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执行蒙特利尔议定书
多边基金执行委员会
第三十七次会议
2002年7月17日至19日，蒙特利尔

工发组织 2002 年工作方案修正案

基金秘书处的评论和建议

1. 工发组织请求执行委员会核准为该机构 2002 年工作方案修正案提供 497,000 美元的经费，并提供 64,610 美元的机构支助费用。
2. 下面在表 1 中开列了工发组织 2002 年工作方案修正案中拟议举办的活动：

表 1：工发组织 2002 年工作方案修正案

国家	活动/项目	申请供资数额 (美元)	建议供资数额 (美元)
一. 体制建设			
	ODP 吨数		
墨西哥	延长体制建设项目：第 6 期	247,000	247,000
二. 哈龙			
马其顿	为编制全国哈龙管理计划提供技术援助	25,000	25,000
三. 甲基溴			
巴西	编制一甲基溴行业的全行业淘汰计划	100,000	有问题
南非	编制一甲基溴行业的全行业淘汰计划	125,000	有问题
	小计：	497,000	
	机构支助费用：	64,610	
	共计：	561,610	

一. 体制建设

墨西哥：延长体制建设项目（247,000 美元）

项目说明

3. 本文件的附件一载有关于以上国家的体制建设项目的说明。

基金秘书处的建议

4. 基金秘书处建议一揽子核准以上项目，供资数额如表 1 所示。谨提议执行委员会向墨西哥政府表示以下意见：

5. 执行委员会审查了墨西哥体制建设项目提案所载资料，并赞赏地注意到，墨西哥取得的成就已使该国能够大量减少附件 A 所列物质，并在 2000—2002 年报告期间冻结其消费量。执行委员会还注意到，墨西哥多年来采取了重大的步骤来淘汰很多行业的消费量，其中包括：制订有关家用和商用制冷设备的正式标准；执行许可证制度，以协助控制 ODS 的使用；执行甲基溴示范项目，并针对甲基溴行业的进口商和分销商采取控制措施。这些活动和其他活动令人鼓舞，执行委员会赞赏墨西哥为减少《蒙特利尔议定书》规定的受控物质的消费量所进行的努力。执行委员会表示，希望墨西哥在今后两年内针对更多行业一例如气雾剂和清洗行业一中的产品和活动实行具体的控制措施和禁令；为培训目的制订一

项附带制冷剂分配系统的战略，并开始执行一个改装方案；继续进行逐步淘汰甲基溴的努力。

二. 哈龙库

马其顿：为编制全国哈龙管理计划提供技术援助（25,000 美元）

项目说明

6. 自从 1997 年以来，没有在马其顿登记进口任何哈龙。然而，臭氧机构于 2002 年 1 月提交的最近一次年度报告显示，仍有很多经过保养的灭火系统和便携式灭火器装灌这种高度消耗臭氧层的物质。根据该报告，已查明各个行业装灌的哈龙数量如下：28 ODP 吨哈龙 1211 和 55 ODP 吨哈龙 1301。

7. 本项目包括：审查和分析关于若干行业已安装的哈龙能力的的数据；核查参与哈龙设备保养和检查的工作人员的资格和能力，并核查保养和检查程序；确定各方面的培训/再培训需要和调整措施；就哈龙管理计划的设计以及将在该计划下进行的活动提供咨询意见和建议，包括就应该实行的有关规则 and 规定提出建议。将挑选一个机构来发挥联络点的作用，以便协调全面的项目执行工作和将在哈龙管理计划下进行的后续活动。将建立一个由各政府主管部门、工商界以及其他有关方面组成的工作组，以便处理哈龙库存的管理问题。该项目还将包括进行宣传活动和举办关于培训和替代的消防技术的讲习班。

8. 这个项目一旦得到核准，将用 6 个月的时间完成。

秘书处的评论

9. 秘书处请工发组织核实，马其顿了解，这个项目将是该国在哈龙行业得到的最后一个项目。马其顿政府通知秘书处，该国同意仅为这个行业接受一笔一次性的供资。

基金秘书处的建议

10. 基金秘书处建议一揽子核准以上项目，供资数额如表 1 所示。

三. 甲基溴

(a) 巴西：编制甲基溴行业的全行业淘汰计划（100,000 美元）

项目说明

11. 工发组织拟议协助巴西政府编制甲基溴行业的全行业淘汰计划，该计划将淘汰烟草次级行业的剩余消费量以及菜园次级行业、谷物熏蒸次级行业和这种熏蒸剂的所有其他非关键用途中的消费量。

秘书处的评论

12. 秘书处请工发组织澄清在每种应用中使用的甲基溴数量的估计数。工发组织在这方面通知秘书处，没有对巴西的甲基溴消费量进行细分。然而，2000 年的甲基溴消费量为 431 ODP 吨；在这个数量中，271.8 ODP 吨是用于生产烟苗；因此，剩余的消费量（大约 159.2 ODP 吨）是用于菜园、建筑结构和商品熏蒸。工发组织说，“由于这是非常初步的数据，对巴西的甲基溴行业进行一次全面的普查至关重要”。

13. 秘书处还指出，考虑到以下因素，为这些活动申请的经费数额过高：

- (a) 已经核准了关于甲基溴替代技术的示范项目（经费总额为 393,800 美元），包括对该国的甲基溴消费量进行了一次普查；
- (b) 已经举办了在烟草次级行业淘汰 421.8 ODP 吨用作熏蒸剂的甲基溴的投资项目（第二十八次会议核准）。尽管该项目仅得到部分核准（用 20% 的项目预算淘汰 20% 的消费量），但没有必要为淘汰剩余的消费量编制一个新的项目提案。根据第 28/38 号决定，工发组织提交了一份关于这个投资项目的执行进度报告（载于本文件的附件二）。该报告是应多边基金秘书处的请求提交的，以便向执行委员会说明该项目的现状，并说明巴西烟草行业当前的甲基溴消费量；
- (c) 1999 和 2000 年的甲基溴消费量数据（分别为 275 和 431 ODP 吨）低于基准消费量（711.6 ODP 吨）。根据 2000 年的数据，巴西已经实现了把甲基溴基准消费量减少 20% 的目标。

14. 工发组织表示，考虑到巴西的庞大、所涉行业的数目、为淘汰剩余的 80% 消费量对上述烟草项目进行修订的必要性以及菜园业的增长率，为举办一个全行业淘汰计划起码需要 75,000 美元的经费。

15. 关于就上述烟草次级行业的甲基溴淘汰项目提出的执行进度报告，秘书处指出，在上述项目中，AFUBRA 和 SINDIFUMO 已经决定加快甲基溴消费量的淘汰速度，使其超过在核准的项目中提出的速度。在这方面，已经向所有农民提供了关于浮盘系统（为淘汰甲基溴的使用所选择的替代技术）使用办法的培训；此外，在 2002 年宣传运动开始时，已有 85,400 的农民淘汰了大约 334.8 ODP 吨甲基溴。

16. 秘书处还注意到，根据进度报告，没有使用甲基溴的农民进行的投资接近 1,650 万美元，其中不包括培训费用；从农民的角度来看，并不存在经营中的节省，因为大部分节省来自劳动时间（即种植业者得到更多的空余时间，但这并不一定导致货币的节省）。

基金秘书处的建议

17. 谨提议执行委员会参照以上评论审议该项目提案。还提议执行委员会注意到工发组织提交的进度报告。

(b) 南非：编制甲基溴行业的全行业淘汰计划（125,000 美元）

项目说明

18. 工发组织拟议协助南非政府编制土壤熏蒸和商品处理方面的甲基溴行业全行业淘汰计划。

秘书处的评论

19. 秘书处请工发组织澄清在每种应用中所使用的甲基溴数量估计数。工发组织在这方面通知秘书处，根据南非政府向臭氧秘书处上报的数据，该国的年度总消费量为 604.2 ODP 吨，按应用分布如下：75%用于土壤熏蒸、17%用于建筑结构处理、8%用于耐用品处理。工发组织估计，在用于土壤熏蒸的甲基溴消费量中，有 40%是用于苹果树种植，并表示，由于这个数据是以 1998 年进行的一次普查为依据，将需要进行一次新的普查。

20. 秘书处还指出，缔约方大会第九届会议同意为《蒙特利尔议定书》的目的把南非划为发展中国家，并指出，南非迄今遵守了《蒙特利尔议定书》现有的各项修正案的规定，并保证不恢复生产或消费已经淘汰并受这些修正案控制的物质，南非还保证，不请求多边基金提供资助来履行发达国家在缔约方大会第九届会议之前作出的承诺（第 IX/27 号决定）。

21. 工发组织通知秘书处，南非臭氧机构请臭氧秘书处澄清为甲基溴行业提供资助的可能性。臭氧秘书处的回答是，“财务限制不涉及甲基溴行业，因为第 IX/27 号决定提到的是附件一的产品清单，该清单不包括甲基溴行业”。根据这一咨询意见，南非政府与工发组织进行了接触，以申请援助。

基金秘书处的建议

22. 谨提议执行委员会审议南非为举办甲基溴项目从多边基金获得援助的资格。

附件一

体制建设项目提案

墨西哥：延长体制建设项目

项目和国家概况	
执行机构:	工发组织
原始核准数额(美元)	
第一期 1992年6月(美元)	285,000
第二期 1995年7月(美元)	47,500
第三期 1996年10月(美元)	190,000
第四期 1998年7月(美元)	190,000
第五期 2000年7月(美元)	190,000
为此次延长申请的数额(美元):	247,000
国家方案核准日期	February 1992
国家方案中报告的 ODS 消费量(1989 年), (ODP 吨)	10,184.0
最近报告的 ODS 消费量(2001 年) (ODP 吨)	3,926.41*
基准数据(1995 年—1997 年) (ODP 吨 CFC)	4,624.9
核准经费数额 (美元):	36,336,252
已支付数额 (截至 2001 年 12 月) (美元)	29,533,429
应淘汰 ODS(ODP 吨)	3,411.9
已淘汰 ODS(截至 2001 年 12 月) (ODP 吨)	3,067.12

* 其中的甲基溴消费量为 1,529.12 ODP 吨。

1. 执行委员会已经核准了下列活动并为其提供了经费:

		美元
(a)	国家方案编制	64,061
(b)	项目编制	2,104,947
(c)	培训	900,792
(d)	技术援助	1,121,991
(e)	示范项目	2,076,093
(f)	投资项目	28,966,919
	共计:	35,234,803

进度报告

2. 进度报告中提到的主要成就包括：为家用和商用制冷设备制订了正式标准；建立了一个许可证制度，以协助控制所有行业对 ODS 的使用；把 ODS 的贸易和操作定为联邦罪，从而打击非法贸易；与工发组织联合编写关于制冷剂管理计划的报告以供核准；同 CFC 生产工厂 Quimobasicos 公司进行合作编制一个淘汰项目。已经同 7 个全国性种植业者和 3 家小麦加工厂一道执行了一个甲基溴示范项目；针对进口商和分销商采取了控制措施；由于为甲基溴进口商规定的限制，预计消费量将低于确定的基准。已经指定一家全国性企业来负责哈龙库。根据本国在前些年获得的经验，墨西哥注意到，必须保持工作人员、活动和各项目标的连续性，并在发展臭氧保护协调机构方面取得进展。
3. 墨西哥政府已指定臭氧保护协调机构来执行《蒙特利尔议定书》。该机构隶属于环境部长管理的污染管理局。臭氧保护协调机构负责就法律事项向墨西哥议会提出建议，后者则是可以接受或批准修正案的官方实体。

行动计划

4. 下一个时期的行动计划包括：执行生产和进口许可制度；针对其他气雾剂和清洗行业中的产品和活动执行具体的控制措施和禁令；为培训目的编制一项附有制冷剂分配系统的战略并举办一个改装方案；准备关闭工厂（Quimobasicos 公司）；同甲基溴行业讨论控制消费量的问题；推广甲基溴示范项目的成果，并编制采用种植业者所挑选的替代技术的投资项目，以便实现甲基溴冻结目标。预计将于 2003 年批准《蒙特利尔修正案》和《北京修正案》，还预计将通常那样向多边基金和臭氧秘书处上报数据。

附件二

**PROGRESS REPORT ON THE IMPLEMENTATION OF THE PROJECT FOR
PHASING OUT MB IN THE TOBACCO SECTOR IN BRAZIL**

(PREPARED BY UNIDO)

1. Establishment of the system and logistics

The purchase of equipment and on-site distribution and delivery were, logistically, very complicated tasks. Irrespective of who purchased the equipment, the items listed below had to be delivered to about 20% of the 145,000 farmers, and cultivating 48,000 hectares, if effective phase out had to be achieved. This represents about 48,000 micro-tunnels sets.

Item	Description	Total to be delivered
1.1	18 galvanised steel rod arches, diameter 6.3 mm. Total 68.4 meters	864,000
1.2	100 expanded polystyrene trays with 200 cells measuring 360x700x60 mm. Density 0.28 g/l.	4,800,000
1.3	44 m ² of 150 micron black polyethylene sheet for the pool	2,112,000
1.4	63 m ² of 200 micron transparent UV protected polyethylene sheet for covering tunnel	3,024,000
1.5	2.2 meters, 4 mm. wide elastic bidders	105,600
1.6	3 meters, 5 mm. nylon rope	144,000
1.7	1/20 of a substrate compacting tool	2400
1.8	1/20 of a manual seeder	2400

Items 1.3 to 1.6 were purchased in form of rolls, which had to be cut in the desired length before delivery. This represented a relatively impressive cost, taking into account that the 29,000 farmers were spread over three large Brazilian states namely Santa Catarina, Rio Grande do Sul and Parana.

Furthermore, expanded polystyrene trays were very bulky and therefore required large areas of covered storage, to prevent them from being blown-up by strong winds prevailing in the area.

In order to set the objective of delivering the equipment to all farmers involved, SINDIFUMO, AFUBRA and UNIDO set up a task force, which prepared a purchase plan and set up the logistics of the system. The following steps were agreed and put into operation:

- Considering that the amount approved for the project did not cover the total cost of equipment to be purchased (due to the negative operational costs), whereas in any case the total equipment had to be purchased, the following was agreed. UNIDO would purchase the maximum possible amount of trays (the amount required was 4.8 millions) and SINDIFUMO/AFUBRA would purchase the rest of the equipment.

- In view of the nature of incentive of the project and following consultation with the MLF Secretariat, it was decided to go ahead with the above mention scheme of purchase.
- Trays were to be purchased through international competitive bidding and delivered to temporary warehouses, according to an established schedule. Tobacco Companies, members of SINDIFUMO agreed to offer their warehouses for this purpose.
- SINDIFUMO/AFUBRA had to purchase the rest of the equipment and organise its delivery to temporary warehouses in established quantities, once the price and hence the number of trays was known.
- Once the equipment had been delivered, a team of SINDIFUMO/AFUBRA workers had to cut the plastics and prepare a set with all necessary items to build-up one complete micro-tunnel with a pool of 25.2 m².
- The individualised and extensive database run by SINDIFUMO/AFUBRA made it possible to establish, for each farmer, the number of necessary sets to cover the entire surface. It was, however, decided to give to each selected farmer just one set in the first year and the rest in the following years after the confirmation, that the floating system was fully installed and operational.
- It had been also decided that the transport costs from the temporary warehouses to the farmer's premises should be borne by the farmers themselves. In fact, most of them collected the sets on occasional trips to deliver tobacco or purchase other inputs.

1.2 Purchases made by the project

UNIDO organised a competitive international bidding in April 2000 and purchased 2,013,000 expanded polystyrene trays at a unitary price of US\$ 1,1479 including delivery to the sites. The total costs of 2,310,723 practically exhausted the project budget. US\$ 12,244 were spent in small items mainly for locally made prototypes to identify a cheap and effective device for clipping. The original idea of sharing the latter amongst 20 farmers was found unworkable (SINDIFUMO members agreed to make their warehouses available for storage of trays).

1.3 Purchases made by the counterpart SINDIFUMO/AFUBRA

The biggest and most important problem encountered by many tobacco projects is the need to cover the negative operational costs. While the farmers admit that future savings may occur, they always argue that the total investment will be implemented immediately, in order to phase out MB and then recover their own investment with these savings. Therefore only powerful tobacco associations would be able to undertake such investment up to the amount of operational savings. The amount of the investment made by SINDIFUMO and AFUBRA has been the following:

EQUIPMENT PURCHASED BY SUNDIFUMO/AFUBRA

Item	Amount purchased	Unitary costs	TOTAL US\$
Galvanised steel rod arches, diameter 6.3 mm., totalling 68.4 m	864,000	1.58	1,365,120
Expanded polystyrene trays with 200 cells measuring 360x700x60 mm. Density 0.28 g/l.	2,187,000	1.147	2,508,489
150 micron black polyethylene sheet for the pool (m ²)	2,112,000	0.27	570,240
200 micron transparent UV protected polyethylene sheet for covering tunnel (m ²)	3,024,000	0.25	756,000
Elastic bidders (m)	105,600	0.205	21,648
Nylon rope (m)	0	0	0
Compacting tools	2400	8.49	20,376
Manual seeders	2400	28.5	68,400
TOTAL			5,310,273

2. Training

SINDIFUMO/ AFUBRA in co-operation with UNIDO estimated a budget of US \$3.48 million to train 143,700 farmers on the installation and operation of the floating tray system. SINDIFUMO/ AFUBRA offered to implement the training programme and to cover its costs.

In spite of the fact that the incentive project was approved for only 20% of the farmers, SINDIFUMO/ AFUBRA in agreement with UNIDO, decided to proceed with the training programme for all (143,700) farmers cultivating tobacco. This decision was made during a joint meeting where both organisations decided to proceed with the whole phase out programme, as explained later.

Presently, 1,017 trainers were trained in 30 workshops with an average duration of five days each. Also, 100% of the farmers have been trained, out of whom 80% are no longer using Methyl Bromide.

Growers were grouped according to their locality and group leaders were selected. Each group was trained in a two-days workshops at the group leader's farm and were visited at least six times over the three years.

A refresher-training scheme was held at least twice a year before the seedlings production period. Reported failures were studied and remedial actions were undertaken. Causes of failure were discussed and studied in detail at the end of the seedlings period. The number of incidents reported averaged less than two per thousand and were basically due to either temperature control failures, improper water quality or germination problems.

The whole programme has now been completed and has become an integral part of the regular technical information given to the farmers by SINDIFUMO/AFUBRA. As a result of this, no further training programme will be needed in the future for this specific technology.

3. Implementation and lessons learned

The magnitude of the project required close co-ordination between all institutions involved. SINDIFUMO/AFUBRA designated a project manager and established an implementation committee. Project managers at UNIDO and SINDIFUMO/AFUBRA met eight times during the first two years in order to co-ordinate all logistics and training activities. The NOU was kept informed on a regular basis and on many occasions attended these meetings.

SINDIFUMO/AFUBRA on-line computerised databases were permanently updated and all aspects concerning equipment delivery, training and results were added to the already existing individual farmers records.

A pre-emptive alert system was established with the purpose of reporting any incidents in terms of technology failure or pest infestation. A special team was also formed to react to any irregularities that may arise. In general, the local trainers solved most of the incidents and there was no need for further actions. During the first year, two cases of severe infestation in the floating trays were reported and investigated. In both cases, it was revealed that the water quality was the cause.

Initially, it was difficult to convince farmers to shift to a new technology. However, once the system was established for about 5,000 growers, already during the first year their perception changed and the number of farmers volunteering for the new technology rapidly increased.

Ecological awareness of farmers was higher than expected and in spite of the economic cost, the project was able to phase-out earlier than expected.

The main lesson learned is the need for a strong and respected institution trusted by the farmers, that has the financial strength to advance, funds needed to cover the negative operational costs.

The second lesson learned is that from the point of view of farmers the operational savings were non-existent, because most of savings came from labour time. In the case of Brazil, it meant more free time for the growers, but not necessarily monetary savings as such. SINDIFUMO and AFUBRA were extremely efficient in passing the message to the farmers, that their contribution to complete the purchase of equipment was their contribution to preserving the environment.

The third lesson learned is the need to spend ample and sufficient time in discussing the various aspects during the project preparation. This costly and time-consuming exercise is a major key to the future success.

A final and important point is that the technology, once accepted and established, is a very reliable one. Above all, farmers appreciated its reliability. Not a single farmer requested to go back to the traditional system. Moreover, in view of the large amount of growers involved, the risk of reverting back to Methyl Bromide is inexistent.

4. Policies

As agreed in the project document, the Government of Brazil has established a register of importers and sellers of Methyl Bromide. A consumption ceiling of 562 tonnes in the tobacco sector has been established. However, as explained earlier, the real consumption in the tobacco sector is very much lower today.

Thanks to the databases established by SINDIFUMO/AFUBRA, the tobacco sector is presently closely monitored and both associations in co-operation with the NOU enforce effective control.

5. Consumption of MB and future plans

In view of the success of the first year phase out, AFUBRA in co-operation with SINDIFUMO decided to expand the scope and to accelerate the phase-out of Methyl Bromide well ahead of the objectives of the project. Since 1999 until to-date, the farmers, integrated in AFUBRA, have accomplished the phase-out given below:

Year	MB consumption in ODP tonnes	Aggregate MB phased-out	Surface free of MB	No. of farmers not using MB
1999	421.8	0	0 %	0
2000	271.8	150	42,3 %	14,371
2001	126,8	295	71%	60,745
2002/2003 **	87.0	334,8	93.8 %	107,992
2004 **	0	421.8	100%	143,715

(**) If future project is approved

At the beginning of the 2001 campaign the farmers would have been able to phase out a total of 334.8 tonnes within a few months. However, as the project had only covered the cost for phasing out 84.4 tonnes, the remaining 250.4 tonnes had been done at their own expense. In other words, an extra 142,000 hectares of open field tobacco are now planted with seedlings produced without methyl bromide. At present, another 85,389 farmers are not using Methyl Bromide for the production of seedlings. The net investment made by these 85,389 farmers, excluding training costs, but including negative operational costs has been close to US \$16.5 million. This figure represents a disbursement of about US \$195 per farmer.

Notwithstanding the above, in the 2002/2003 tobacco campaign, 87 ODP tonnes will still be used. Besides this, and since 1998, Methyl Bromide consumption in Brazil is increasing in the sector of flowers and horticulture. The total consumption is not precisely known and the Government of Brazil believes, that it is time to prepare a national phase out plan, to address the above issues and to stop any further increase in Methyl Bromide consumption.
