘汰计划方面的经验提出意见。该决定的(e)段还请求秘书处将这一成本结构适用于双边和执行机构向第五十六次会议提交的所有关于编制氟氯烃投资及相关活动计划的申请。

31. 秘书处按照执行委员会的这一要求编写的文件草案将在议程项目 7(b)之下进行讨论。秘书处注意到，为制冷加工行业提出的申请属于加工行业项目类别，并且也在拟议成本范围之内，但从技术上讲，维修服务行业的供资申请不属于加工制造行业。

基金秘书处的建议

32. 秘书处无法就开发计划署为印度尼西亚制冷维修服务行业提出的供资申请提出建议，因为这些活动已经包含在该国在第五十五次会议上获得的氟氯烃淘汰管理计划供资之内。

33. 关于为制冷加工行业申请编制供资问题，这有待在议程项目 7(b)下进行讨论。

B3. 氟氯烃淘汰管理计划的编制

印度：为气雾剂、消防、泡沫塑料、空调及制冷制造和溶剂编制总体性氟氯烃淘汰管理计划战略及行业计划，以落实第一阶段的氟氯烃控制措施（578,750 美元）

项目说明

34. 开发计划署提出一份供资申请，目的是编制一份氟氯烃淘汰管理计划、由其作为印度项目牵头机构的一揽子提案。该一揽子提案的总成本为 1,055,020 美元。其中开发计划署在本次增订工作方案中申请的供资额为 578,750 美元，外加 43,406 美元的机构支助费用。其余供资将在工发组织、环境规划署和德国的个别增订工作方案中予以申请，这些问题将在其各自相关文件中加以讨论。

35. 根据第 7 条报告，印度在 2006 年消费的氟氯化碳为 637.3 ODP 吨，其中 50%是 HCFC-22，约 45%是 HCFC-141b，其余是其他类氟氯烃。开发计划署指出，按照 10%的年度预期增长率来算，据估计，该国需要减少约 486 ODP 吨需求才能完成 2013 年和 2015 年控制措施所要完成的目标。这需要所有行业都要行动起来；因此，提交一份一揽子提案将是解决这些问题最佳方式。

36. 开发计划署申请这些供资以涵盖以下所列部分：

部分	申请供资（美元）
根据第五十五次会议精神编制一个总体性战略	173,750
为气雾剂行业编制一份行业计划	25,000
为消防行业编制一份行业计划	25,000
为泡沫塑料行业编制一份行业计划	125,000

为空调及制冷加工行业编制一份行业战略（运输制冷除外）	205,000
为溶剂行业编制一份行业计划	25,000
总计	578,750

37. 开发计划署指出，申请的供资数额将使印度能够完成 2013 年和 2015 年氟氯烃控制措施所需完成的目标，并且不需要再为第一阶段氟氯烃淘汰管理计划申请补充项目编制供资。

基金秘书处的评论

38. 在第五十五次会议上，执行委员会就编制氟氯烃淘汰管理计划的标准供资成本达成一致。对于氟氯烃消费量在 120-1,200 ODP 吨且有加工行业的国家而言，比如印度，国家有权提出 195,000 美元的供资申请，以便用于全方位制定不包括投资行业的氟氯烃淘汰管理计划。开发计划署为总体性战略申请的供资额只有 173,750 美元，因为按照第 55/13 号决定(d)段它在调查部分适用于 25%的折扣，因为印度过去曾在了一项氟氯烃调查中获得过供资。秘书处注意到，对于这一具体部分而言，开发计划署建议的金额与现有指导原则的精神一致，所以符合申请条件。

39. 在提交一揽子提案时，开发计划署还要求为印度的气雾剂、消防、泡沫塑料、制冷加工和溶剂行业编制行业计划供资。这些请求必须根据执行委员会的决定（第 55/13 号决定(d)段）加以考虑，执行委员会在该段决定中请求秘书处为第五十六次会议编制一个关于确定投资及相关活动编制供资数额的成本结构，以供各双边和执行机构根据其在氟氯化碳行业计划和国家淘汰计划方面的经验提出意见。该决定的(e)段还请求秘书处将这一成本结构适用于双边和执行机构向第五十六次会议提交的所有关于编制氟氯烃投资及相关活动计划的申请。

40. 虽然秘书处按照执行委员会的这一要求编写的文件草案将在议程项目 7(b)之下进行讨论，但秘书处注意到，为编制行业计划申请的供资似乎与文件中拟议的成本一致，为制冷加工行业建议的供资额较高除外。

41. 在与其进行讨论过程中，开发计划署解释说，因为印度的规模和结构，该国需要采取一项综合性的做法来解决 2013 年和 2015 年的需求，这是提交涵盖不同行业并确保尽快采取行动的一揽子提案的首要原因。开发计划署强调，由于其他行业的供资申请由其他机构提出，故积极考虑这个一揽子提案将会使印度受益，并且有助于它完成其履约义务。

42. 开发计划署还证实，为这些行业申请的 578,750 美元供资属于印度一揽子方案的一部分，并将符合第一阶段的所有要求。因此，如果执行委员会同意编制氟氯烃淘汰管理计划投资活动的成本结构，则为印度提供的所有供资都应该与在就议程项目 7(b)进行讨论之后所做出的决定保持一致，条件是不再需要为该国第一阶段的氟氯烃淘汰管理计划申请项目编制供资。

基金秘书处的建议

43. 有鉴于此，谨建议执行委员会考虑：

- (a) 核准 173,750 美元的供资申请，以使用作为印度编制总体性氟氯烃淘汰管理计划；和
- (b) 在讨论议程项目 7(b)之前根据上文第 42 段就不同行业计划的项目编制供资申请问题做出决定。

伊朗伊斯兰共和国：为气雾剂、消防、泡沫塑料、空调及制冷制造和溶剂编制总体性氟氯烃淘汰管理计划战略及行业计划，以落实第一阶段的氟氯烃控制措施（420,500 美元）

项目说明

44. 开发计划署提出一份供资申请，目的是编制一份氟氯烃淘汰管理计划，该计划由一个一揽子方案组成，由开发计划署作为伊朗伊斯兰共和国项目的牵头机构。该一揽子项目的总成本为 882,750 美元。其中，开发计划署在本增订工作方案中申请的供资为 420,500 美元，外加 31,538 美元的机构支助费用。其余供资将在工发组织、环境规划署和德国的个别增订工作方案中予以申请，这些问题将在其各自相关文件中加以讨论。

45. 根据其第 7 条报告，伊朗伊斯兰共和国在 2006 年消费的氟氯烃为 166.5 ODP 吨，其中 55%是 HCFC-22，剩下的是 HCFC-141b。按照 7.5%的氟氯烃年度消费增长率来算，该国需要从其预期基数中减少 120 ODP 吨才能完成 2013 年和 2015 年氟氯烃控制措施所要完成的目标。这需要所有行业都要行动起来，因此，提交一份一揽子提案将是解决这些问题的最佳方式。伊朗伊斯兰共和国 2007 年的氟氯烃消费量为 191.4 ODP 吨，比其 2006 年消费的氟氯烃总量增长近 20%。

46. 开发计划署申请这些供资以涵盖以下所列部分：

部分	申请供资（美元）
根据第五十五次会议精神编制一个总体性战略	173,750
为气雾剂行业编制一份行业计划	15,000
为消防行业编制一份行业计划	20,000
为泡沫塑料行业编制一份行业计划（系统企业）	25,000
为硬质泡沫塑料行业编制一份行业计划	16,750
为空调及制冷加工行业编制一份行业战略（运输制冷除外）	155,000
为溶剂行业编制一份行业计划	15,000
总计	420,500

47. 上文第 38 段至第 40 段中的秘书处评论也适用于伊朗伊斯兰共和国的供资申请。

48. 开发计划署解释称，该国已经决定选择采用单一做法来实施氟氯烃淘汰管理计划，

这包括该国为满足 2013 年和 2015 年需求所需项目活动提出的所有供资申请。开发计划署强调，其他行业的供资申请由其他机构提出，积极考虑伊朗伊斯兰共和国的这项一揽子提案将使其受益，并且有助于其完成履约义务。

49. 开发计划署还证实，为这些行业申请的 420,500 美元供资属于伊朗伊斯兰共和国一揽子方案的一部分，并将符合第一阶段的所有要求。因此，如果执行委员会同意编制氟氯烃淘汰管理计划投资活动的成本结构，则为伊朗伊斯兰共和国提供的所有供资都应该与在就议程项目 7(b)进行讨论之后所做出的决定保持一致，条件是不再需要为该国第一阶段的氟氯烃淘汰管理计划申请项目编制供资。

基金秘书处的建议

50. 有鉴于此，谨建议执行委员会考虑：

- (a) 核准 173,750 美元的供资申请，以使用作为伊朗伊斯兰共和国编制总体性氟氯烃淘汰管理计划；和
- (b) 在讨论议程项目 7(b)之前根据上文第 49 段就不同行业计划的项目编制供资申请问题做出决定。

B.4 确认氟氯烃技术替代品的技术援助项目

全球：确认聚氨酯硬质和连皮泡沫塑料应用中的优化液态氢氟碳化物配方对环境的影响：50,000 美元

全球：确认在使用碳氢化合物作为硬质泡沫塑料加工中的发泡剂的低成本选择：55,000 美元

项目说明

51. 开发计划署提出两份关于技术援助的供资申请，目的是要确认泡沫塑料行业的氟氯烃技术替代品，申请总额为 105,000 美元。这两份申请的目标都是要开展一项案头研究，以便分析聚氨酯硬质和连皮泡沫塑料应用中的优化液态氢氟碳化物配方对环境的影响以及在使用碳氢化合物作为硬质泡沫塑料加工中的发泡剂的低成本选择。这两项研究都将考虑如何才能将技术应用于泡沫塑料加工行业。开发计划署的提案列出了泡沫塑料行业中所用 HCFC 141b 以及目前已知和拟议使用的氟氯烃替代品的各种理想替代标准。

52. 拟议的液态氢氟碳化物配方的技术援助将对采用第五十五次会议在第 55/47 号文件中所描述的所谓“功能单位”做法将氢氟碳化物作为泡沫塑料的发泡剂对气候产生的影响进行评估。它不仅对优化后的氢氟碳化物配方进行公平的评估，而且还会展示如何采用“功能单位”做法，并方便秘书处按照执行委员会在第 55/43 号决定(h)段中提出的要求开展评价工作。

53. 研究碳氢化合物作为泡沫塑料发泡过程中氟氯烃的一种替代品的提案还将是一项试图按照执行委员会第 55/43 号决定(e)(四)段的要求开展的案头研究，并且考虑如何降低碳氢化合物项目的成本，从而降低最低成本，使更多的企业能够选择这一技术。在执行此项研究过程中，开发计划署还将同时建立一个泡沫系统企业，以便找到低成本利用碳氢化合物的方法。

基金秘书处的评论

54. 秘书处注意到这两个项目都是要研究分析和确认泡沫塑料行业中氟氯烃的两种替代品（氢氟碳化合物和碳氢化合物）的案头研究。在与开发计划署讨论这两项提案并答复秘书处关于这两项研究如何促进淘汰的关切时，开发计划署澄清说，这两项研究的成果最终都会减少将在转换氟氯烃应用中采用这两种技术的项目所需要的项目编制成本。这是因为根据设想，研究的最终成果将提供关于应用技术的信息，并且还将提供关于可在今后用于制订投资项目的标准成本方面的信息。

55. 秘书处还注意到，这两个项目都与第 55/43 号决定(e)段的要求一致，除其他事项外，该决定请各双边和执行机构作为一个紧急事项，编制并提交数量有限且有时效要求的项目提案，并让有关系统企业和（或）化学品供应商参与制定、优化和确认那些利用非氟氯烃发泡剂的化学品制度。

基金秘书处的建议

56. 谨建议执行委员会考虑根据第 55/58 号文件的讨论结果，按照上文表 1 所列供资数额核准开发计划署所提出的两个技术援助项目。

B5. 编制计量吸入器过渡战略

背景

57. 在执行委员会第五十一次会议上，除其他事项外，执行委员会还通过其第 51/34 号决定(d)段同意“在通过提供以下有关前三年的信息充分证明需要过渡战略时根据第 45/54 号决定，在每个个案基础上考虑为那些没有计量吸入器制造设施的第 5 条国家制定向非氟氯化碳计量吸入器过渡的战略的供资申请：

- (a) 氟氯化碳和无氟氯化碳计量吸入器和干粉吸入器：在缔约方境内出售或分发的氟氯化碳和无氟氯化碳计量吸入器和干粉吸入器，按活性成分、品牌/厂商和来源国分列；
- (b) 无氟氯化碳计量吸入器和干粉吸入器：在缔约方领土内核准、授权营销和（或）投放市场的日期；
- (c) 氟氯化碳和无氟氯化碳计量吸入器和干粉吸入器：按活性成分和来源国分类

的估计成本。”

加纳：计量吸入器过渡战略（30,000 美元）

项目说明

58. 开发计划署代表加纳政府提交了关于编制计量吸入器过渡战略的供资申请，该项目的目标是淘汰在计量吸入器消费行业对氟氯化碳的使用。加纳未生产氟氯化碳计量吸入器，其使用的计量吸入器大部分是进口产品。虽然有一项管理条例控制向该国进口消耗臭氧层物质和含消耗臭氧层物质的产品，但它未明确包括氟氯化碳计量吸入器。其进口氟氯化碳和无氟氯化碳计量吸入器的主要来源国是中国、印度、法国和英国。

59. 就过去五年（2003-2007 年）而言，进口氟氯化碳计量吸入器和氢氟烷烃计量吸入器的平均数量为每年 38,000 台，而进口的干粉计量吸入器总共只有 515 台。现有数据表明，这些产品的进口数量都在增加，但所占份额最大的仍然是氟氯化碳计量吸入器，它们在市场上比较便宜，是来源于印度和中国的廉价产品。

60. 在加纳，没有明确涉及慢性阻塞性肺病患者的数量，当前的统计数字表明，哮喘患者的数量按照每年 6-7% 的速度逐年增加。虽然受哮喘影响的人在人口中没有占到很大的比例，但其中有很多患有这种疾病的人都依赖于脆弱的医疗系统。

61. 为了支持其申请，并基于第 51/34 号决定，开发计划署指出，加纳在计量吸入器及其无氟氯化碳对等物供应方面的状况可以简单描述如下：

- (a) 市场上有氟氯化碳计量吸入器、氢氟烷烃计量吸入器和干粉吸入器；
- (b) 氟氯化碳计量吸入器在加纳市场上占主宰地位，拥有 91% 的市场份额；
- (c) 市场上供应有少量到适度数量的氢氟烷烃计量吸入器；
- (d) 整个 2003-2007 年期间氟氯化碳计量吸入器的进口数量一直在增加；
- (e) 2003 年至 2007 年期间氢氟烷烃计量吸入器的进口数量在下降；
- (f) 干粉吸入器的市场份额可以忽略不计。

62. 另外，开发计划署还提供了一个综合性的表格，列出了该国进口、出口或经销的氟氯化碳和无氟氯化碳计量吸入器及干粉吸入器的数量，并且按活性成分、品牌/厂商和来源国情况进行了分类。信息还包括每种产品的价格以及国家主管当局批准每种药物的日期。信息概括如下：

	2003 年	2004 年	2005 年	2006 年	2007 年	总台数
氟氯化碳计量吸入器	22,471	29823	38,118	41,229	45,110	176,751

氢氟烷烃计量吸入器	2,930	2,765	3,296	3,240	3,230	15,461
干粉吸入器	0	0	35	330	150	515
总台数	25,401	32,588	41,449	44,799	48,490	192,727

63. 文件还表明，负责采购计量吸入器的国家主管当局首要考虑的是它们的市场价格。虽然该国已经认识到必须采取行动减少国内对氟氯化碳计量吸入器的使用，但政府目前还没有强制要求进口商履约的管理条例。

基金秘书处的评论

64. 提出项目编制申请的目的是要使加纳能够完成向无氟氯化碳计量吸入器的平稳过渡，从而淘汰计量吸入器行业对氟氯化碳的消费。秘书处注意到加纳自 2005 年以来进口的氟氯化碳计量吸入器的数量较大。开发计划署答复称，这是由于氟氯化碳计量吸入器的进口价格比较便宜从而使消费者能够买得起之故。秘书处还注意到从印度和中国以外进口的氟氯化碳计量吸入器的单价平均贵几乎 30%。开发计划署通知秘书处，消费者对使用氟氯化碳计量吸入器与使用市场替代品的计量吸入器之间的差别了解很少，因为它们的价格成为驱动因素。另外，用户对使用无氟氯化碳计量吸入器表现出比较保守的行为，因为他们习惯了使用氟氯化碳计量吸入器，并且相信它们的功效。这是该国确实需要过渡战略的一个原因所在。

65. 在讨论该国编制过渡战略的计划时，秘书处被告知，根据设想，关于用替代品取代氟氯化碳计量吸入器的国家战略拟考虑如下：

- (a) 更好地研究和分析当前的计量吸入器市场消费、供应、来源国和未来趋势；
- (b) 分析替代产品及其来源国的可利用情况和赞助情况、它们的效果及其对健康的影响；
- (c) 与主要进口商及医学机构的代表开展合作，组织和采取措施向可承受的替代药物治疗转变，包括就进口时限和替代品问题与供应商和经销商达成个别和团体协议；
- (d) 制定多年期国家进口规划，确保向替代品平稳过渡；
- (e) 通过培训和有针对性的提高认识活动，采用广泛、知情和参与性的决策程序，提高消费者的信心，确保患者和医生接受替代产品；和
- (f) 以氢氟烷烃计量吸入器敏化方案为目标，延长与哮喘协会及其他相关可识别团体的合作。

基金秘书处的建议

66. 鉴于以上评论，谨建议执行委员会考虑按照上文表 1 所述 30,000 美元的供资数额，

核准关于编制加纳计量吸入器过渡战略的供资申请。谨建议执行委员会证实所提供的信息与第 51/34 号决定的要求相符。

67. 在核准本项目时，请开发计划署注意，不会再为加纳计量吸入器行业提供淘汰供资。

尼加拉瓜：计量吸入器过渡战略（30,000 美元）

项目说明

68. 开发计划署代表尼加拉瓜政府提出了关于为计量吸入器消费行业淘汰氟氯化碳编制过渡战略的供资申请。尼加拉瓜不生产氟氯化碳计量吸入器，其大部分产品来自进口。

69. 在尼加拉瓜，氟氯化碳计量吸入器的使用情况分为两类：政府使用（政府医疗用途）和私人使用。该国 2007 年计量吸入器的总消费量达到 746,071 台，而政府使用的占到 75% 以上，私人消费只有 25%。其中，无氟氯化碳计量吸入器只到政府消费量的 10%，私人消费量的 78%。相比而言，政府在 2004 年消费的计量吸入器全是使用氟氯化碳的计量吸入器。

70. 在尼加拉瓜，目前的管理条例规定，公司必须经过注册之后才能向国内供应氟氯化碳计量吸入器，目前，在总共 25 家注册企业当中，有 9 家从事进口计量吸入器业务的计量吸入器企业。大部分计量吸入器进口来自西班牙、联合王国、比利时、德国、法国、澳大利亚、印度、中国和墨西哥。也有少量进口来自阿根廷、哥斯达黎加和危地马拉等邻国。

71. 另外，开发计划署还提供了一个综合性的表格，列出了该国进口、出口或经销的氟氯化碳和无氟氯化碳计量吸入器及干粉吸入器的数量，并且按活性成分、品牌/厂商和来源国情况进行了分类。信息还包括每种产品的价格以及国家主管当局批准每种药物的日期。信息概括如下：

	2004 年	2005 年	2006 年	2007 年	总台数
氟氯化碳计量吸入器	192,120	293,375	394,631	495,886	1,376,012
无氟氯化碳计量吸入器	54,763	102,212	176,198	250,185	583,358
总台数	246,883	395,587	570,829	746,071	1,959,370

72. 文件还表明，虽然市场上的无氟氯化碳计量吸入器数量呈上升趋势，但仍然需要采取具体行动来提高认识，并且需要审查现有管理条例和政策，从而使未来所有计量吸入器进口都是无氟氯化碳产品。

基金秘书处的评论

73. 提出项目编制申请的目的是要使尼加拉瓜能够完成向无氟氯化碳计量吸入器的平稳过渡，从而淘汰计量吸入器行业对氟氯化碳的消费。秘书处注意到，虽然该国进口的氟氯化碳计量吸入器的数量较大，但无氟氯化碳的进口和消费量也在快速增长。开发计划署答复称，这是由于认识到需要向无氟氯化碳计量吸入器过渡之故，目前的管理框架仍未支持

这种做法。因此，尼加拉瓜政府希望通过对这一过渡战略的援助，能够有机会修改目前的管理条例，鼓励进口无氟氯化碳计量吸入器。

74. 在讨论该国编制过渡战略的计划时，秘书处被告知，根据设想，关于用替代品取代氟氯化碳计量吸入器的国家战略拟考虑三个要素：

- (a) 对管理包括计量吸入器在内的药物产品进口问题的现行法律框架进行修改；
- (b) 针对包括哮喘协会和其他相关可识别团体在内的国家卫生系统及慢性阻塞性肺病患者开展广泛、知情和参与性的提高认识和教育运动；和
- (c) 通过售后监督、制定如何处理可能被没收的含氟氯化碳产品的程序以及定期报告进展情况，监督本战略的执行情况。

基金秘书处的建议

75. 鉴于以上评论，谨建议执行委员会按照上文表 1 所述 30,000 美元的供资数额一揽子核准关于编制尼加拉瓜计量吸入器过渡战略的供资申请。谨建议执行委员会证实所提供的信息是否符合第 51/34 号决定的要求。

76. 在核准这一项目时，要求开发计划署注意到不会再向尼加拉瓜计量吸入器行业提供淘汰供资了。

附件一

体制建设项目提案

中国：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2月	449,997
第二阶段：1996年10月	299,999
第三阶段：1998年11月	300,000
第四阶段：2000年12月	300,000
第五阶段：2002年11月	390,000
第六阶段：2004年12月	390,000
第七阶段：2006年11月	390,000
共计	2,519,996
为延长所申请金额（第八阶段）（美元）：	390,000
建议为第八阶段核准的金额（美元）：	390,000
机构资助费用（美元）：	29,250
多边基金体制建设第八阶段的总费用（美元）：	419,250
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：	1993年3月
国家方案所报告的消耗臭氧层物质消费量（1991年）（ODP吨）：	55,048.5
管制物质基准消费量（ODP吨）：	
(a) 附件A 第一类物质（氟氯化碳）（1995—1997年平均数）	57,818.7
(b) 附件A 第二类物质（哈龙）（1995—1997年平均数）	34,186.7
(c) 附件B 第二类物质（四氯化碳）（1998—2000年平均数）	49,142.1
(d) 附件B 第三类物质（三氯甲烷）（1998—2000年平均数）	721.2
(e) 附件E（甲基溴）（1995—1998年平均数）	1,102.1
依照第7条最新报告的消耗臭氧层物质消费量（2007年）（ODP年）：	
(a) 附件A 第一类物质（氟氯化碳）	5,832.1
(b) 附件A 第二类物质（哈龙）	594.4
(c) 附件B 第二类物质（四氯化碳）	265.1
(d) 附件B 第三类物质（三氯甲烷）	251.1
(e) 附件E（甲基溴）	405.0
(f) 附件C 第一类物质（氟氯烃）	17,876.90
共计	25,224.6
报告国家方案执行数据的年份：	2007年
项目核准金额（美元）：	748,941,404
已发放金额（截至2008年10月）（美元）：	639,916,650
将要淘汰的消耗臭氧层物质（ODP吨）：	234,709.6
已淘汰消耗臭氧层物质（截至2008年10月）（ODP吨）：	214,820.8

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：	724,601,648
(b)	体制建设：	2,519,996
(c)	项目编制、技术援助、培训和其他非投资项目：	21,819,760
	共计：	748,941,404

进度报告

2. 在体制建设项目第七阶段期间，国家环保总局方案管理办公室制定了若干新的政策，完善了其关于消耗臭氧层物质管理和控制的政策制定和执行机制。还完善了其项目管理和财务管理技能，提高了国家履约能力，目的是要通过大量行业淘汰计划，确保有效管理和监测其淘汰活动。对控制非法生产、贸易和消费消耗臭氧层物质做出了特殊的努力。它还通过举办高级别和声势浩大的国际臭氧日庆祝活动，宣传中国臭氧行动以及通过关于保护臭氧层的专门网站进行一系列的新闻报告和宣传，继续努力提高公众对臭氧问题的认识。本阶段体制建设的重点是在 2007 年 7 月 1 日之前实现加强氟氯化碳和哈龙淘汰计划，比《蒙特利尔议定书》规定的时间表整整提前了两年半。

行动计划

3. 体制建设项目第八阶段的目标是继续中国在淘汰消耗臭氧层物质方面所取得的成就，以便完成《蒙特利尔议定书》的重要淘汰目标，特别是实现其在 2010 年之前完全淘汰氟氯化碳的承诺。在第八阶段期间，将继续开展各项活动，以期完善政策制定和执行情况；更有效地提高项目管理能力和工作人员管理和监测已核准行业淘汰计划执行情况的能力。它还将加强国际沟通、努力提高公众对保护臭氧层的认识，并且加强力度打击非法消耗臭氧层物质的活动。中国还将努力制定行动计划，以便实现加快冻结氟氯烃和在 2013 年和 2015 年之前减少 10% 的目标。

加纳：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	183,200
	第二阶段：1996年10月	107,000
	第三阶段：1998年11月	99,275
	第四阶段：2000年12月	107,000
	第五阶段：2002年11月	139,100
	第六阶段：2004年7月	139,100
	第七阶段：2006年11月	139,100
	共计	913,775
为延长所申请金额（第八阶段）（美元）：		139,100
建议为第八阶段核准的金额（美元）：		139,100
机构支助费用（美元）：		10,433
多边基金体制建设第八阶段的总费用（美元）：		149,533
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10月
国家方案所报告的消耗臭氧层物质消费量（1991年）（ODP吨）：		101.4
管制物质基准消费量（ODP吨）：		
(a) 附件A 第一类物质（氟氯化碳）（1995—1997年平均数）		35.8
(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）		0.4
(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）		0
依照第7条最新报告的消耗臭氧层物质消费量（2007年）（ODP年）：		
(a) 附件A 第一类物质（氟氯化碳）		4.2
(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）		19.4
	共计	23.6
报告国家方案执行数据的年份：		2007年
项目核准金额（美元）：		2,768,180
已发放金额（截至2008年10月）（美元）：		2,365,508
将要淘汰的消耗臭氧层物质（ODP吨）：		420.2
已淘汰消耗臭氧层物质（截至2008年10月）（ODP吨）：		408.0

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：	636,244
(b)	体制建设：	913,775
(c)	项目编制、技术援助、培训和其他非投资项目：	1,218,161
	共计：	2,768,180

进度报告

5. 加纳继续执行其为本国体制建设项目第七阶段制定的行动计划。在此期间，其主要活动有两项，其中包括完全执行了消耗臭氧层物质进口许可和允许制度，并且将臭氧问题纳入加纳环境评估管理细则，要求所有新建冷库和其他有冷冻设备的建筑物都必须在施工之前提交环境影响评估报告。这一期间还完成了对海关人员关于打击非法贸易的培训活动以及对制冷行业从业人员进行的有关良好做法的培训活动。加纳还在本阶段期间继续开展提高认识活动，以便加强关于臭氧消耗和《蒙特利尔议定书》的信息传播。

行动计划

6. 就加纳下一阶段体制建设项目而言，它将确保继续执行其在制冷和泡沫塑料行业的各项活动，尽一切努力完成《蒙特利尔议定书》的 2010 年履约目标。它还将审查和调整其提高认识活动，以便在编制该国执行氟氯烃淘汰管理计划时考虑到氟氯烃问题。有关调查氟氯烃消费情况的活动以及有关氟氯烃淘汰管理计划编制的磋商会议将在这两年内启动。

伊朗伊斯兰共和国：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	200,200
	第二阶段：1997 年 11 月	133,470
	第三阶段：2000 年 12 月	133,445
	第四阶段：2002 年 11 月	172,104
	第五阶段，第 1 年：2004 年 12 月	85,442
	第五阶段，第 2 年：2005 年 11 月	86,756
	第六阶段，第 1 年：2006 年 11 月	86,755
	第六阶段，第 2 年：2007 年 11 月	86,756
	共计	984,928
为延长所申请金额（第七阶段）（美元）：		173,511
建议为第七阶段核准的金额（美元）：		173,511
机构支助费用（美元）：		13,013
多边基金体制建设第七阶段的总费用（美元）：		186,524
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：		1993 年 6 月

项目摘要和国家概况		
国家方案所报告的消耗臭氧层物质消费量（1991年）（ODP吨）：		1,337.0
管制物质基准消费量（ODP吨）：		
(a) 附件A 第一类物质（氟氯化碳）（1995—1997年平均数）		4,571.7
(b) 附件A 第二类物质（哈龙）（1995—1997年平均数）		1,420.0
(c) 附件B 第二类物质（四氯化碳）（1998—2000年平均数）		77.0
(d) 附件B 第三类物质（三氯甲烷）（1998—2000年平均数）		8.7
(e) 附件E（甲基溴）（1995—1998年平均数）		26.7
依照第7条最新报告的消耗臭氧层物质消费量（2007年）（ODP年）：		
(a) 附件A 第一类物质（氟氯化碳）		549.5
(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）		0.5
(e) 附件E（甲基溴）		4.2
(f) 附件C 第一类物质（氟氯烃）		191.4
	共计	745.6
报告国家方案执行数据的年份：		2007年
项目核准金额（美元）：		59,113,525
已发放金额（截至2008年10月）（美元）：		51,823,355
将要淘汰的消耗臭氧层物质（ODP吨）：		6,823.8
已淘汰消耗臭氧层物质（截至2008年10月）（ODP吨）：		991.0

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：	55,744,455
(b)	体制建设：	984,928
(c)	项目编制、技术援助、培训和其他非投资项目：	2,384,142
	共计：	59,113,525

进度报告

8. 在伊朗伊斯兰共和国体制建设项目第六阶段的第二年（2008年），它已对执行其国家氟氯化碳淘汰计划进行了成功的协调和有效的管理，完成了《协议》中规定的淘汰目标。伊朗还对本国进口氟氯化碳和各种溶剂实行配额制度，并对其实施管制。数据库管理系统的建立、溶剂行业计划的实施和计量吸入器投资项目都在不断进展之中。臭氧层保护机构也为促进提高认识举办了各项活动，包括为庆祝第二十个国际臭氧日而举办的活动。臭氧层保护机构继续努力加强国家臭氧机构的网络，以便为有效监测和执行工作提供帮助。

行动计划

9. 体制建设项目第七阶段的目标将是继续对执行国家淘汰计划实施有效管理，以便按照《协议》的规定在2010年之前完成完全淘汰氟氯化碳的目标，包括完全淘汰对四氯化碳、三氯乙酸和氟氯化碳计量吸入器的消费。另外，臭氧层保护机构还将提高公众和政府各组

织对保护臭氧层的认识，以确保实现可持续淘汰的目标。臭氧层保护机构还将促进全力执行有政策和执行中心参与的进出口许可证制度，该中心目前已经处于完全运行状态。它还将继续加强国家臭氧网络以确保可持续性，并着手在 2009 年编制其氟氯烃淘汰管理计划，以便能够在 2010 年予以实施。

黎巴嫩：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 5 月	178,937
第二阶段：2000 年 7 月	119,300
第三阶段：2002 年 7 月	155,090
第四阶段：2004 年 12 月	155,090
第五阶段：2006 年 11 月	155,090
共计	763,507
为延长所申请金额（第六阶段）（美元）：	155,090
建议为第六阶段核准的金额（美元）：	155,090
机构支助费用（美元）：	11,632
多边基金体制建设第六阶段的总费用（美元）：	166,722
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 5 月
国家方案所报告的消耗臭氧层物质消费量（1993 年）（ODP 吨）：	923.1
管制物质基准消费量（ODP 吨）：	
(a) 附件 A 第一类物质（氟氯化碳）（1995—1997 年平均数）	725.5
(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）	236.4
依照第 7 条最新报告的消耗臭氧层物质消费量（2007 年）（ODP 年）：	
(a) 附件 A 第一类物质（氟氯化碳）	74.5
(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）	18.1
(f) 附件 C 第一类物质（氟氯烃）	19.8
共计	112.4
报告国家方案执行数据的年份：	2007 年
项目核准金额（美元）：	12,817,127
已发放金额（截至 2008 年 10 月）（美元）：	10,102,738
将要淘汰的消耗臭氧层物质（ODP 吨）：	1,616.3
已淘汰消耗臭氧层物质（截至 2008 年 10 月）（ODP 吨）：	699.0

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：	10,538,077
(b)	体制建设：	763,507
(c)	项目编制、技术援助、培训和其他非投资项目：	1,515,543
	共计：	12,817,127

进度报告

11. 在本审查期内，虽然其业务遇到国内出现意外冲突和政治局势，但黎巴嫩还是通过及时收集和及早向臭氧和多边基金秘书处报告关于消耗臭氧层物质的数据、及时提交必要报告和参加网络会议、执行委员会会议和缔约方会议，报告了其加强体制建设的活动。它还成功地对个别项目以及国家淘汰管理计划的淘汰活动进行有效监督和管理。他们针对关键利益攸关方开展了若干提高认识和培训活动，并且努力开展资源动员工作。为更新关于消耗臭氧层物质国家立法的关键活动制定了行动计划，并在等待部长理事会核准。

行动计划

12. 黎巴嫩计划在今后两年内加大其在体制能力建设、在审查和更新关于消耗臭氧层物质的国家立法、在有效监督和管理其国家淘汰管理计划的淘汰活动方面的工作力度，以便实现它与执行委员会所签订的《协议》中规定的 2010 年完全淘汰（100%减少）氟氯化碳的目标。它将继续在收集和报告消耗臭氧层物质数据方面开展有效工作，加强努力以确保实现可持续淘汰目标，履行其在《蒙特利尔议定书》之下的义务。它还将着手开展有关在 2013 年和 2015 年实现加快淘汰氟氯烃目标的行动。

乌拉圭：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	202,800
	第二阶段：1996 年 10 月	116,000
	第三阶段：1998 年 7 月	115,981
	第四阶段：2000 年 7 月	115,804
	第五阶段：2002 年 7 月	150,800
	第六阶段：2004 年 7 月	150,800
	第七阶段：2006 年 7 月	150,800
	共计	1,002,985
为延长所申请金额（第八阶段）（美元）：		150,800
建议为第八阶段核准的金额（美元）：		150,800
机构支助费用（美元）：		11,310
多边基金体制建设第八阶段的总费用（美元）：		162,110
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：		1993 年 6 月

项目摘要和国家概况		
国家方案所报告的消耗臭氧层物质消费量（1992年）（ODP吨）：		314.1
管制物质基准消费量（ODP吨）：		
(a) 附件A 第一类物质（氟氯化碳）（1995—1997年平均数）		199.1
(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）		0.4
(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）		11.2
依照第7条最新报告的消耗臭氧层物质消费量（2007年）（ODP年）：		
(a) 附件A 第一类物质（氟氯化碳）		29.3
(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）		8.4
(f) 附件C 第一类物质（氟氯烃）		18.0
	共计	55.7
报告国家方案执行数据的年份：		2007年
项目核准金额（美元）：		5,689,183
已发放金额（截至2008年10月）（美元）：		4,726,620
将要淘汰的消耗臭氧层物质（ODP吨）：		422.8
已淘汰消耗臭氧层物质（截至2008年10月）（ODP吨）：		285.6

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：	2,851,511
(b)	体制建设：	1,002,985
(c)	项目编制、技术援助、培训和其他非投资项目：	1,834,687
	共计：	5,689,183

进度报告

14. 在其体制建设项目第七阶段期间，乌拉圭继续开展为确保其履行作为其甲基溴行业淘汰计划一部分早日淘汰甲基溴而计划的各项活动。它还通过与厂商开展讨论和磋商，通过制定计量吸入器过渡战略，继续开展与计量吸入器有关的活动。国家臭氧机构为国内正在开展的各项投资活动提供后勤和协调支持。有关提高认识方面的活动也在继续开展，特别是无氟氯化碳产品使用臭氧密封的做法已在国内普及。在此期间，国家臭氧机构还通过传播一盘教育录像，针对青年人开展提高认识活动。国家臭氧机构还继续加强执行消耗臭氧层物质进口许可制度。它还在继续开展有关哈龙库及氟氯化碳回收和再循环网络建设活动。

行动计划

15. 就这个新阶段而言，乌拉圭将努力加快消耗臭氧层物质淘汰工作，特别要把工作重点放在完成 2010 年履约目标方面。它将继续为国内正在执行的有关甲基溴、哈龙库、制冷行业最终用户方案的各种项目提供监督和后勤支助，并将继续开展有关建设氟氯化碳回收和再循环网络的工作。它将继续开展在今年启动的有关氟氯烃问题的各项活动，立即编制氟氯烃淘汰管理计划。国家臭氧机构在此期间的一个主要目标将是为消耗臭氧层物质进口许可证制定电子核准程序，从而使这一制度能够得到更加有效的落实。

委内瑞拉：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 3 月	329,192
	第二阶段：1995 年 7 月	109,800
	第三阶段：1996 年 10 月	219,600
	第四阶段：1998 年 7 月	219,600
	第五阶段：2000 年 7 月	219,600
	第六阶段：2002 年 7 月	284,499
	第七阶段：2004 年 7 月	285,480
	第八阶段：2006 年 7 月	285,480
	共计	1,953,251
为延长所申请金额（第九阶段）（美元）：		285,480
建议为第九阶段核准的金额（美元）：		285,480
机构支助费用（美元）：		21,411
多边基金体制建设第九阶段的总费用（美元）		306,891
由于体制建设第九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：		1995 年 7 月
国家方案所报告的消耗臭氧层物质消费量（1994 年）（ODP 吨）：		3,194.2
管制物质基准消费量（ODP 吨）：		
(a) 附件 A 第一类物质（氟氯化碳）（1995—1997 年平均数）		3,322.4
(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）		1,107.2
(d) 附件 B 第三类物质（三氯甲烷）（1998—2000 年平均数）		4.7
(e) 附件 E（甲基溴）（1995—1998 年平均数）		10.3
依照第 7 条最新报告的消耗臭氧层物质消费量（2006 年）（ODP 年）：		
(a) 附件 A 第一类物质（氟氯化碳）		2,641.8
(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）		-140.3
(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）		124.9
	共计	2,626.4

项目摘要和国家概况	
报告国家方案执行数据的年份：	2007 年
项目核准金额（美元）：	44,493,587
已发放金额（截至 2008 年 10 月）（美元）：	39,512,797
将要淘汰的消耗臭氧层物质（ODP 吨）：	5,924.8
已淘汰消耗臭氧层物质（截至 2008 年 10 月）（ODP 吨）：	5,181.0

16. 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：	38,029,661
(b)	体制建设：	1,953,251
(c)	项目编制、技术援助、培训和其他非投资项目：	4,510,675
	共计：	44,493,587

进度报告

17. 在其体制建设项目的第八阶段期间，委内瑞拉政府已经通过开展绝大部分集中在消费者行业的各项活动，成功地继续执行了《蒙特利尔议定书》。除了正在执行的若干个个别项目之外，也在执行有关改进做法和惯例的方案。在执行第八阶段体制建设项目的两年期间，在儿童博物馆举办了庆祝臭氧层国际日活动，在此举办了专门的臭氧层长期展览。在 2007 年期间举办了一场关于预防皮肤癌的活动，发放了防晒霜以及如何防止皮肤癌的宣传册。开展了在一些广告牌及公众交通服务设施上展示有关臭氧层的宣传广告和良好做法等提高认识活动。另外，还在加拉加斯的两所大学展映了两部关于臭氧层遭到破坏和全球变暖的电影。

行动计划

18. 在下一阶段体制建设项目期间，委内瑞拉寻求坚持 100%消除氟氯化碳消费，特别是在卫生行业，该行业的需求可以通过对计量吸入器的氟氯化碳进行再加工予以满足。国家臭氧机构将继续开展有关良好做法和关于氟氯化碳和氢氟碳化物回收、再循环和再生方案的培训活动，确保没有制冷剂浪费。它还将继续对储存用于未来销毁的制冷数量进行管理；它将努力在下一个冻结日期之前完成氟氯烃消费量的清查工作，并将继续开展有关保护臭氧层和防治气候变化的外联和提高认识活动，将卤化制冷剂作为一种对这两种现象负有责任并且需要淘汰其消费的物质进行广泛宣传。

附件二

执行委员会对向第五十六次会议提交的延长体制建设项目所表达的看法

中国

1. 执行委员会审查了附有关于延长中国体制建设项目供资申请的报告，并赞赏地注意到以下事实，即中国已经在2007年7月1日之前成功实现提前淘汰氟氯化碳和哈龙的目标，这比《蒙特利尔议定书》规定的时间表整整提前了两年半。在所提交的申请材料中，除在管理和监督执行其各行业淘汰计划方面与执行机构进行成功协调之外，执行委员会还注意到中国已在体制建设项目框架内为确保及时和加快淘汰消耗臭氧层物质采取了重要措施。中国还报告了它所采取的许多措施，包括：提高国家履约能力、改善政策制定和执行情况、提高项目管理能力和开展有关打击非法消耗臭氧层物质活动的行动。中国将在今后两年内继续加强执行其现有管制措施，在其他省市推广提前淘汰行动，继续打击非法消耗臭氧层物质生产、贸易和消费活动。还将做出特别努力，确保成功完成所有行业的淘汰计划，从而实现在2010年之前完成完全淘汰的目标。中国还将采取行动，解决加快氟氯烃淘汰时间表所涉及的各种问题。执行委员会非常赞赏中国继续在大力削减消耗臭氧层物质消费和加快淘汰方面所做出的努力。执行委员会希望中国在今后两年内继续取得进展，维持和利用其现有氟氯化碳削减成果，以期在2010年之前实现完全淘汰的目标，并且按时完成氟氯烃的削减目标。

加纳

2. 执行委员会审查了附有关于延长加纳体制建设供资申请的报告。执行委员会注意到以下事实，即加纳报告的2007年氟氯化碳消费量表明它履行了《蒙特利尔议定书》在氟氯化碳方面85%的要求。执行委员会还祝贺加纳将臭氧保护概念纳入其当前环境影响评估程序，要求在新建需要安装制冷设备的建筑物时必须获得许可。它还注意到加纳根据缔约方第十九次会议做出的有关决定及执行委员会关于编制氟氯烃淘汰管理计划的第五十五次会议做出的决定，已经开展了与氟氯烃有关的活动。执行委员会非常赞赏加纳为减少消耗臭氧层物质消费所做出的努力，并且希望它在今后两年内把重点放在履行对《蒙特利尔议定书》的承诺方面，特别是在执行100%削减氟氯化碳的有关措施方面。

伊朗伊斯兰共和国

3. 执行委员会审查了就伊朗伊斯兰共和国体制建设项目第六阶段第二年以及关于延长第七阶段的供资申请所报告的信息，并赞赏地注意到以下事实，即伊朗伊斯兰共和国已经回到履约轨道上来了。在所提交的申请材料中，除在管理和监督执行其各行业淘汰计划方面与执行机构进行成功协调之外，伊朗伊斯兰共和国还报告了它所采取的许多措施，包括：完全实施氟氯化碳和溶剂进出口许可制度，并对有关部委/组织的主管官员开展有关促进实

施的培训活动。它还注意到该国已经采取行动来解决与在 2013 年和 2015 年之前加快冻结氟氯烃和减少 10%消费量有关的问题。执行委员会非常赞赏伊朗伊斯兰共和国为减少消耗臭氧层物质所做出的努力，并且希望它在今后两年内继续取得进展，维持和利用其现有氟氯化碳削减成果，以期按照《蒙特利尔议定书》的削减时间表实现完全淘汰的目标，并按照它与执行委员会签订的《协议》完成其淘汰目标，包括为按时完成氟氯烃加快冻结和淘汰目标而编制氟氯烃淘汰管理计划。

黎巴嫩

4. 执行委员会审查了附有关于延长黎巴嫩体制建设项目供资申请的报告，赞赏地注意到该国在遭遇国内冲突和困难局势的情况下仍然不间断地采取了成功行动的事实。执行委员会还赞赏该国提前采取行动向臭氧秘书处和多边基金秘书处报告数据。它还注意到黎巴嫩已经完成其国家淘汰管理计划协议中规定的 2006 年和 2007 年淘汰目标的事实。执行委员会非常赞赏黎巴嫩为减少消耗臭氧层物质所做出的努力，并且希望它在今后两年内继续取得进展，维持和利用其现有氟氯化碳削减成果，以期在 2010 年之前实现完全淘汰的目标，按照《议定书》规定的时间表，完成国家淘汰管理计划协议中规定的淘汰目标。

乌拉圭

5. 执行委员会审查了附有关于延长乌拉圭体制建设项目供资申请的报告，并赞赏地注意到该国继续在国内执行不同投资项目，特别是在预计将要加快淘汰进程的甲基溴方面。执行委员会还赞赏该国在确保严格执行其许可证制度方面所开展的活动以及为发展一个效率更高的自动化在线许可证申请制度所做出的努力。它还注意到该国为编制其氟氯烃淘汰管理计划所做出的努力。执行委员会非常赞赏乌拉圭为减少消耗臭氧层物质所做出的努力，并且希望它在今后两年内继续取得进展，维持和利用其现有氟氯化碳削减成果，以期在 2010 年之前实现完全淘汰氟氯化碳的目标，按照《议定书》规定的削减时间表，完成国家淘汰管理计划中规定的淘汰目标。

委内瑞拉

6. 执行委员会审查附有关于延长委内瑞拉体制建设项目供资申请的结束性报告，并赞赏地注意到委内瑞拉国家臭氧机构在执行第八阶段期间所取得的成就。执行委员会尤其注意到委内瑞拉在维持 2005 年取得的减少 50%氟氯化碳消费量方面所取得的进展，在 2007 年实现了氟氯化碳消费减少 85%的目标，并在主要消费和生产消耗臭氧层物质的行业执行淘汰项目，包括国家氟氯化碳淘汰计划和氟氯化碳生产设施关闭项目。执行委员会赞扬了委内瑞拉政府在本阶段期间所取得的成就，并希望它今后两年内继续执行其已经取得显著成果的方案活动，维持和利用其现有氟氯化碳削减成果。

**EXECUTIVE COMMITTEE OF THE MULTILATERAL
FUND
FOR THE IMPLEMENTATION OF THE
MONTREAL PROTOCOL
(56th Meeting, 08 – 12 November 2008, Doha)**

2008 WORK PROGRAMME AMENDMENT

UNITED NATIONS DEVELOPMENT PROGRAMME

**Requests for funding for Project Preparation, Investment and Non-
Investment Projects at the 56th Executive Committee Meeting**

September 2008

2008 UNDP WORK PROGRAMME
56th Executive Committee Meeting (08-12 November 2008, Doha)

This Work Programme document contains all UNDP non-investment and project preparation programmes that are being requested at the 56th Meeting of the Executive Committee. These requests amount to US\$ 3,183,231 plus US\$ 241,218 of support cost.

1. Institutional Strengthening Renewal Requests.

The following Institutional Strengthening Renewal Requests are being submitted at the 56th meeting of the Executive Committee. They are being submitted individually and are therefore not annexed to this report:

No	COUNTRY	TITLE	BUDGET	SUPPORT COST (7.5%)	TOTAL
1	China	Institutional Strengthening Phase VIII	390,000	29,250	419,250
2	Ghana*	Institutional Strengthening	139,100	10,433	149,533
3	Iran	Institutional Strengthening Phase VII	173,511	13,013	186,524
4	Lebanon	Institutional Strengthening Phase VI	155,090	11,632	166,722
5	Uruguay	Institutional Strengthening	150,800	11,310	162,110
6	Venezuela	Institutional Strengthening	285,480	21,411	306,891
Sub-total: Institutional Strengthening			1,293,981	97,049	1,391,030

- Ghana IS submitted on 14 August 2008.

2. Requests for Activities in the MDI Sector.

No	COUNTRY	TITLE	BUDGET	SUPPORT COST	TOTAL	REMARKS
1	Ghana	MDI Transition Strategy	30,000	2,700	32,700	Annex 1
2	Nicaragua	MDI Transition Strategy	30,000	2,700	32,700	Annex 2
Sub-total: Activities in the MDI Sector			60,000	5,400	65,400	

3. Requests for Activities related to HCFCs

3.1. New Preparatory Funds for HCFC Phase-out Management Plans (HPMPs)

Nr	COUNTRY	TITLE	BUDGET	SUPPORT COST	TOTAL	REMARKS
1	Bangladesh	PRP for HPMP	60,000	4,500	64,500	UNDP Lead Agency (UNEP also requests \$ 25,000). Further funding will be requested for UNDP at the 57 th ExCom meeting.
2	India	PRP for HPMP	578,750	43,406	622,156	UNDP Lead Agency (See Annex 3)
3	Iran	PRP for HPMP	420,500	31,538	452,038	UNDP Lead Agency (See Annex 4)
4	Cuba	PRP for HPMP	150,000	11,250	161,250	UNDP only agency
Sub-total: New HPMP Preparation			1,209,250	90,694	1,299,944	

56th Meeting of the Executive Committee

3.2. Additional Preparatory Funds for HCFC Phase-out Management Plans (HPMPs)

NO	COUNTRY	TITLE	BUDGET	SUPPORT COST (7.5%)	TOTAL	REMARKS
1	Indonesia	PRP in the RAC (Mfg) and RAC (Svcg) Sectors in context of HPMP	300,000	22,500	322,500	See Annex 5
2	Nigeria	Additional PRP for HPMP*	45,000	3,375	48,375	UNDP Lead Agency, (see Annex 6)
Sub-total: Additional HPMP Preparation			345,000	25,875	370,875	

* The additional request for project preparation as submitted by the Government of Nigeria is attached to this document as Annex 6 and amounts to US\$ 65,000 of which US\$ 45,000 is for UNDP and US\$ 20,000 for UNIDO. It is based on the fact that Nigeria has an important number of manufacturing plants in both the foam, refrigeration and air conditioning sectors and that it should therefore have received US\$ 150,000 rather than US\$ 85,000 approved at the 55th meeting of the ExCom.

3.3. Preratory Funds for Demonstration Projects for HCFC alternative technologies

NO	COUNTRY	TITLE	BUDGET	SUPPORT COST	TOTAL
1	China	PRP for demonstration project (Unitary commercial A/c)	30,000	2,250	32,250
		PRP for demonstration project (Industrial Ref & A/c chillers)	30,000	2,250	32,250
		PRP for demonstration project in Solvents electronic cleaning	30,000	2,250	32,250
		PRP for demonstration project in Solvents (medical equipment cleaning)	30,000	2,250	32,250
Sub-total: Demonstrations HCFC			120,000	9,000	129,000

3.4. Funding request for Pilot Projects for validation of HCFC alternatives

NO	COUNTRY / TYPE	TITLE	BUDGET	SUPPORT COST	TOTAL	REMARKS
2	Global / TAS	PRP for Validation of Environmental Impact of optimized liquid HFC Formulations in PU rigid and integral skin foam applications	50,000	4,500	54,500	see Annex 7
3	Global / TAS	PRP for Validation for Low-Cost Options in the use of Hydrocarbons as Blowing Agent in the manufacture of PU Rigid Foams.	55,000	4,950	59,950	see Annex 8
5	Nigeria / PRP	PRP for Validation of the Cost-effective Use of locally produced Hydrocarbons as Refrigerant in Refrigeration Applications **	50,000	3,750	53,750	see Annex 9
Sub-total: Pilots for HCFCs and related PRP-requests			155,000	13,200	168,200	

Annex 1 - Ghana MDI Transition Strategy

PROJECT COVER SHEET

COUNTRY:	GHANA	IMPLEMENTING AGENCY:	UNDP
PROJECT NAME	MDI Transition Strategy		
PROJECT IN CURRENT BUSINESS PLAN	YES		
SECTOR COVERED	MDI		
PROJECT IMPACT	0.0 ODP tons		
PROJECT DURATION	18 months		
TOTAL PROJECT COST	US\$ 30,000		
LOCAL OWNERSHIP	100 %		
EXPORT COMPONENT	N/A		
REQUESTED GRANT	US\$ 30,000		
COST-EFFECTIVENESS	Not Applicable – TAS		
AGENCY SUPPORT COSTS	2,250		
STATUS OF COUNTERPART FUNDING	N/A		
NAT. COORDINATING AGENCY	National Ozone Office, Environmental Protection Agency		
PROJECT MONITORING MILESTONES INCLUDED	Included in Document		
BENEFICIARY ENTERPRISE	Not Applicable		

PROJECT SUMMARY

Through this Technical Assistance approved by the Multilateral Fund for the Implementation of the Montreal Protocol, UNDP aims to assist the Government of Ghana to implement a project in MDI sector in order to develop a sound MDI transition strategy.

Submission background

MDI transition strategy was not included in Ghana's TPMP Project approved at the 50th ExCom meeting and in view of the very urgent need for the country to address and sensitize the public on the need to shift from CFC based MDIs, and DPIs, and to avert critical shortages/non-availabilities of the alternatives, the Country has found it important to submit to the ExCom MDI transition strategy for consideration.

This project document is specifically developed to provide adequate information demonstrating the need for a MDI transition strategy in Ghana. This MDI transition strategy for Ghana is also prepared taking into account the MTOC Assessment Report 2006 (published in March 2007) which emphasizes the following:

“There is an urgent need for all Article 5(1) countries that have not already done so to develop effective national transition strategies in accordance with Decision XII/2. MTOC strongly recommends that these activities be made a priority to ensure a smooth transition to CFC-free alternatives by about 2010. Countries will need to set an end-date for transition that accounts for the Montreal Protocol phase-out schedule.”

The following reasons to have the MDI transition strategy were considered during the compilation of this document:

- Ensure orderly transition to new products and most importantly ensure that the patients will have available equally effective alternative products at a reasonable cost (compared to CFC MDI products) and on time to guarantee that when the CFC MDI supply stops alternatives are sustainably available, registered and approved by the local regulatory entity. This includes possible contingency plans in case that registration and approval is a long process and there is a risk of a shortage of alternative products by the time CFC MDIs are out of the market.
- Facilitate the transition to new products by providing training and targeted awareness activities to all stakeholders to ensure acceptance of the alternative products.
- Update the legislation to ensure that when the transition takes place no CFC MDI products will be imported and sold.

Part I. Situation analysis

1. Asthma statistics and economic situation:

In general, the quantities of imported CFCs MDIs have been increasing steadily from 2003 to 2007 whereas non-CFC MDIs have been reducing during the same period. The available data indicates that 22,471 units of such medical products were in use in 2003 and this number increased to 45,110 units in 2007.

The evolution of asthma and chronic obstructive pulmonary diseases (COPD) in the country, including tuberculoses, has been increasing due to economic crisis, insufficient financing of the health sector and lack of affordable medicines.

1.1 Number of patients with asthma and COPD:

No separate statistical data is available for COPD in the Republic of Ghana. The number of patients suffering from asthma is steadily growing over the years. Compared to the base year 2003, this number of reported increased by 1278 people in 2007.

Years	Number of patients with asthma
2003	8,220
2004	8,882
2005	8,991
2006	9,218
2007	9,498

Conclusions:

- number of asthma cases is steadily growing, and the data for COPD is not separately available and needs to be further analyzed
- the country's economic situation has not improved substantially
- the medical care system is under-financed.

2. National legislation:

The Republic of Ghana does not produce ODS and ODS-containing products in MDI sector.

The national legislation that controls the activities in the sector, LI 1812 - Management of Ozone Depleting Substances and Products Regulation and the Food and Drugs Board Act, 1992 (PNDCL 305B) and relevant guidelines do not specifically regulate import/export of CFC MDI products.

Annex 1 – Ghana MDI Transition Strategy

During the process of data collection, NOU faced difficulties in establishing common understanding with health authorities on the issues related to MDIs and other anti-asthma medicines use as these are connected to their consumption and production worldwide as well as in the context of the Montreal Protocol.

In order to exert better control over the sector, the situation necessitates the revision and adoption of regulations which will take MDI regulatory issues into consideration.

2. Supply of anti-asthma/COPD inhalers and other medical products:

Aerosol products containing CFCs based MDI applications are being intensively imported into the country. Although some companies have already started the importation of some non-CFC-based MDIs independently, there is the need however for a coordinated and informed strategy to start and gradually phase-out imported CFC-based MDIs by taking appropriate supporting measures.

The situation with the supply of MDIs and their non-CFC equivalents in Ghana in brief can be described as follows:

- CFC MDIs, HFA MDIs and DPIs are present on the market;
- CFC MDI dominate the market in Ghana by taking around 91% of the market share;
- Small to moderate quantities of HFA MDIs are being supplied on the market;
- CFC MDIs imports throughout the period 2003-2007 were increasing
- HFA MDIs imports were decreasing from 2003 till 2007.
- DPIs take negligible market share and staggers from year to year.

Table: Market share of anti-asthma medicines in Ghana (years 2003-2007)

Market share %/years	2003	2004	2005	2006	2007
CFC %	88.46	91.51	91.96	92.03	93.02
HFA%	11.5	8.48	7.95	7.23	6.66
DPI%	0	0	0.084	0.736	0.309

Conclusions:

- Imports of CFC-based MDIs has been showing a firm increase from 2003 to 2007 and represent the majority of the market consumption in Ghana;
- Imports of HFA MDIs indicate marginal negative trend from year to year starting 2003;
- No quality and price controls of imported MDIs are performed, thus, leading to uncontrolled pricing, and an attendant negative health effects on the MDI end-users (patients).

Annex 1 – Ghana MDI Transition Strategy

- The cheapest prices for CFC MDIs are offered by India and China.
- The majority of CFC MDIs imported is under price of US\$ 20 which constitutes 57% of the price for the cheapest HFA MDI and 24% of that of the cheapest DPI medicine (volume vs prices can be compared across the medication groups since in both cases the lowest prices are recorded for CFC MDIs with 25 mcg volume).

3. Price dynamics for anti-asthma medical products:

On the average, the price of a range of selected CFC MDIs is less expensive and thus relatively affordable to a greater proportion of the end-users coupled with the familiarity factor. This was a determining factor behind increasing demand for CFC MDIs and thus the continued imports of the latter category of medical products.

Conclusions:

- CFC MDIs are generally highly patronised
- CFC-based MDIs products, while in their majority cheaper than HFA MDIs, has a greater variety, thus, providing more flexible choices in terms of future imports planning

4. Institutional capacity to control the transition:

The health authorities as well as the Food and Drugs Board experienced problems during the compilation of the MDI consumption data, and multiple consultations from NOU were required in order to manage the process in a coordinated manner.

Institutional capabilities to knowledgeably plan the imports of MDIs and other medicines in light of future developments on the market are lacking.

When making a decision on selecting MDI supply sources, due to relatively weak economic conditions, it is traditional to consider cheaper sources, thus, adjusting the supplies to both the demand and purchasing power of the population.

Conclusions:

- the health authorities are not aware of the implications of the Montreal Protocol on the world production/supply of CFC MDIs;
- the imports planning is sensitive to cheaper CFC MDIs sources;
- taking into account future closure of more CFC MDI production lines, and the need for some producers to evacuate stocks and possible lack of CFC pharmaceutical grade, distortions on the market (in quantities, price and quality) are expected.

Part II. MDI transition strategy

The national strategy on replacement of CFC-based MDI with alternatives should include

Annex 1 - Ghana MDI Transition Strategy

the following:

- Better study and analysis of current MDI market consumption, supply sources and future trends;
- Analysis of availability and patronage of alternative products, their effects and health benefits;
- Cooperation with the main importers and representatives of medical establishments towards organization and taking measures to shifting to affordable alternative medications, including timeframes for the import substitution and individual and group agreements with suppliers and distributors;
- Development of a multi-year national planning on imports and ensuring a smooth shift towards alternatives;
- Adopting a wide, informed and participatory decision-making process through training and targeted awareness activities, to increase consumer confidence and ensure acceptance of the alternative products by the patients and by the doctors
- Extended and targeted sensitisation programmes on HFA MDIs with asthma associations and other associated identifiable groups.

Actions could include adjustments made to the legal framework, such as a modification of CFC Import Licensing System to include import of MDI and controlling MDI supplies under humanitarian aid.

Budget for actions:

Table: Planned expenditures

Description	US\$
National Consultant in MDIs	8,000
Technical assistance	6,000
Promotion, printing	4,000
Workshops	10,000
Sub-Total	28,000
Contingency	2,000
Total	30,000

Monitoring Milestones

TASK	MONTH
(a) Project document submitted	1
(b) Project document signature	3
(c) Contracts Awarded	7
(d) Begin importers consultations efforts	9
(e) Training/Seminars	9
(f) Strategy developed	12
(g) HOP signature	18

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Annex. Imports of CFC, non-CFC MDIs and DPIs to Ghana (units). Costs to patient are provided for 2007 (US\$). The costs for 2005 and 2006 are similar to those in 2007.

	Product	Active Ingredient	Brand/Manufacturer / Country	Technology	Import per year MDI					Price to patient in 2007, US\$
				(CFC - MDI/HFA-MDI/DPI)	2003	2004	2005	2006	2007	
1	Aerocort Inhaler	Beclomethasone dipropionate 50mg +Salbutamole 100mg	Cipla, India	CFC-MDI	1050	1200	1500	1650	1800	7
2	Atrovent	0.2mg ipratropium bromide	Boehringer Ingelheim, UNK	CFC-MDI	2090	2650	2800	2850	3010	54
3	Becotide	Beclomethasone dipropionate 50mg	Glaxo, UNK	CFC-MDI	800	1520	1840	2100	2335	25
4	Berotec	Fenoterol hydrobromide 0.1mg	Boehringer Ingelheim, DEU	CFC-MDI	8000	10500	11830	12598	13200	18
5	Intal Inhaler	Sodium cromoglycate 1mg	Fisons, UNK	CFC-MDI	950	1300	1664	1965	2450	70
6	Serevent	Salmeterol 25 mcg	Glaxo, France	CFC-MDI	750	1150	1485	1617	1907	54
7	Serobid	Salmeterol 25 mcg	Cipla, India	CFC-MDI	2015	3045	5056	5598	6073	15
8	Serevent aerosol 25 mcg/dose-60 dose	Salmeterol xinafoate	Laboratoires Glaxo Wellcome, France	CFC-MDI	1254	1584	1750	1954	2145	32
9	Salbutamol suspension 100 mcg/dose-200 dose	Salbutamol sulphate	Shandong Jewim Pharmaceutical Co, Ltd, China	CFC-MDI	1550	1740	2658	2987	3365	4
10	Beclomethason susp. 50 mcg/dose-200 dose	Beclometazon	Shandong Jewim Pharmaceutical Co, Ltd, China	CFC-MDI	2412	2584	3695	3890	4400	5
11	Beclomethason susp. for inhalat. presurizate 250 mcg/dose-200 dose	Beclometazon dipropionate	Shandong Jewim Pharmaceutical Co, Ltd, China	CFC-MDI	1,600	2550	3840	4020	4425	8
	Total				22,471	29,823	38,118	41,229	45110	
12	Seretide Diskus	Fluticasone Propionate 500.00mcg Esalmeterol 50.00mcg	Glaxosmithkline UK Limited	Non CFC (HFA 134a)	-	-	600	500	540	202
13	Flixotide	Fluticasone propionate 50.00mcg	Glaxowellcome Production (France)E	Non CFC (HFA 134a)	400	420	400	410	390	50

Annex 1 - Ghana MDI Transition Strategy

	Product	Active Ingredient	Brand/Manufacturer / Country	Technology	Import per year MDI					Price to patient in 2007, US\$
				(CFC - MDI/HFA-MDI/DPI)	2003	2004	2005	2006	2007	
14	Flohale	Fluticasone propionate 125.00mcg	Cipla Limited India	Non CFC (HFA 134a)	230	400	500	415	400	112
15	Pulmicort Turbuhaler	Budesonide 100.00mcg	Astrazeneca UK Limited	Non CFC (HFA 134a)	550	500	420	400	400	52
16	Flixotide	Fluticasone propionate 25.00mcg	Glaxo Smith Kline International UK	Non CFC (HFA 134a)	550	315	340	425	410	35
17	Flixotide	Fluticasone propionate 125.00mcg	Glaxowellcome Production (France)E	Non CFC (HFA 134a)	900	850	700	780	740	95
18	Flixotide	Fluticasone propionate 250.00mcg	Glaxowellcome Production (France)E	Non CFC (HFA 134a)	100	100	186	200	250	150
19	Pulmicort Turbuhaler	Budesonide 200.00mcg	Astrazeneca Limited UK	NonCFC (HFA134a)	200	180	150	110	100	80
	Total				2,930	2,765	3,296	3,240	3230	
20	Seretide Diskus.	Salmeterol 50mcg; Fluticasone propionate 250mcg	Glaxosmithkline UK Limited	DPI	-	-	-	150	100	202
21	Symbicort Turbuhaler	Budesonide80.00mcg Formoterol Fumarate 4.50 mcg	Astrazeneca UK	DPI	-	-	-	150	10	106
22	Seretide Discus pulb. for inhalat. 50/500 mcg-60 dose	Salmeterol xinafoate; Fluticasone propionate	Glaxo Operations UK Limited, UK	DPI	-	-	35	30	40	82
	Total				0	0	35	330	150	

Annex 2 – Nicaragua MDI Transition Strategy

“Transition Strategy towards CFC-free MDIs”

Nicaragua

PROJECT COVER SHEET

COUNTRY:	NICARAGUA	IMPLEMENTING AGENCY:	UNDP
PROJECT NAME			“Transition Strategy towards CFC-free MDIs”
PROJECT IN CURRENT BUSINESS PLAN		YES	
SECTOR COVERED			MDI
PROJECT IMPACT			0.0 ODP tons
PROJECT DURATION			24 months
TOTAL PROJECT COST			US\$ 30,000
LOCAL OWNERSHIP			100 %
EXPORT COMPONENT			N/A
REQUESTED GRANT			US\$ 30,000
COST-EFFECTIVENESS			Not Applicable – TAS
AGENCY SUPPORT COSTS			2,700 (9%)
STATUS OF COUNTERPART FUNDING			N/A
NAT. COORDINATING AGENCY			National Ozone Unit: Ozone Technical Office (OTO) under the Ministry of Environment and Natural Resources of Nicaragua (MARENA) and Ministry of Health (MINSA)
PROJECT MONITORING MILESTONES INCLUDED			Included in Document
BENEFICIARY ENTERPRISE			Not Applicable

PROJECT SUMMARY

The Republic of Nicaragua is presenting a “Transition Strategy towards CFC-free MDIs”, for the gradual elimination of CFC-based products, with the objective of ensuring a smooth and more expeditious transition towards the use of CFC-free MDIs in the country, avoiding any adverse effects on the health of the population, and minimizing the effects on the economy of the country.

The Action Plan for the implementation of the “Transition Strategy towards CFC-free MDIs” will be composed of the following initiatives:

1. Modifications of the legal framework
2. Awareness and education campaigns
3. Monitoring of results

Annex 2 – Nicaragua MDI Transition Strategy

Background

The Republic of Nicaragua is presenting a proposal for a “Transition Strategy towards CFC-free MDIs”, for a total amount of US \$ 30,000, for the consideration of the Executive Committee of the “Multilateral Fund for the Implementation of the Montreal Protocol”, at its 56th Meeting. This proposal was first presented for consideration at the 48th Executive Committee meeting but was deferred upon the kind request from the Multilateral Fund Secretariat in order to give precedence to other more pressing priorities at the time. A series of unfortunate events out of the control of the government and UNDP prevented the presentation of this project again until now.

Nicaragua does not produce or export any CFCs, and for year 2007 reported a total consumption of 3.68 ODP tons of Annex A Group I substances, represented entirely by its imports of these substances. There is no manufacturing of products based on CFCs in the country, either.

Consequently, the country does not manufacture any CFC-based MDIs, which are all imported into the country already manufactured and, therefore, all the CFC consumption for the manufacturing of these products does not affect the level of CFC consumption of Nicaragua. Nevertheless, Nicaragua is committed to undertake a “Transition Strategy towards CFC-free MDIs”, in accordance with Decision XII/2 of the Parties to the Montreal Protocol.

Sector description

There was a total consumption of 746,071 units of MDIs in the country in year 2007 (excluding donations to the government), where the public (Government) consumption was 564,000 units and represented 75.61% of the total, while private consumption was 182,071 units, or 24.39% of the total. CFC-free MDIs represented only 10% of Government MDI consumption and 78% of private MDI consumption. In contrast, back in 2004, CFC-free MDIs represented 0% of Government MDI consumption and 38% of private MDI consumption. Indeed, the transition towards CFC-free MDIs is already taking place, albeit at a much slower pace for the government consumption.

MDI consumption is increasing steadily since year 2004, together with the rate of COPD in the country, from a total of 246,883 units in 2004, to 746,071 units in 2007, but the increase is much steeper for government consumption for the national health system, probably as a response to the priority assigned to public health by the government.

Similarly, the rate of CFC-free MDIs is also increasing steadily, albeit very slowly, from 22% of the total in year 2004 to 34% in 2007. Conversely, the rate of CFC-based MDIs has gone down from 78% to 66% in the same period, but it has increased almost three-fold in absolute terms. Annex I of this document has the details.

Annex II presents the units of CFC and non-CFC MDIs sold or distributed in Nicaragua, by active ingredient, and brand/manufacturer. The amount of DPIs is negligible and is not included.

ANNEX III presents the non-CFC MDIs registered in Nicaragua for marketing, and those in the process of being registered. One significant trend is that 100% of MDIs seeking sanitary registration are not based on CFC.

Annex 2 – Nicaragua MDI Transition Strategy

Finally, Annex IV presents a list of comparative prices for CFC and non-CFC MDIs, evidencing the fact that non-CFC MDIs are on average from 2 to 56 times more expensive than CFC-MDIs, which is very probably the reason why the transition towards non-CFC MDIs has been slow, and even slower for the government than for the private sector.

The internal market for MDIs in Nicaragua was supplied in year 2007 by 9 private multinational companies, namely: Aldo Union, Astra Zeneca AB, Boehringer Ingelheim, Glaxo Wellcome, Cipla Ltd. India, Meditabs Specialties, Novartis Pharma, and Pharmachemie B.V., and Schering.

Of these companies, Aldo Union, Boehringer, and Meditab Specialties have the lead with 78.38%, 8.2% and 7.8% of the private market, respectively. Given that the Governments purchases 73% of all its MDIs to Meditabs Specialties, this makes this company dominate the internal market.

Legal framework

The legal framework that governs MDI trade in the country is formed primarily by the basic national laws that define the powers of the executive and its branches, and those regarding ODSs. In addition, there are the laws specifically related to pharmaceutical products, which are:

- **Law No 292 “Law of Medications and Pharmacies”**

This law regulates the following elements related to medications for human consumption:

a) Manufacturing, distribution, import, export, storage, promotion, experimentation, commercialization, and prescription, b) Selection, evaluation, quality control, and sanitary registration, and c) Information, publicity and rational use of medications.

- **Decree No 6-99 Regulation of Law 292 “Law of Medications and Pharmacies”**

This regulation deals with the following: a) Quality control practices, b) Good practices in manufacturing of medications, c) Information and promotion of medications and similar products, d) Donations, e) Evaluation of the efficacy and toxicity of medications post marketing, and f) Public education campaigns.

- **Law No 182 “Law for the Defense of Consumers”**

The objective of this law is to guarantee to consumers the acquisition of products or services of the best quality, from public or private enterprises.

- **Decree No 2187 Regulation of the Law No 182 “Law for the Defense of Consumers”**

This decree establishes the quality control and prices of medications for human consumption, under the purview of the Ministry of Health, concerning the quality control, and under the Ministry of Promotion, Industry and Commerce, concerning the price control.

Previous projects

The Executive Committee has not approved any previous project for this sector in

Nicaragua, but has approved, so far, a total of 21 projects for several sectors, for a total funding of US\$ 1,022,657.

MDI Transition strategy

It is estimated that if nothing is done, the present trend will continue, where the government will slowly decrease the number of CFC-based MDIs and eventually eliminate them from the government purchases, when the market no longer offers those products. Nevertheless, before that happens the market might be subject to possible dumping of CFC-based MDIs, with the inevitable increase of government purchases. The government considers essential to expedite the transition towards CFC-free MDIs by assisting the Ministry of Health in establishing new legal guidelines concerning MDIs, and supporting the process through promotion of public awareness of the problem.

The Republic of Nicaragua has then decided to adopt a “Transition Strategy towards CFC-free MDIs”, through the gradual elimination of CFC-based products, with the objective of ensuring a smooth transition towards the use of CFC-free MDIs in the country, avoiding any adverse effects on the health of the population, and minimizing the effects on the economy of the country.

The Action Plan for the implementation of the “Transition Strategy towards CFC-free MDIs” will be composed of the following initiatives:

1. Modification of the legal framework

The following modifications to the existing legal framework have been identified as necessary:

- Establish a deadline for ban of import of pharmaceutical products containing CFC.
- Prevent the sanitary registration of new products containing CFC.
- Establish a new accelerated process for sanitary registration of CFC-free alternatives to CFC-based MDIs.
- Establish labeling requirements for CFC-free products as per Decision VIII/10(3) of the Meeting of the Parties to the Montreal Protocol.
- Establish new guidelines for donations of medications to require them to be CFC-free.
- Establish new guidelines for Government purchases of medications, to require them to be CFC-free. This may include a careful plan to promote donations of CFC-free MDIs, since their price will be prohibitive for the limited government budget.

This initiative not only serves as a fundamental support measure for the transition process, but also sends a clear message to the key stakeholders. It is estimated that its implementation will require the work of a legal consultant, full time during a year.

2. Awareness and education campaign

The Government strategy must contemplate an institutional campaign of general information to the medical body of the national health system, and the patients, closely coordinated with the private campaigns, which they will support, since it will reinforce the confidence of the public.

While the private campaigns will be oriented necessarily to the introduction of a new

product in particular, the government campaign must emphasize:

- The environmental threat posed by CFC-based products.
- The official position regarding the imminent replacement of CFC-based MDIs, and the country's obligations as a signatory to the Montreal Protocol.
- The proven efficacy of CFC-free MDIs and the physical changes that must be expected (odor, taste, among others), without any implication of adverse effects for the patient.

The government campaign must develop in three basic stages: 1) The stage of training for the medical body in all the health centers run by MINSA, most probably through talks and presentations, 2) The stage of direct information to the patient, through leaflets, and posters, among others, located in MINSA health centers, hospitals, clinics and pharmacies, and 3) The final stage of direct communication doctor-patient at the moment of consultation.

3. Monitoring of results

The monitoring of the results of the MDI Transition Strategy will include, among others:

- Follow up and post-marketing surveillance of each new product introduced in the market, and the contingency plans if necessary.
- Definition of procedures for confiscation and later destruction of those CFC-based products that must be taken out of the market.
- Quarterly report of monitoring results, analysis of problems encountered and recommendations for corrective measures.
- Annual report to the Executive Committee of the Multilateral Fund.

The implementation of the “Transition Strategy towards CFC-free MDIs” will be conditioned by the availability of resources, and the results of the studies of any possible adverse clinical reactions to the alternatives, as well as the determination of possible critical uses in the country.

The total cost of the proposed “Transition Strategy towards CFC-free MDIs” is US \$ 30,000, and the “Government of Reconciliation and National Unity of the Republic of Nicaragua” has sent the corresponding transmittal letter for presentation of the project.

Annex 2 – Nicaragua MDI Transition Strategy

Appendix I: MDI consumption in Nicaragua

MDI consumption by private and public (government) sector, in units

Sector	Units Year 2004	Units Year 2005	Units Year 2006	Units Year 2007
Private MDI use	143,383	153,420	162,625	182,071
Public MDI use	103,500	242,167	408,204	564,000
Internal MDI market	246,883	395,587	570,829	746,071

MDI consumption by CFC-based and CFC-free categories, in units

Category	Year 2004	Year 2005	Year 2006	Year 2007
CFC-based	192,120	293,375	394,631	495,886
CFC-free	54,763	102,212	176,198	250,185
Internal	246,883	395,587	570,829	746,071

Percentage of MDI consumption by CFC-based and CFC-free categories

Category	Year 2004	Year 2005	Year 2006	Year 2007
CFC-based	78%	74%	69%	66%
CFC-free	22%	26%	31%	34%
Internal	100%	100%	100%	100%

Percentage of MDI consumption by CFC-based and CFC-free categories, for private and public sectors in 2004

	Private	Public	
Category	2004	2004	Total
CFC-based	62%	100%	78%
CFC-free	38%	0%	22%
Total	100%	100%	100%

Percentage of MDI consumption by CFC-based and CFC-free categories, for private and public sectors in 2007

	Private	Public	
Category	2007	2007	Total
CFC-based	22%	90%	66%
CFC-free	78%	10%	34%
Total	100%	100%	100%

Annex 2 - Nicaragua MDI Transition Strategy

Appendix II: CFC and non-CFC MDIs: sold or distributed within the Nicaragua, by active ingredient, brand/manufacturer, and source (units)

N r. d/ o	Product	Active Ingredient	Brand/Manufacturer/ Country	Technology/Years			
				(CFC - MDI/HFA -MDI/DPI)	Year 2005	Year 2006	Year 2007
1	Alergocrom 1 mcg/1 ml. Aerosol.	Cromoglicato disódico	Aldo Union	CFC12, 114	262	231	200
2	Atrovent CA-20. 0.02 mg /dose solución para inhalador. Frasco de 20 ml	Bromuro de ipatropio	Boehringer Ingelheim	CFC11, 12, CFC114	10,036	8,322	6,608
3	Becloasma 250. mcg /dose. Aerosol	Beclometasona dipropionato	Aldo Union	CFC11, 12	3,116	6,058	9,000
4	Beclometasona 50 mcg dose. 200 dose	Beclometasona dipropionato	Meditab Specialties	CFC11, 12	1,396	2,791	4,187
5	Butosol 0.020 g x 0.010g/10 ml. Aerosol	Salbutamol + Beclometasona dipropionato	Aldo Union	CFC12, CFC114	1,812	2,906	4,000
6	Combivent 100 mcg x 20 mcg/100 mcg suspensión aerosol	Salbutamol sulfato + ipatropio bromuro	Boehringer Ingelheim	CFC11, 12, CFC114	4,311	3,190	2,068
7	Salbutamol Aerosol	Salbutamol	Cipla Ltd. India	CFC11, 12	16,200	32,400	48,600
8	Salbutamol sulfato 100mcg dose	Salbutamol sulfato	Meditab Specialties	CFC11, 12	140,408	280,815	421,223
9	Becotide 50 mcg /dose suspension en aerosol, Inhaler.	Beclomethasone Dipropionate	Glaxo Wellcome	CFC11, 12	2,773	1,387	0
10	Flucotide 50 mcg /dose Inhaler aerosol.	Fluticasone propionate	Glaxo Wellcome	CFC11, 12	1,840	920	0
11	Salbutamol Aerosol	Salbutamol	Wockhardt Limited	CFC11, 12	6,667	3,333	0
12	Salbutamol aerosol Bottle 10 ml	Salbutamol	Medicuba (IUMED)	CFC11, 12	102,268	51,134	0
13	Ventide 0.1176g x0.0588g/100ml suspensión aerosol.	Salbutamol + Beclomethasone Dipropionate	Glaxo Wellcome	CFC11, 12	2,287	1,143	0
Total					293,376	394,630	495,886
1	Aldopulmin 0.04% Via inhalatoria oral, 10ml de aerosol	Bromuro de ipatropio	Aldo Unión	CFC-free	1,333	2,667	4,000
2	Atrovent CA-10 ml (14 g) 20 mcg suspensión aerosol	Bromuro de ipatropio	Boehringer Ingelheim	Gas Nitrógeno	6,184	4,377	2,570
3	Becloasma 0.1% (50 mcg /dose). Aerosol. Caja con envase de aluminio y válvula dosificadora	Beclometasona dipropionato	Aldo Union	HFC134a	50,000	100,000	150,000
4	Budena 200mcg	Budenosida	Aldo Unión	CFC-free	233	467	700
5	Budena 50mcg	Budenosida	Aldo Unión	CFC-free	1,000	2,000	3,000
6	Butoasma 0.2% (100 mcg /dose). Aerosol	Salbutamol	Aldo Union	HFC134a	36,670	58,335	80,000
7	Combivent 0.5 mg x 3mg/2.5 ml solución monodose para nebulización. Caja con 10 ampollas de plástico de 2.5 ml de solución c /u	Salbutamol sulfato + Ipatropio bromuro	Boehringer Ingelheim	CFC-free	4,678	4,128	3,577
8	Foradil 12 mcg cápsulas con polvo seco para inhalación. Caja con 30 cápsulas con inhalador plástico	Formoterol fumarato	Novartis Pharma	CFC-free	75	150	225
9	Salbutamol Sulfato Albuterol. Solución p/Nebulizador 5mg/ ml. 0.5 %. Frasco 20 ml	Salbutamol sulfato	Unipharm de Nicaragua	CFC-free	2,000	4,000	6,000
10	Spiriva 18mcg para inhalación de polvo seco	Bromuro de Tiotropio	Boehringer Ingelheim	CFC-free	38	75	113
Total					102,211	176,199	250,185

Annex 2 – Nicaragua MDI Transition Strategy

Appendix III: Non-CFC MDIs: date approved, authorized for marketing, and/or launched in the territory of Nicaragua;

CFC-free MDIs registered in Nicaragua

Product name	Propellant	Company	Active ingredient	Category
Beclazone 50 mcg/dose. Aerosol	HFA	Norton Ireland	Beclomethasone Dipropionate	B
Berotec PA 100 mcg/dose. Aerosol suspension	HFA134 a	Boehringer-Ingelheim Pharma KG	Fenoterol Bromhydrate	A
Berodual PA 0.02 mgx0.05 mg/dose Aerosol suspension.	HFA134 a	Boehringer-Ingelheim Pharma KG	Fenoterol y Ipratropium bromide	B
Flixotide 50 mcg/dose. Aerosol suspension.	HFA134 a	Glaxo Wellcome Operation UK	Propionate de Fluticasone	F (B+E)
Atrovent PA 20 mcg/dose Aerosol suspension.	HFA134 a	Boehringer-Ingelheim Pharma KG	Ipratropium bromide	D
Beclazone 100 mcg/dose Aerosol solution	HFA	Norton Ireland	Beclomethasone	D
Beclazone 250 mcg/dose Aerosol solution	HFA	Norton Ireland	Beclomethasone	D
Seretide Evohaler 25 mcg x 50 mcg/dose Aerosol suspension	HFA134 a	Glaxo Wellcome Production France for Glaxo SmithKline A.G	Salmeterol Dipropionate de Fluticasone	B y E
Seretide Evohaler 25 mcg x 250 mcg/dose Aerosol suspension	HFA134 a	Glaxo Wellcome Production France for Glaxo SmithKline A.G	Salmeterol Dipropionate de Fluticasone	B y E

Source: “Dirección de acreditación y regulación de medicinas y alimentos”, MINSA. 2007

CFC-free MDIS being registered in Nicaragua

GENERIC NAME	PROPELLANT	MANUFACTURER
Beclometasona	HFA-134 ^a	Cipla Ltd
Bromuro de Ipratropio	HFA-227	Cipla Ltd
Budesonida	HFA – 134 ^a	Astra Zeneca
Budesonida, fumarato de formoterol	HFA – 227	Astra Zeneca

SOURCE: “Dirección de acreditación y regulación de medicinas y alimentos”, MINSA. 2007

Annex 2 – Nicaragua MDI Transition Strategy

Appendix IV: CFC and non-CFC MDIs: estimated cost by active ingredient and source, in Nicaragua.”

PRODUCT	INGREDIENT	MANUFACTURER	PROPELENT	PRICE IN US\$	PRICE COMPARISON (1)
Beclasma 0.1% (50 mcg /dose). Aerosol.	Beclometasona dipropionato	Aldo Union	HFC134a	U\$ 10.87	56
Butoasma 0.2% (100 mcg /dose). Aerosol	Salbutamol	Aldo Union	HFC134a	U\$ 6.79	4.11
Albuterol. Salbutamol sulfato 100 mcg dose	Salbutamol sulfato	Unipharm de Nicaragua	CFC-free	U\$ 6.27	3.52
Aldopulmin 0.04% Via inhalatoria oral, (Frasco de 10ml)	Bromuro de ipatropio	Aldo Unión	CFC-free	U\$10.43	1.93

PRODUCT	INGREDIENT	MANUFACTURER	PROPELENT	PRICE IN US\$
Beclasma (250 mcg /dose) Aerosol	Beclometasona dipropionato	Aldo Union	CFC11, CFC12	U\$10.45
Salbutamol Aerosol (100 mcg /dose).	Salbutamol	Cipla Ltd. India	CFC11, CFC12	U\$ 1.65
Salbutamol sulfato 100 mcg dose	Salbutamol sulfato	Meditab Specialties	CFC11, CFC12	U\$ 1.78
Atrovent CA-20. 0.02 mg /dose (Frasco de 20 ml)	Bromuro de ipatropio	Boehringer Ingelheim	CFC11, CFC12, CFC114	U\$10.76

(1) Price comparison with equivalent CFC-based product

INDIA

**FUNDING REQUEST FOR PREPARATION OF
HCFC PHASE-OUT MANAGEMENT PLAN (HPMP – STAGE 1)**

Submitted on behalf of

**OZONE CELL, MINISTRY OF ENVIRONMENT & FORESTS
GOVERNMENT OF INDIA**

By

**United Nations Development Programme (UNDP)
Lead Agency for HPMP**

In consultation with:

**UNEP, UNIDO, GERMANY
Cooperating Agencies**

INDIA -- REQUEST FOR FUNDING FOR PREPARATION OF HPMP (STAGE-1)

1. Introduction

Subsequent to Decision XIX/6 of the Meeting of the Parties and Decisions 53/37 and 54/39 of the Executive Committee, UNDP had included in its 2008 Work Programme Amendment, a request for funding for preparation of HPMP for India (along with many other countries).

UNDP's initial submission of this request was based on a single-step approach to meet all the requirements of Decision 54/39 to deliver a comprehensive HPMP (first stage) document, containing a proposed national action plan and funding proposals, enabling India to comply with the first control targets for HCFCs, i.e., the 2013 freeze and 2015 reductions in one step, without having to return to the Executive Committee for additional requests for preparation funding.

During the process of evaluation of this funding request, the MLF Secretariat proposed a two-step approach for preparation of HPMPs. The first step, for which a proposed a maximum funding level of US\$ 195,000 was recommended (for countries with 2005/6 HCFC consumption between 120 and 1,200 ODP tonnes), to meet the cost of preparation of a HPMP strategy, consisting of the necessary components for policy development, data collection and strategy development. The second and/or simultaneous step, would involve preparation of individual, group or sector-level investment projects, funding for preparation of which, may be requested after obtaining additional knowledge of enterprise-level and sector-level baselines. The funding level for the second step is as yet undetermined.

Taking into account the implications of both the above-mentioned approaches and upon consultations with UNDP (Lead Agency), MLF Secretariat and cooperating agencies, MOEF indicated its preference to pursue a single-step approach for HPMP preparation. Accordingly, a revised request for preparation funding for a comprehensive HPMP document for 2013 and 2015 compliance is being submitted.

2. Background

In 2005, India consumed slightly over 11,000 metric tonnes of HCFCs, of which, about 8,900 metric tonnes were of HCFC-22, about 2,200 metric tonnes of HCFC-141b and minor quantities of other HCFCs. Additionally, India has facilities for production of HCFC-22 at five producers. In 2005, the total production of HCFC-22 for controlled (non-feedstock) use was estimated at about 25,000 metric tonnes. As established during the HCFC survey carried out in 2005-2006, the HCFC consuming sectors are experiencing significant growth over the past few years and are projected to do so in the future, at about 10-15% annually.

Considering this trend, and considering that the first two control targets for HCFC consumption start from 2013, there would be net of only 4 years beginning 2009, to design and implement appropriate actions for reducing demand and/or effecting reductions in HCFC consumption. **Based on a projected annual growth rate in consumption of 10%, it is estimated that India may have to reduce HCFC demand by over 7,300 metric tonnes (about 486 ODP tonnes) to comply with the 2013 freeze and 2015 reduction targets (See Annex-I).** These reductions may not be available through one sector/substance; therefore multiple sectors/substances will need to be addressed.

3. Roles of Implementing/Bilateral Agencies in the HPMP process

India is a large, highly populated, geographically diverse country, with an established manufacturing base in a variety of industrial sectors. It has a large and growing middle class. Typically, any industrial sector comprises of a large number of SMEs, spread widely throughout the country. The HCFC consuming sectors are not an exception to this profile. In implementing its Montreal Protocol commitments pertaining to phase-out of CFCs, India has been assisted by several multilateral and bilateral implementing agencies.

Given the size and extent of the challenges involved in complying with the adjusted control targets for HCFCs and drawing from its experience in successfully implementing CFC phase-out activities under such dispensation, India believes in the involvement of multiple implementing agencies, taking advantage of their specific capabilities and comparative advantages. Accordingly, the Empowered Steering Committee of the Ministry of Environment and Forests, in its XXXIVth Meeting decided to allocate the tasks involved in preparation and implementation of India’s HPMP for complying with the 2013 and 2015 targets, to various agencies as below:

- UNDP: Lead Agency and
 All consumption sectors (except Transport Refrigeration & Air Conditioning Sub-sector)
- UNEP: Non-investment activities such as information exchange/outreach, customs and enforcement training, trade monitoring and control, etc.
- UNIDO: Transport Refrigeration & Air Conditioning Sub-sector
- Germany: Refrigeration and Air Conditioning Servicing Sector
- World Bank: HCFC Production Sector

4. Reduction Analysis for 2013/2015 compliance

Based on 2005 data (which was also used as a reference for the HCFC survey carried out in India during 2005-2007), the broad distribution of HCFC consumption in various sectors and the corresponding reductions needed for 2013/2015 compliance is as below:

Sector	HCFC Consumption in 2005 (ODP tonnes)	Projected consumption at Baseline (ODP tonnes)	Estimated reductions for 2013/2015 compliance (ODP tonnes)
Aerosols	8	12	5
Firefighting	*	*	*
Foams	178	274	118
Refrigeration & Air Conditioning			
- Manufacturing	422	654	280
- Servicing	~124	187	82
Solvents	~1	~1	~1

Annex 3 - PRP Request for HPMP for India

Total	733	1,127	486
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Annex 3 – PRP Request for HPMP for India

The above analysis is based on an average projected annual growth rate of 10%. The actual projected growth rates as established in the HCFC survey were different in various sectors/sub-sectors ranging from 10% to 15%. For ease of calculations, a uniform growth rate of 10% is used for determining the broad requirements of reductions needed for compliance with the 2013/2015 targets. More detailed sector/sub-sector level information is presented in Appendix-A.

From the above analysis, the estimated reductions in HCFC consumption required for 2013/2015 compliance are 486 ODP tonnes (about 7,300 metric tonnes of HCFC-141b and HCFC-22). It is evident that the Foams and Refrigeration & Air Conditioning (Manufacturing) Sectors would provide the bulk (398 ODP tonnes) out of the total reductions needed (486 ODP tonnes) for 2013 and 2015 compliance. It follows that these two sectors would need to be prioritized for actions.

Since the Refrigeration & Air Conditioning (Servicing) Sector would also need to reduce about 1,500 metric tonnes (about 82 ODP tonnes), and given the increased demand for HCFCs in servicing due to increase in population of HCFC-based equipment, this sector would also need to receive adequate focus in designing 2013/2015 compliance actions.

To support actions for HCFC reductions, it would be necessary to design appropriate regulatory interventions for controlling HCFC use sustainably. In addition, to sensitize the stakeholders on impending controls on HCFC use, it would be necessary to design appropriate information exchange, outreach and capacity-building measures.

Thus, based on the above, India would need to adopt a comprehensive approach to address the needs for 2013/2015 compliance. Given the limited time available, and the scale of the challenges involved (reductions of over 7,300 metric tonnes over about 4 years), India has chosen a single-step HPMP process, covering all the preparation funding needs for 2013/2015 compliance. This would facilitate the development of an HPMP incorporating fundable HCFC phase-out proposals at the earliest, allowing adequate time for implementing compliance actions.

5. HPMP Preparation Funding

In their respective Work Programme Amendments, the agencies submitted funding requests to the 55th Meeting of the Executive Committee for HPMP preparation for India. These requests were based on a single-step approach, *with a full-fledged HPMP document inclusive of funding requests for project activities for complying with the 2013/2015 targets as a deliverable*. Further to the evaluation of the HPMP preparation funding requests by MLF Secretariat and discussions held at the 55th Meeting of the Executive Committee, it was suggested that this funding request should be translated into cost categories as proposed by the MLF Secretariat, with additional justifications for sector/sub-sector level preparation funding.

It was decided that for countries with 2005 (or 2006) HCFC consumption between 120 and 1,200 ODP tonnes (India is classified in this category), an amount of US\$ 195,000 would be eligible for preparation of an overarching HPMP, comprising of data collection/survey (US\$ 85,000), strategy development (US\$ 80,000) and policy assistance (US\$ 30,000). For those countries in which an HCFC survey was funded by ExCom earlier (India is classified in this category), 25% of the data collection/survey costs, amounting to US\$ 21,250 would be deducted. Thus, in case of India, a net amount of US\$ 173,750 would be eligible for HPMP preparation, excluding funding for preparation of HCFC phase-out projects/activities.

Annex 3 – PRP Request for HPMP for India

Based on the above, the revised HPMP preparation funding request for India is summarized below:

Agency	Sector/Sub-sector	Funding* Request (US\$)
UNDP (Lead Agency)	Overarching HPMP strategy including policy support, data collection and analysis and strategy development	173,750
	Project preparation for Aerosols Sector	25,000
	Project preparation for Firefighting Sector	25,000
	Project preparation for Foams Sector	125,000
	Project preparation for the Refrigeration and Air Conditioning (Mfg) Sector (except Transport Refrigeration & Air Conditioning sub-sector)	205,000
	Project preparation for Solvents Sector	25,000
	Sub-total (UNDP)	578,750
UNEP	Preparation of information exchange and outreach strategy	50,000
	Preparation of HCFC trade monitoring and control strategy	50,000
	Preparation of training strategy for enforcement	45,000
	Sub-total (UNEP)	145,000
UNIDO	Transport Refrigeration and Air Conditioning (Mfg)	120,000
	Sub-total (UNIDO)	120,000
Germany	Preparation of Refrigeration & Air Conditioning Servicing Sector Plan	211,270
	Sub-total (Germany)	211,270
World Bank	Preparation of HCFC production sector plan	**
	Sub-total (World Bank)	**
Total		1,055,020

*The funding request presumes that the deliverable would be a comprehensive and fundable HPMP (First Stage) document focusing on compliance with the 2013 and 2015 control targets for consumption. India would not request any further funding for project preparation activities for 2013/2015 compliance. It is also understood that India will retain the flexibility in allocation or reallocation of approved funding or parts of that funding to sectors/sub-sectors as required by evolving circumstances to achieve the objective of preparing a comprehensive HPMP (First Stage) proposal focusing on 2013/2015 compliance.

**The proposal for project preparation for the HCFC Production Sector will be submitted by World Bank in the 57th ExCom meeting.

The detailed breakdown of project preparation funding requests for the sectors assigned to UNDP is attached as Appendix-B. The detailed breakdown of project preparation funding requests from other agencies for their respective sectors/sub-sectors will be included in their respective work programme amendments.

Annex 3 - PRP Request for HPMP for India

INDIA
HCFC Reductions Analysis for 2013/2015 Compliance

Country:	INDIA	Baseline Year:	Average of 2009 and 2010
Projected annual growth rate (%):	10.00	Reference Year:	2005

Sector	Sub-sector	Consumption in Reference Year					Projected consumption in Baseline Year	Projected unconstrained consumption at 2013	Estimated reductions for 2015 compliance
		HCFC-141b	HCFC-22	HCFC-123	Other	Total			
AEROSOLS	Aerosols (All)	71	0	0	0	71	109	145	47
FOAMS	Rigid Foams (Dom/Com Ref)	585	0	0	0	585	899	1,197	388
	Rigid Foam (General)	963	0	0	0	963	1,480	1,970	638
	Integral Skin Foam	72	0	0	0	72	111	147	48
RAC (MANUFACTURING)	Commercial & Industrial Ref	415	1,270	0	0	1,685	2,590	3,448	1,116
	Residential & Comm. AC	0	4,510	0	0	4,510	6,933	9,228	2,988
	Transport Ref and AC	50	390	0	0	440	676	900	292
	Industrial AC and Chillers	0	470	0	0	470	723	962	311
RAC (SERVICING)	Refrigeration Servicing	0	2,214	0	0	2,214	3,404	4,530	1,467
SOLVENTS	Solvents (all)	0	0	17	0	17	26	35	11
FIREFIGHTING	Firefighting (all)	0	0	0	0	0	0	0	0
TOTAL (Metric tonnes)		2,156	8,854	17	0	11,027	16,952	22,563	7,306
TOTAL (ODP tonnes)		237	496	0	0	733	1,127	1,501	486

Notes:

1. Breakdown of consumption in sectors/sub-sectors are estimated figures based on findings of the HCFC survey during 2005-2007.
2. Zero consumption in a sector/sub-sector indicates that adequate information was not available or that consumption was in trace quantities. The actual figures will be established after a detailed data collection exercise as part the HPMP process.
3. The projected annual growth rate of 10% has been uniformly applied across sectors/sub-sectors in the above table. The findings from the HCFC survey indicate variable growth rates up to 15%.

INDIA**Breakdown of sector/sub-sector level project preparation funding requests (UNDP)**

Overarching HPMP	
Policy assistance	30,000
Data collection and analysis	63,750
Strategy development	80,000
Total (A)	173,750

Aerosols Sector	
International expert costs (10 work-days X US\$ 500)	5,000
National expert costs (25 work-days X US\$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings/workshop	5,000
Total (B)	25,000

Firefighting Sector	
International expert costs (10 work-days X US\$ 500)	5,000
National expert costs (25 work-days X US\$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings/workshop	5,000
Total (C)	25,000

Foams Sector	
International expert costs (50 work-days X US\$ 500)	25,000
National expert costs (150 work-days X US\$ 200)	30,000
Travel and other expenses for experts	45,000
Industry interaction meetings/workshops	20,000
Documentation and reporting	5,000
Total (D)	125,000

Refrigeration & Air Conditioning (Manufacturing) Sector	
International expert costs (25 work-days/expert X 4 X US\$ 500)	50,000
National expert costs (75 work-days/expert X 4 X US\$ 200)	60,000
Travel and other expenses for experts	60,000
Industry interaction meetings/workshops	30,000
Documentation and reporting	5,000
Total (E)	205,000

Solvents Sector	
International expert costs (10 work-days X US\$ 500)	5,000
National expert costs (25 work-days X US\$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings/workshop	5,000
Total (F)	25,000

Grand Total (A+B+C+D+E+F)	578,750
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ISLAMIC REPUBLIC OF IRAN

**FUNDING REQUEST FOR PREPARATION OF
HCFC PHASE-OUT MANAGEMENT PLAN (HPMP – STAGE 1)**

Submitted on behalf of

**OZONE LAYER PROTECTION UNIT
DEPARTMENT OF ENVIRONMENT
GOVERNMENT OF IRAN**

By

**United Nations Development Programme (UNDP)
Lead Agency for HPMP**

In consultation with:

**UNEP, UNIDO, GERMANY
Cooperating Agencies**

Islamic Republic of Iran

FUNDING REQUEST FOR PREPARATION OF
HCFC PHASE-OUT MANAGEMENT PLAN (HPMP - FIRST STAGE)

1. Introduction

Subsequent to Decision XIX/6 of the Meeting of the Parties and Decisions 53/37 and 54/39 of the Executive Committee, UNDP had included in its 2008 Work Programme Amendment, a request for funding for preparation of HPMP for Iran along with many other countries.

UNDP's (and other cooperating agencies') initial submission of the funding request was based on a single-step approach to meet all the requirements of Decision 54/39 to deliver a comprehensive HPMP (first stage) document, containing a proposed national action plan and funding proposals for enabling Iran to comply with the first control targets for HCFCs, i.e., the 2013 freeze and 2015 reductions in one step, without having to return to the Executive Committee for additional requests for preparation funding.

During the process of evaluation of this funding request, the MLF Secretariat proposed a two-step approach for preparation of HPMPs. The first step, for which a proposed a maximum funding level of US\$ 195,000 was recommended (for countries with 2005/6 HCFC consumption between 120 and 1,200 ODP tonnes), to meet the cost of preparation of a HPMP strategy, consisting of the necessary components for policy assistance, data collection and strategy development in compliance with Decision 54/39. The second and/or simultaneous step, would involve preparation of individual, group or sector-level investment projects, funding for preparation of which, may be requested after obtaining additional knowledge of enterprise-level and sector-level baselines, before the overall HPMP was completed. The funding level for the second step remains undetermined at this time.

Taking into account the implications of both the above-mentioned approaches and upon consultations with UNDP (Lead Agency) and cooperating agencies, Iran indicated its preference to pursue a single-step approach for HPMP preparation.

Accordingly, a revised request for preparation funding for a comprehensive HPMP document for 2013 and 2015 compliance is being submitted, for consideration at the 56th Meeting of the Executive Committee.

2. Background

Iran's HCFC consumption, as reported under Article-7F for 2005 and 2006, was as below:

Consumption/ Year	ODS metric tonnes			ODP tonnes		
	HCFC-22	HCFC-141b	Total	HCFC-22	HCFC-141b	Total
2005	1,597	661	2,258	87.84	72.75	160.59
2006	1,721	719	2,440	94.66	79.11	173.77

Annex 4 – Iran PRP Request for HPMP

The HCFC survey carried out in Iran by UNDP in 2005-2006 established that the HCFC consumption in Iran increased rapidly at about 24% annually from 1995 to 2005. The unconstrained demand until 2010 was projected to grow by least 10% annually and by 7.5% annually until 2015.

Based on these growth rates, Iran's HCFC consumption would reach about 3,247 metric tonnes by 2009 and 3,571 metric tonnes by 2010. Thus, Iran's projected baseline (average of 2009 and 2010) is expected to be 3,419 metric tonnes. Similarly, from 2010 onwards at an unconstrained growth rate of 7.5% annually, Iran's consumption would reach 4,247 metric tonnes in 2013 and 4,909 metric tonnes in 2015. **From this preliminary analysis, Iran would need to reduce its demand for HCFCs by about 1,500 metric tonnes (or about 100 -120 ODP tonnes) from its projected baseline, in order to comply with the 2013 and 2015 control targets.** If the actual growth rates are higher than those projected in the survey, then the reductions in demand would need to be higher.

Considering the HCFC consumption profiles in different sectors/sub-sectors, as delineated in the HCFC survey carried out in Iran during 2005-2006, the reductions in demand needed for compliance with the 2013 and 2015 control targets would not be available by implementing actions in one single sector. Therefore, actions for compliance would need to focus on all sectors where reductions could be possible. There would be in effect, a net of about 4 years available for designing and implementing actions for compliance with the 2013 and 2015 control targets. The average period needed for achieving reductions in MLF funded projects is about three years. Therefore, it is evident there are significant time constraints. In addition, currently there are constraints on availability of acceptable and cost-effective alternative technologies. Given these constraints, Iran would face significant challenges for compliance and would need to focus on all HCFC consuming sectors for possible reductions, in order to comply with the 2013 and 2015 control targets.

Iran has therefore decided to pursue a single-step HPMP preparation process focusing on all HCFC consuming sectors.

3. Proposed Funding for HPMP Preparation

Iran is a large and geographically diverse country, with an established manufacturing base in a variety of industrial sectors. It has a large and growing middle class. Typically, any industrial sector comprises of a large number of SMEs, spread widely throughout the country. The HCFC consuming sectors are not an exception to this profile. To facilitate addressing this challenging industrial profile, Iran was assisted by several multilateral and bilateral implementing agencies for implementing its Montreal Protocol commitments pertaining to phase-out of CFCs.

Given the challenges involved in complying with the adjusted control targets for HCFCs and drawing from its experience in successfully implementing CFC phase-out activities under such dispensation, Iran has decided to assign multiple implementing agencies for the HPMP process, taking into account their specific capabilities and comparative advantages.

Accordingly, the Iran Department of Environment and National Ozone Committee have decided to allocate the tasks involved in preparation and implementation of Iran's HPMP for complying with the 2013 and 2015 targets, to various agencies as below:

Annex 4 – Iran PRP Request for HPMP

Agency roles

UNDP has been assigned the role of the lead implementing agency for Iran’s HPMP in view of the following:

- The early and pioneering work done by UNDP in HCFCs in several countries and the resultant accumulated experience and expertise with UNDP for specific technical and policy issues pertaining to HCFCs;
- The initial HCFC survey in Iran was carried out by UNDP;
- UNDP is the implementing agency for the Montreal Protocol institutional strengthening project for Iran through which it provides technical and policy assistance on an ongoing basis

Germany, UNEP and UNIDO will be the cooperating agencies.

Allocation of work

The allocation of work among the different agencies would be as below:

Sector/Activity	Sub-sectors	Activities	Agency
Overall HPMP Lead Agency	National	Strategy development, policy review and assistance, HPMP formulation, management & coordination, reporting interaction with MLF, etc.	UNDP
Non-investment activities	Policy assistance, awareness, and capacity-building	Stakeholder and public awareness at national level, customs & enforcement training/capacity-building, support for import and export controls and regulations	UNEP
Aerosols	All	Individual projects, group projects, sector plan, technical assistance	UNDP
Firefighting	All	Individual projects, group projects, sector plan, technical assistance	UNDP
Foams	Systems houses	Pilot/demonstration, investment and technical assistance projects	UNDP
	Rigid foams	Individual projects, group projects, sub-sector plan, technical assistance	Germany (Main) UNDP (Coop)
	Integral skin foams	Individual projects, group projects, sub-sector plan, technical assistance	Germany
	XPS/XPE foams	Individual projects, group projects, sub-sector plan, technical assistance	Germany
Refrigeration and Air Conditioning	Compressors manufacturing	Pilot/demonstration, investment and technical assistance projects	UNIDO
	Domestic, commercial and industrial refrigeration	Individual and/or group projects, sub-sector plan, technical assistance	UNDP
	Residential air conditioning	Individual and/or group projects, sub-sector plan, technical assistance	UNIDO
	Commercial and industrial air conditioning	Individual and/or group projects, sub-sector plan, technical assistance	UNDP
	Transport refrigeration and air conditioning	Individual and/or group projects, sub-sector plan, technical assistance	UNDP
	Servicing		Investment activities, including R&R, technical assistance and retrofit
		Good practices training	UNEP (Coop)
Solvents	All	Individual projects, group projects, sub-sector plan, technical assistance	UNDP

Annex 4 – Iran PRP Request for HPMP

Approach

Iran has decided to opt for a single-step approach for HPMP preparation, *with a full-fledged HPMP (first stage) document inclusive of funding requests for project activities for complying with the 2013/2015 targets, as a deliverable*. The submission of the HPMP (first stage) document is targeted for either the 59th or 60th ExCom meetings.

Consolidated funding request for HPMP preparation

The consolidated funding request for preparation of HPMP (first stage) for Iran, not including agency support costs) is as below:

Agency	Sector/Sub-Sector	Activity	Funding Request (US\$)	
UNDP (Lead Agency)	Overarching HPMP	Policy support, data collection and analysis and strategy development (adjusted for discounting of earlier HCFC survey)	173,750	
	Aerosols	Project preparation	15,000	
	Firefighting	Project preparation	20,000	
	Foams (Systems houses)	Project preparation	25,000	
	Foams <i>Cooperating agency</i>	Project preparation for the Rigid Foams sub-sector (SMEs)	16,750	
	Refrigeration and Air Conditioning (Manufacturing) <i>Main agency</i>	Project preparation for domestic, commercial and industrial refrigeration sub-sectors		95,000
		Project preparation for commercial and industrial air conditioning		35,000
		Project preparation for transport refrigeration and air conditioning		25,000
	Solvents	Project preparation	15,000	
	Sub-total (UNDP)			420,500
UNEP	Non-investment activities	Preparation of awareness strategy	25,000	
		Preparation of training strategy for enforcement officers and strengthening import/export control policy	50,000	
	Refrigeration and Air Conditioning (Servicing) <i>Cooperating agency</i>	Preparation of good practices training programme	25,000	
	Sub-total (UNEP)			100,000
UNIDO	Compressor Manufacturing	Project preparation	40,000	
	Refrigeration and Air Conditioning (Mfg) <i>Cooperating agency</i>	Project preparation for residential air conditioning	64,000	
	Sub-total (UNIDO)			104,000
Germany	Foams Sector <i>Main Agency</i>	Project preparation for rigid and integral skin PU foam and XPS/XPE foams	133,250	
	Refrigeration and Air Conditioning (Servicing) <i>Main agency</i>	Project preparation for Servicing Sector activities including R&R, retrofit and technical assistance	125,000	
	Sub-total (Germany)			258,250
Total			882,750	

Annex 4 – Iran PRP Request for HPMP

The funding request presumes that the deliverable would be a comprehensive and fundable HPMP (First Stage) document focusing on compliance with the 2013 and 2015 control targets for consumption. It is understood that Iran would not request any further funding for project preparation activities for 2013/2015 compliance. It is also understood that Iran will retain the flexibility in allocation or reallocation of approved funding or parts of that funding to sectors/sub-sectors as required by evolving circumstances to achieve the objective of preparing a comprehensive HPMP (Stage 1) proposal focusing on 2013/2015 compliance.

The detailed breakdown of project preparation funding requests for the sectors assigned to UNDP is attached as Appendix-A. The detailed breakdown of project preparation funding requests from other agencies for their respective sectors/sub-sectors will be included in their respective work programme amendments.

IRAN

Breakdown of sector/sub-sector level project preparation funding requests (UNDP)

Overarching HPMP	
Policy assistance	30,000
Data collection and analysis	63,750
Strategy development	80,000
Total (A)	173,750

Aerosols Sector	
International expert costs (6 work-days X US\$ 500)	3,000
National expert costs (15 work-days X US\$ 200)	3,000
Travel and other expenses for experts	4,000
Industry interaction meetings/workshop	5,000
Total (B)	15,000

Firefighting Sector	
International expert costs (8 work-days X US\$ 500)	4,000
National expert costs (20 work-days X US\$ 200)	4,000
Travel and other expenses for experts	7,000
Industry interaction meetings/workshop	5,000
Total (C)	20,000

Foams Sector (Systems Houses)	
International expert costs (10 work-days X US\$ 500)	5,000
National expert costs (25 work-days X US\$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings	5,000
Total (D)	25,000

Foams Sector (Rigid Foams – SMEs)	
International expert costs (6 work-days X US\$ 500)	3,000
National expert costs (15 work-days X US\$ 200)	3,000
Travel and other expenses for experts	5,750
Industry interaction meetings/workshop	5,000
Total (E)	16,750

Refrigeration & Air Conditioning (Manufacturing) Sector – Domestic, Commercial & Industrial Refrig.	
International expert costs (12 work-days/expert X 3 X US\$ 500)	18,000
National expert costs (30 work-days/expert X 3 X US\$ 200)	18,000
Travel and other expenses for experts	34,000
Industry interaction meetings/workshops	20,000
Documentation and reporting	5,000
Total (F)	95,000

Refrigeration & Air Conditioning (Manufacturing) Sector – Commercial & Industrial Air Conditioning	
International expert costs (8 work-days/expert X 2 X US\$ 500)	8,000
National expert costs (20 work-days/expert X 2 X US\$ 200)	8,000
Travel and other expenses for experts	9,000
Industry interaction meetings/workshops	10,000
Total (G)	35,000

Annex 4 - Iran PRP Request for HPMP

Annex 4 – Iran PRP Request for HPMP

Appendix-A (Cont'd)

Refrigeration & Air Conditioning (Manufacturing) Sector – Transport Refrigeration & Air Conditioning	
International expert costs (10 work-days X US\$ 500)	5,000
National expert costs (25 work-days X US\$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings	5,000
Total (H)	25,000
Solvents Sector	
International expert costs (6 work-days X US\$ 500)	3,000
National expert costs (15 work-days X US\$ 200)	3,000
Travel and other expenses for experts	4,000
Industry interaction meetings/workshop	5,000
Total (I)	15,000
Grand Total (A+B+C+D+E+F+G+H+I)	420,500

INDONESIA

**FUNDING REQUEST FOR PREPARATION OF
HCFC PHASE-OUT MANAGEMENT PLAN (HPMP – STAGE 1)**
(Refrigeration & Air Conditioning – Manufacturing and Servicing Sectors)

Submitted on behalf of

**KEMENTERIAN NEGARA LINGKUNGAN HIDUP (KLH)
STATE MINISTRY OF NATURAL ENVIRONMENT
GOVERNMENT OF INDONESIA**

By

**United Nations Development Programme (UNDP)
Lead Agency for HPMP**

In consultation with:

**WORLD BANK, UNIDO
Cooperating Agencies**

Indonesia

REQUEST FOR FUNDING FOR PREPARATION OF HPMP (STAGE-1)
(Refrigeration & Air Conditioning Manufacturing & Servicing Sectors)

1. Introduction

Subsequent to Decision XIX/6 of the Meeting of the Parties and Decisions 53/37 and 54/39 of the Executive Committee, UNDP had included in its 2008 Work Programme Amendment submitted to the 55th ExCom meeting, a request for funding for preparation of HPMP for Indonesia (along with many other countries).

UNDP's initial submission of this request was based on a single-step approach to meet all the requirements of Decision 54/39 to deliver a comprehensive HPMP (first stage) document, containing a proposed national action plan and funding proposals, enabling Indonesia to comply with the first control targets for HCFCs, i.e., the 2013 freeze and 2015 reductions in one step, without having to return to the Executive Committee for additional requests for PRP funding.

During the process of evaluation of this funding request, the MLF Secretariat proposed a two-step approach for preparation of HPMPs. The first step, for which a proposed a maximum funding level of US\$ 195,000 was recommended (for countries with 2005/6 HCFC consumption between 120 and 1,200 ODP tonnes), to meet the cost of preparation of the overarching HPMP, consisting of the necessary components for policy assistance, data collection and strategy development. The second and/or simultaneous step, would involve preparation of individual, group or sector-level investment projects, funding for preparation of which, may be requested after obtaining additional knowledge of enterprise-level and sector-level baselines. The funding level for the second step was as undetermined as of the 55th ExCom meeting.

At the 55th ExCom meeting Indonesia opted for the proposed 2-step approach. Subsequently, upon a more detailed analysis of the HCFC consumption situation in Indonesia and upon consultations with UNDP, World Bank and UNIDO, KLH decided that it would be advisable to move ahead at the earliest with requests for preparation funding targeting HCFC reductions in major HCFC consuming sectors for compliance with the 2013 and 2015 control milestones.

2. Roles of Implementing/Bilateral Agencies in the HPMP process

Indonesia is a large, highly populated, geographically diverse country, with an established manufacturing base in a variety of industrial sectors. It has a large and growing middle class. Typically, HCFC consuming sectors comprise of a large number of SMEs, spread widely throughout the country. In implementing its Montreal Protocol commitments pertaining to phase-out of CFCs, Indonesia has been assisted by several implementing agencies.

Given the size and extent of the challenges involved in complying with the adjusted control targets for HCFCs and drawing from its experience in successfully implementing CFC phase-out activities, Indonesia believes in the involvement of multiple implementing agencies, taking advantage of their specific capabilities and comparative advantages.

Accordingly, Indonesia decided to allocate the tasks involved in preparation and implementation of Indonesia's HPMP for complying with the 2013 & 2015 targets, to various agencies as below:

- UNDP: Lead Agency and all consumption sectors, except Foams & Solvents Sectors
- UNIDO: Solvents Sector
- World Bank: Foams Sector

3. Reductions Analysis for 2013/2015 compliance

Based on 2005 data (which was also used as a reference for the HCFC survey carried out in Indonesia during 2005-2007), Indonesia consumed 3,976 metric tonnes of HCFCs, of which, about 2,340 metric tonnes were of HCFC-22 and about 1,636 metric tonnes of HCFC-141b and minor quantities of other HCFCs. As established during the HCFC survey carried out in 2005-2006, the HCFC consuming sectors were experiencing significant growth over the past few years and are projected to do so in the future, at around 10% annually until 2010. Thus, the projected baseline (average of 2009 and 2010 consumption levels) is estimated at around 6,500 metric tonnes (about 460 ODP tonnes).

Based on the above it is estimated that Indonesia would need to reduce HCFC demand by over 2,700 metric tonnes (about 200 ODP tonnes) to comply with the 2013 and 2015 control targets. Considering this trend, and considering that the first two control targets for HCFC consumption start from 2013, there would be net of only 4 years beginning 2009, to design and implement appropriate actions for reducing demand and/or effecting reductions in HCFC consumption. These reductions may not be available through one sector/substance; therefore multiple sectors/substances will need to be addressed.

The Foams and Refrigeration & Air Conditioning (Manufacturing) Sectors, together represented about 56% of the overall HCFC consumption in Indonesia in 2005. Thus, it is evident that actions directed towards these two sectors would provide the bulk of the total reductions needed for 2013 and 2015 compliance. It follows therefore that these two sectors would need to be prioritized for actions.

Given the increased demand for HCFCs in servicing due to increase in population of HCFC-based equipment, the Refrigeration & Air Conditioning (Servicing) Sector (which contributed to about 40% of the overall HCFC consumption in Indonesia in 2005) would also need to receive adequate focus in designing 2013/2015 compliance actions. In this sector, particularly in air conditioning servicing where the main HCFC-22 consumption is concentrated, recovery, recycling and reclamation programs, best practices, training, retrofitting would need to be instituted and supported. To support actions for HCFC reductions, it would also be necessary to design appropriate regulatory interventions for controlling HCFC use sustainably. In addition, to sensitize the stakeholders on impending controls on HCFC use, it would be necessary to design appropriate awareness, information dissemination and capacity-building measures.

Thus, based on the above, given the limited time available and the scale of the challenges involved (reductions of over 2,700 metric tonnes over about 4 years), Indonesia has decided to move ahead with requests for project preparation funding in the Foams, Refrigeration (Manufacturing) and Refrigeration (Servicing) Sectors. This would facilitate development of an HPMP incorporating fundable HCFC phase-out proposals at the earliest, allowing adequate time for implementing compliance actions.

4. HPMP Preparation Funding

At the 55th ExCom meeting it was agreed that for countries with 2005 (or 2006) HCFC consumption between 120 and 1,200 ODP tonnes (Indonesia is classified in this category), an amount of US\$ 195,000 would be eligible for preparation of an overarching HPMP, comprising of data collection/survey (US\$ 85,000), strategy development (US\$ 80,000) and policy assistance (US\$ 30,000). For those countries in which an HCFC survey was funded by ExCom earlier (Indonesia is classified in this category), 25% of the data collection/survey costs, amounting to US\$ 21,250 would be deducted. Thus, in case of Indonesia, a net amount of US\$ 173,750 would be eligible for HPMP preparation, excluding funding for preparation of HCFC phase-out projects/activities. The target schedule for submission of Indonesia’s HPMP (Stage 1) is for submission to the 59th or 60th ExCom meeting.

In addition to the above, the project preparation funding requests from UNDP for consideration at the 56th ExCom meeting for Indonesia are summarized below:

Refrigeration & Air Conditioning (Manufacturing) Sector Plan	
International expert costs (20 work-days/expert X 4 X US\$ 500)	40,000
National expert costs (50 work-days/expert X 4 X US\$ 200)	40,000
Travel and other expenses for experts	35,000
Industry interaction meetings/workshops (3)	30,000
Documentation and reporting	5,000
Total (A)	150,000

Refrigeration & Air Conditioning (Servicing) Sector Plan	
International expert costs (20 work-days/expert X 4 X US\$ 500)	40,000
National expert costs (50 work-days/expert X 4 X US\$ 200)	40,000
Travel and other expenses for experts	35,000
Industry interaction meetings/workshops (3)	30,000
Documentation and reporting	5,000
Total (B)	150,000

Total (A+B)	300,000
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The preparation of the above-mentioned sector plans would be timed in such a way, that they inform the finalization of HPMP (Stage 1). It is understood that Indonesia would not request any further funding for preparation of projects/activities in these two sectors, for 2013/2015 compliance. It is also understood that Indonesia will retain the flexibility in allocation or reallocation of approved funding or parts of that funding to sectors/sub-sectors as required by evolving circumstances to achieve the objective of preparing a comprehensive HPMP (Stage 1) proposal focusing on 2013/2015 compliance.

The project preparation request for the Foams Sector would be separately submitted by World Bank. The project preparation request for the Solvents Sector would be separately submitted by UNIDO.



FEDERAL MINISTRY OF ENVIRONMENT, HOUSING AND URBAN DEVELOPMENT

Headquarters Mabushi, Abuja.

Department of Pollution Control

Ref no: FMENV/PC/NOO/Xi

Date: 02 September, 08

Dr. Suely Carvalho
Chief, Montreal Protocol Unit
UNDP-BDP-EEG
New York, U.S.A.

Subject: Request to increase the Project Preparation grant for HPMP in Nigeria

Please recall the project preparation grants that were approved at the 55th meeting of the Executive Committee and that Nigeria was allocated US\$ 85,000. We wish to thank you for having initiated these activities at an early date by sending a mission to Abuja in August 2008..

2.0 We would like to point out however that the decision on the available level of funding for this PRP was based on the fact that Nigeria didn't split out its HCFC consumption between the various HCFCs involved and that as such, all consumption was reported under the HCFC-22 category. As a result, a false impression may have been given that Nigeria did not have any HCFC-consumption in the manufacturing sector.

3.0 The following non exhaustive list covering HCFC-consuming manufacturing industries will no doubt prove to be useful in redressing this erroneous impression:

Sector	Industry
A/C Manufacturing	Nigeria Engineering Works
A/C Manufacturing	P.Z. Haier/Thermocool
A/C Manufacturing	Kohington
A/C Manufacturing	Debo
A/C Manufacturing	Frigoglass
A/C Manufacturing	United Technologies
Commercial Refrigeration	Austin-Laz and Co., Ltd.
Commercial Refrigeration	Bosmak Nigeria Ltd.
Commercial Refrigeration	Coldcare Nigeria Ltd.
Commercial Refrigeration	Akocen Nigeria Ltd.
Commercial Refrigeration	Ristian
Commercial Refrigeration	Polade


Annex 6 – Letter from Nigeria for PRP requests at 56th ExCom

Domestic Refrigeration	Onward Electrical Industry Ltd.
Domestic Refrigeration	Soesons Ltd.
Domestic Refrigeration	United Technologies Ltd.
Domestic Refrigeration	De Johnson Ltd.
PUF Spray Insulation	Polyurethane Manufacturers Ltd. (Polyma)
Rigid PUF	Celplas Industries Limited
Rigid PUF	Adig Plastics Ltd.
Rigid PUF	Agric Services (Nig.), Ltd.
Rigid PUF	Ondo Plastics
Rigid PUF	Vita Foams
Rigid PUF in Thermoware	Eleganza Industries
Rigid PUF in Thermoware	Eleganza Cooler and Household Industries, Eleganza Ceramics and Cooler Industries
Rigid PUF Insulation Products	Aluminum Manufacturing Company of Nigeria Plc (Alumaco)

4.0 Therefore, considering the reality in Nigeria, that a manufacturing sector exists, as shown in the above-mentioned list, I have been directed to request you to apply for a supplementary PRP amount of US\$ 60,000 at the 56th meeting of the Executive Committee. This would correspond to the difference between the US\$ 85,000 and the US\$ 145,000 category applicable to countries as categorized in Bangkok in July 2008. We would also suggest that the Executive Committee be requested to split this additional amount between UNDP (US\$ 40,000) and UNIDO (US\$ 20,000) in order to allow the latter to participate at this early stage in some initial work in the refrigeration manufacturing sector.

5.0 In addition to the above, I also wish to use this opportunity to request you to submit the request for project preparation for a pilot project to remove barriers for producing refrigeration-grade hydrocarbons in Nigeria, which was discussed with your experts during their August 2008 visit.

6.0 Accept the assurance of our highest regards, please


A.K. Bayero
National Ozone Officer,
For: Hon. Minister

**PROJECT TECHNICAL ASSISTANCE REQUEST
- TECHNOLOGY VALIDATION PROJECT -**

Country	Global Technical Assistance
Implementing Agency	United Nations Development Programme (UNDP)
Project title	Validation of Environmental Impact of optimized liquid HFC Formulations in PU rigid and integral skin foam applications
Sector, Sub-Sector(s)	Foams
Project Duration	6 Months
Project Costs	US\$ 50,000
IA Support Costs	US\$ 4,500 (9%)
Total Cost to the MLF	US\$ 54,500
Monitoring Milestones	Not included
Summary	
Funds are requested for a project that would evaluate the global environmental impact of liquid HFC-containing foam formulations. Such formulations have been modified to reduce costs and to improve the global warming impact. The “Functional Unit” approach as presented in UNEP/OzL.Pro/ExCom/55/47, Annex V would be used in the evaluation, allowing practical experience in the application of this model. If the outcome would justify this, a pilot project for the validation of such formulations in an A5 context could be formulated.	

1.0 OBJECTIVE

The objective of this grant is to conduct a desk study that would evaluate the environmental impact of PU systems that contain liquid HFCs using the so-called “Functional Unit” approach. A pilot project for the validation of such formulations in an A5 context could be formulated.

2.0 BACKGROUND

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The Decision includes following statements:

“To encourage Parties to promote the selection of alternatives to HCFCs that *minimize environmental impacts, in particular impacts on climate, as well as meeting other health, safety and economic considerations*”

“To agree that the Executive Committee, when developing and applying funding criteria for projects and programmes, and taking into account paragraph 6, give priority to cost-effective projects and programmes which focus on, inter alia:

- (a) Phasing-out first those HCFCs with higher ozone-depleting potential, taking into account national circumstances;
- (b) *Substitutes and alternatives that minimize other impacts on the environment, including on the climate, taking into account global-warming potential, energy use and other relevant factors;*

(c) Small and medium-size enterprises;”

There are currently no guidelines how to implement this stipulation for projects funded by the MLF. With the rather urgent need to prepare and implement projects allowing Article 5 countries to meet the 2012 freeze, this creates uncertainty in what technologies are acceptable.

The MLF Secretariat has examined options on the possibility to prioritize projects and programs that would match cost-effectiveness with minimized impact on the environment—in particular with respect to climate change, including both GWP and energy use. One option stood out: the “Functional Unit” approach, which was in some detail described in document UNEP/OzL.Pro/ExCom/55/47 Annex V. The approach is claimed to be simpler and less data intensive than the Life Cycle Climate performance methodology. At the same time it addresses Decision XIX.9 concerns better than the GWP method because it includes energy performance. The method, so it is stated, needs further development and evaluation across a wider range of sectors.

This study aims at applying the method to assess its application in the foams industry.

3.0 HCFC PHASEOUT TECHNOLOGIES FOR FOAMS

3.1 TECHNOLOGY OVERVIEW

HCFCs are used as blowing agents in polyurethane (PU) foams (predominantly rigid and integral skin) and extruded polystyrene (XPS) boardstock foams. To replace these HCFCs, following criteria would ideally apply:

- A suitable boiling point with 25⁰C being the target,
- Low thermal conductivity in the vapor phase,
- Non flammable,
- Low toxicity,
- Zero ODP,
- Low GWP,
- Chemically/physically stable,
- Soluble in the formulation,
- Low diffusion rate,
- Based on validated technology,
- Commercially available,
- Acceptable in processing, and
- Economically viable.

Not all technologies that are currently available meet these criteria. Compromises are needed.

Recently, a flood of new technologies to replace HCFC-141b in PU foams have been proposed. Table 1 includes all currently available or proposed HCFC replacements for PU foams.

However, to conform to MOP decision XIX/6, the environmental impact of potential HCFC

Annex 7 – Global 1 – TAS to Validate Liquid HFC Formulations

replacements will be important. That put into question in particular the use of HFCs.

Using GWP and molecular data as provided by the FTOC (2006), following indicative GWP changes are to be expected for the replacement of HCFC-141b in PU foam applications:

Table-1: Available HCFC- Phaseout Technologies and their Global Warming Impact

SUBSTANCE	GWP	MOLECULAR WEIGHT	INCREMENTAL GWP	COMMENTS
HCFC-141b	713	117	Baseline	
HFC-245fa	1,020	134	455	See comment ⁵
HFC-365mfc	782	148	276	See comment ⁵
HFC-134a	1,410	102	516	
Cyclopentane	11	70	-710	Extremely flammable
Ecomate [®]	0 ¹	60	-713	97.5% pure (supplier information)
CO ₂ ²	1	44	-712	Used direct/indirect (from water)
FEA-1100 ³	5	n/k	~ -700-710 (expected)	Under development
HBA-1 ⁴	6	<115	~ -700-710 (expected)	Under development
HBA-2 ⁶	n/k	n/k	n/k	Under development
AFA-L1 ⁷	<15	<134	>-699	Underdevelopment

¹Zero GWP is not possible but, with the USEPA's comment that the methyl formate GWP is negligible, the number it is factually acceptable

²Chemically generated from water and isocyanate. When used directly (mostly as liquid, or LCD) and derived from natural sources such as gas field emissions, the GWP is zero and the incremental effect -713

³A new development by DuPont as reported, with few details, in UT 6/7, 2008 and at the 2008 CPI Conference. GWP provided by supplier

⁴This is a new development from Honeywell, initially aimed to be used as a refrigerant in MAC but now also considered for OCF

⁵It should be noted that the incremental GWP is the effect expected based on 100% HCFC 141b replacement by just one alternative on an equimolecular base. In practice this will not always be the case. Formulators may increase water, reducing in this way the GWP impact—but also decreasing the foam quality—or use a blend of physical blowing agents. In addition, replacements are not always equimolecular as solvent effects, volatility and even froth effect (HFC-134a and to a lesser extent HFC-245fa) may impact the blowing efficiency. The table therefore provides a guideline rather than an absolute assessment

⁶A new development by Honeywell. Toxicity study is in its initial phase

⁷A new development by Arkema. Toxicity study is in its initial phase

The conclusion might be drawn that, with so many options available, there are sufficient zero ODP/low GWP technologies available. However, before concluding so one should consider that:

- Most are not (yet) validated, one carries high investment costs and one is an under-performer in insulation value;
- HFCs are used in abundance in A2 countries that do care about their environments;
- Most HFCs are co-blended with increased water and/or with other auxiliary blowing agents for cost as well as environmental reasons. They will perform environmentally better than the table shows.

In conclusion, the foam industry does not lack in HCFC alternatives.

It lacks evaluating these technologies in commercial settings with optimized formulations and a generally acceptable climate proofing

3.2 VALIDATION RATIONALE

The above shown environmental comparison is a simplified approach. It:

Annex 7 – Global 1 – TAS to Validate Liquid HFC Formulations

- considers only GWP,
- is not based on optimized formulations and
- ignores energy considerations as decision XIX requires.

While several of these technologies are still in development or already subject to a validation program, no action so far is proposed for HFCs. To be even-handed, an environmental validation using optimized HFC formulations and an assessment approach that includes energy considerations is needed.

3.3 PROJECT JUSTIFICATION

This proposed TAS will assess the climate impact of the use of HFCs as foam blowing agent using the so-called “Functional Unit” approach. This approach has been described in some detail in UNEP/OzL.Pro/ExCom/55/47. It is robust enough to meet Decision XIX requirements—addressing both energy and GWP—but does not require the individualized approach of full life cycle analyses. It would not only provide for a fair assessment of optimized HFC formulations but also demonstrate the use of the “Functional Unit” approach and facilitate the Secretariat’s evaluation as requested by the ExCom in decision 55/43 (h).

The assessment is a desk study. It has not to be tied to a specific country and is universally (globally) applicable. The choice has therefore been made to propose this as a global TAS project.

Tying the proposal to an individual country would not be constructive. The project does not phaseout HCFCs and has not automatically a follow-up phase through demonstration projects as its outcome may be that the use of HFCs is not advisable.

4.0 PROPOSED ACTIVITIES

Proposed is a validation project for the use of HFCs in PU foam applications. Such a project should be divided into three phases:

1. A desk study to assess the environmental impact of optimized HFC formulations using the functional unit” approach;
2. If the ExCom deems the outcome worth further evaluation, a pilot project could follow based on a systems house and a limited number of downstream foam manufacturers;
3. A technology dissemination seminar for other systems houses and large foam manufacturers;

At this time, only funding for the desk study is requested.

5.0 PROJECT COSTS AND FUNDING REQUEST

Following are the tentative costs for the actual desk study, validation and dissemination project:

#	ACTIVITY	BUDGET (US\$)	REMARKS
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Annex 7 - Global 1 - TAS to Validate Liquid HFC Formulations

1	Feasibility study	40,000	
2	Pilot Project Design	10,000	
TOTAL		50,000	

**PROJECT TECHNICAL ASSISTANCE REQUEST
- TECHNOLOGY VALIDATION PROJECT -**

Country	Global Technical Assistance
Implementing Agency	United Nations Development Programme (UNDP)
Title	Validation of Low Cost Options in the Use of Hydrocarbons (HCs) as Blowing Agent in the Manufacture of PU Rigid Foams
Project in Business Plan	n/a
Sector, Sub-Sector(s)	Foams
Project Duration	7 Months
Project Grant	US\$ 55,000
IA Support Costs	US\$ 4,950 (9%)
Total Cost to the MLF	US\$ 59,950
Monitoring Milestones	Not included at this point
Summary	
These fund are requested to evaluate cost reduction options in the use of hydrocarbons to replace HCFC-141b in foam applications in cooperation with a globally operating system house and equipment manufacturer. A pilot proposal will also be formulated in a country still to be determined.	

6.0 OBJECTIVE

The objective of this grant is to finance the development of a technical assistance project for the design and evaluation of low-cost approaches to the use of hydrocarbons in the manufacture of PU rigid insulation foams. A pilot proposal will also be formulated in a country still to be determined.

7.0 BACKGROUND

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs which would be from 01 January 2013, at the Baseline Levels (average of 2009 and 2010). The second control step is the reduction of 10% from the Baseline Levels as of 1 January 2015. The decision also directed the Executive Committee of the Multilateral Fund to assist the Parties in preparation of HCFC phase-out Management Plans.

The 54th Meeting of the Executive Committee (ExCom) in April 2008, through Decision 54/39, adopted guidelines for preparation of HCFC phase-out management plans. These guidelines provide indicative outline and contents of the HCFC phase-out management plans, which are essentially based on earlier guidelines developed and followed for the Terminal Phase-out Management Plan (TPMP) (RMPs/TPMPs/ SPPs/ NPPs). The decision has the following key elements:

- a) Adoption of a staged approach to implementation of the HCFC phase-out management plans within the context of an overall national strategy. The first stage would focus on compliance with the 2013 freeze and 2015 reduction targets. The second stage would focus on HCFC phase-out in compliance with the future reduction control targets
- b) Commitments to achieve the 2013/2015 control milestones through performance-based agreements

The preparation of HCFC phaseout projects requires proper validation of available technologies. This project is one of several UNDP validation projects aimed at such validation.

8.0 TECHNOLOGY TO BE VALIDATED

8.1 TECHNOLOGY DESCRIPTION

Hydrocarbons—mostly pentanes—are used commercially in many countries around the world as blowing agent in the manufacture of foams. Pentanes do not mix easily with polyols. Consequently, polyol/pentane blends are emulsions and generally restricted in lifetime. Pentanes are flammable and require safety considerations that limit the use to facilities that can be adapted to meet those requirements and can be trusted to maintain the subsequent operation in a safe way. The MLF has developed standards for the safe use of pentane in MLF projects (UNEP/OzL. Pro/ExCom/25/54). There have been many MLF-supported CFC-phaseout projects in refrigeration and in panel applications. The minimum economic size has been typically ~50 ODPt/US\$ 400,000. Smaller projects have been discouraged. Consequently, there is no use of HCs in SMEs. In addition, the technology was deemed unsafe for a multiple of applications such as spray and in situ foams. Generally, cyclopentane has been used for refrigeration and n-pentane for panels. Fine-tuning through HC blends (cyclo/iso pentane or cyclopentane/isobutane), which is now standard in non A5 countries, is not widely spread in A5's. Consequently, the investment costs are the same as when phasing out CFCs and the technology will continue to be too expensive for SMEs and restricted to the same applications as before. HCs have not been used in spray and PIP applications.

8.2 VALIDATION RATIONALE

There are unexplored options to fine-tune HC-based project costs and investigate other applications:

- The introduction of HC blends that will allow lower densities (lower IOCs)
- Direct injection (lower investment)
- Low-pressure/direct injection (lower investment)
- Centralized preblending by system houses (lower investment)
- Application-specific dispensing equipment (lower investment)
- Investigation of the use of HCs in other applications (broader use of technology)

Such options need to be evaluated and validated. This TAS is aimed at that.

3.3 PROJECT JUSTIFICATION

The need to validate HCFC phaseout technologies in an A5 context was recognized through ExCom Decision 55/43 which noted the

“... limited introduction of several of the HCFC alternative technologies available to date in Article 5 countries, the need to validate them and optimize their use in the light of the local conditions prevailing in Article 5 countries, and the wide variation in costs of replacement equipment and raw materials ...”

and decided

To invite bilateral and implementing agencies to prepare and submit project proposals to the Secretariat for those HCFC uses addressed in paragraphs (c), (d), (e) and (f) below so that the Executive Committee could choose those projects that best demonstrated alternative technologies and facilitated the collection of accurate data on incremental capital cost and incremental operating costs or savings, as well as other data relevant to the application of the technologies, on the understanding that the quantity of HCFC to be phased out under those projects needed to be deducted from the starting point for sustained aggregate reductions in eligible consumption as set by the HCFC phase-out management plan (HPMP);

The ExCom mentioned hydrocarbons specifically as follows (55/43 (iv)):

Bilateral and implementing agencies and relevant collaborating systems houses were encouraged to address the technological issues surrounding preparation and distribution of premixed polyols containing hydrocarbon blowing agents;

The last mentioned part of Decision 55/43 clearly seeks to lower the cost of hydrocarbon projects and therefore the cost threshold, allowing more enterprises to select this technology. However, there are more options to lower HC projects costs and its use has also been restricted to a few applications. This Technical Assistance Project seeks therefore to address this specific decision as well as other potential cost reduction in HC projects and a potential wider use without jeopardizing safety.

While this project, seeking to address technological issues surrounding HCs is justified through Decision 55/43 (iv), one could question the need to address this through a global TAS project rather than through a national project. There are several rationales for this:

- Because any outcome would be applicable in all A5 countries, the project has a global nature while subsequent demonstration projects that would show actual application will be national projects
- Global dissemination would be problematic through national projects
- Having one country bearing the cost—and the related deduction from its aggregate consumption—of a technology dissemination would be unfair

9.0 PROPOSED ACTIVITIES

UNDP would team up with a system house and an equipment manufacturer To conduct the feasibility studies for each option as mentioned, validation procedures would be formulated for nationally submitted demonstration projects

Annex 8 - Global 2 - TAS to Validate HC as Foam Agent

After completion of this preliminary study, the feasibility of demonstration projects can be assessed. The funds being requested at present would cover the feasibility study and the formulation of a pilot project document.

10.0 PROJECT COSTS AND FUNDING REQUEST

Following are the tentative costs for the actual pilot, validation and dissemination project:

#	ACTIVITY	BUDGET (US\$)	REMARKS
1	Feasibility study	45,000	
2	Pilot Project Design	10,000	
TOTAL		55,000	

Annex 9 – Nigeria – Pilot to Validate HC as Refrigerant

PROJECT PREPARATION REQUEST - TECHNOLOGY VALIDATION PROJECT -

Country	Federal Republic of Nigeria
Implementing Agency	United Nations Development Programme (UNDP)
Lead Agency	United Nations Development Programme (UNDP)
Project title	Validation of the Cost-effective Use of locally produced Hydrocarbons as Refrigerant in Refrigeration Applications
Project in Business Plan	n/a
Sector, Sub-Sector(s)	Refrigeration & Air Conditioning (RAC)
HCFC Use in the country (t/y)	35.8 t ODP (2006)
Project Duration	12 Months
Project Costs (preliminary forecast)	US\$ 1,420,000 (includes US\$ 1,000,000 counterpart funding)
Project Preparation Grant	US\$ 50,000
IA Support Costs	US\$ 3,750
Total Cost to the MLF	US\$ 53,750
Monitoring Milestones	Not included at this time
National Coordinating Agency	Federal Ministry of Environment and Housing (FMEnvH&UD)

SUMMARY

At the initiative of the FMEnvH&UD, a prototype distillation unit for LPG-based natural refrigerants (C₃ thru C₄) was designed. If proven viable, it will be the base of a commercial scale production unit that will support phaseout of the use of HCFCs in Refrigeration Manufacturing applications and related service operations. This project is designed to test viability, and to conduct quality testing and validation in actual production and service scenarios. The actual commercial plant will be built through private initiative. The project preparation grant will serve the actual development of the project, including the testing and validation parameters and the preparation of an MLF format project document. If successful, the production facility will be able to serve not only Nigeria but the entire Sub-Saharan region with non-ODS/low GWP, high purity refrigerants that can replace the current use of HCFCs. Such products are generally not available in the region.

11.0 OBJECTIVE

The objective of this grant is to finance the development of a pilot project for the prototype production of hydrocarbons for refrigerant applications as well as to validate the resulting refrigerants in the replacement of HCFCs.

12.0 BACKGROUND

The Federal Republic of Nigeria became a Party to the Vienna Convention and Montreal Protocol on 31st October 1988, which came into force on January 1, 1989. Nigeria also ratified the London, Copenhagen, Montreal and Beijing Amendments.

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs which would be from 01 January 2013, at the Baseline Levels (average of 2009 and 2010). The second control step is the reduction of 10% from the Baseline Levels as of 1 January 2015. The decision also directed the Executive Committee of the Multilateral Fund to assist the Parties in preparation of HCFC phase-out Management Plans.

The 54th Meeting of the Executive Committee in April 2008, through Decision 54/39, adopted guidelines for preparation of HCFC phase-out management plans. These guidelines provide indicative outline and contents of the HCFC phase-out management plans, which are essentially based on earlier guidelines developed and followed for the Terminal Phase-out Management Plan (TPMP) (RMPs/TPMPs/ SPPs/ NPPs). The decision has the following key elements:

Annex 9 – Nigeria – Pilot to Validate HC as Refrigerant

- c) Adoption of a staged approach to implementation of the HCFC phase-out management plans within the context of an overall national strategy. The first stage would focus on compliance with the 2013 freeze and 2015 reduction targets. The second stage would focus on HCFC phase-out in compliance with the future reduction control targets.
- d) Commitments to achieving the 2013 and 2015 control milestones through performance-based agreements

In Nigeria, UNDP will be the Lead Agency designated to coordinate the overall development of the HCFC phase-out management plans, while UNIDO will play the role of Cooperating Agency covering the RAC Manufacturing, Aerosol and Solvent sectors.

13.0 TECHNOLOGY TO BE VALIDATED

13.1 TECHNOLOGY OVERVIEW

Most HCFC applications in the refrigeration sector will involve the replacement of HCFC-22 or HCFC based blends. The sector can be sub-divided into several sub-sectors: i) air condition equipment manufacture that covers small units (room and split air conditioning products), medium size systems (air-to-air systems used on the roof of larger commercial buildings and HCFC-22 chillers under 500 kW), and large-size specialty air conditioning systems; ii) commercial equipment manufacture (diverse products such as display and storage units for food and frozen goods, water coolers and cold rooms) iii) domestic refrigeration manufacturing (domestic refrigerators and mini-bars); iv) industrial equipment manufacture; and v) the refrigeration service sector including all types of domestic, commercial and industrial equipment.

Hydrocarbon (HC) replacements are available as are various HFCs, principally HFC-134a and various HFC blends (R-404A, R-407C, R-410A, R-507A, R-744) for most common applications where HCFC-22 is used. This includes more recently introduced HFC and HFC/HC blends that to varying degrees may be effective drop-in replacements in existing equipment, although currently at increased refrigerant cost. In some larger scale applications ammonia is a viable technology.

MOP decision XIX requires the consideration of environmental concerns to be a part of the technology selection when replacing HCFCs. This will increase the interest in the use of hydrocarbons

13.2 VALIDATION RATIONALE

Because it deemed local technical capacity insufficient, the Nigerian Government has actively promoted capacity building activities such as local production and service capacity of foam, recovery and recycling equipment as well as the local production of refrigerants. Such activities need validation, which has been provided by UNDP as a courtesy for the mentioned equipment. However, the production and use of high purity, natural refrigerants, derived from Nigerian LPG sources and capable of supplying the entire Sub-Saharan region requires a much more extensive validation process which will be achieved through a pilot project for which a project preparation request is herewith submitted.

It is important to note that the amounts of HC produced would *avoid* new HCFC-use to occur in *future years*, rather than phasing out HCFCs from existing HCFC-using equipment. Indeed, future imports of refrigeration systems and cold rooms would include HC-technology if adequate HC of the required purity is available in the local (and regional) market. If such HCs are not available (as is the case today), then people will continue to import/install HCFC-based refrigeration systems. This is the rationale of the project.

In other words, instead of letting the HCFC-market grow unabatedly, we can now make this effort to avoid coming to that growth situation. As such we can *avoid today* having to phase out such future consumption later on at a much higher price. However, it is clear that Nigeria would not be willing to deduct the amount of HCFC consumption which this programme would *avoid* against an eligible consumption-level for funding purposes (the latter being based on already existing HCFC installations). The right terminology for this project is indeed “*HCFC-tons avoided*” rather than “*HCFC-tons consumption phased out*”.

Annex 9 – Nigeria – Pilot to Validate HC as Refrigerant

Having said so, we hereby provide some estimates on pure HCs that could be obtained from this project. The pilot plant can produce around one ton of mixed refrigerants per day (= 250-300 t/y). The capacity of the commercial operation will be a multiple of this, as it is intended to use a multiple of the prototype 8-inch columns. Based on a very preliminary assumption of a 25% conversion to hydrocarbons in the Sub-Sahara, we can expect an overall future market for HC of 1,800 t/y. This would thus require 6-7 columns in case of sole source. Please note however that these figures are preliminary and do not include far-away countries like South Africa. They will be revisited during the project preparation phase.

14.0 PROPOSED ACTIVITIES

The tentative pilot and validation activities are as follows:

- Building of a pilot plant at an existing site to validate the proposed process to build a commercial scale multi-pass fractional distillation batch process for locally supplied LPG to produce components for natural, hydrocarbon based refrigerants in the C₃ thru C₄ range;
- Validation of the refrigerants in representative refrigeration manufacturing applications
- Validation of the refrigerants in refrigeration service operations
- Design of low-cost retrofit units to facilitate conversions from HCFCs to natural compounds in refrigeration manufacturing and service operations
- Validate proper functioning in actual production/service operations

These tentative goals have to be detailed in the project preparation phase in design, costs and proposed implementation procedure and time table.

15.0 PROJECT COSTS AND FUNDING REQUEST

Following are the tentative costs for the actual pilot and validation project:

#	ACTIVITY	BUDGET (US\$)	REMARKS
PHASE I			
1	Project preparation	50,000	
PHASE II			
2	Construction of a pilot facility	300,000	
3	Validation of the product quality	10,000	
4	Validation of the product in actual production	20,000	
5	Validation of the product in service operations	20,000	
6	Design conversion kits for manufacturing operations	5,000	
7	Design conversion kits for service operations	5,000	
Total Phase II		370,000	
PHASE III			
8	Construction of a commercial production facility	1,000,000	This part will be privately funded

As mentioned, at this time project preparation costs are requested to the amount of

US\$ 50,000