PROJECT COVER SHEET – MULTI-YEAR PROJECTS

COUNTRY: China, People Republic of.

PROJECT TITLE	BILATERAL/IMPLEMENTING AGENCY
Halon Sector Phase-out Plan	WORLD BANK

NATIONAL CO-ORDINATING AGENCY: STATE ENVIRONMENTAL PROTECTION AGENCY

LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT

A: ARTICLE-7 DATA (ODP TONNES, 2004, AS OF SEPTEMBER 1, 2006

Annex A, group I (CFCs)	25,264	Annex B I (CFC-13)	20.7
Annex A, Group II (Halons)	3,423.6	Annex B ii (CTC)	3,885.8

B: COUNTRY PROGRAMME SECTORAL DATA (ODP TONNES, 2005, AS OF SEPT. 2006

ODS	Foam	Ref.	Aerosol	ODS	Solvents	Process agent	Fumigant
CFC-11	8,418.051	1,186.000	297.000	CFC-113	1,360.690	13.500	
CFC-12	116.000	5,285.064	845.000	CTC		3,532.510	
CFC-115		316.957		MCl	3,701.957		
				MBr			519.729

Halon production and consumption remaining eligible for funding (ODP tonnes)	0

C: CURRENT YEAR BUSINESS PLAN: Total funding: US$0.4 million:

Total phase-out impact under the 2007 Annual Program: Production: 0 Consumption: 0 ODP tonnes.

D: PROJECT DATA		2004	2005	2006	**2007**	2008	2009	2010	Total
Montreal Protocol limits		34,187	17,094	17,094	**17,094**	17,094	17,094	0	
H-1211	Annual production limit	5970	5970	0	**0**	0	0	0	9950
(ODP tonnes)	Annual consumption limit	5670	5670	0	**0**	0	0	0	9350
H-1301	Annual production	6000	2000	1000	**1000**	1000	1000	0	618
(ODP tonnes)	Annual consumption limit	1500	1500	1000	**1000**	1000	1000	0	618
TOTAL ODS PRODCTION TO BE PHASED OUT		0	6970	0	**0**	0	1,000		
TOTAL ODS CONSUMPTION TO BE PHASED OUT			6170	0	**0**	0	1,000		
Project costs (US $):									
Funding for lead agency [*name*]		1.2	1.8	11.4	**0.4**	0.3	0.1	0	62.0
Total project funding		1.2	1.8	11.4	**0.4**	0.3	0.1	0	62.0
Support costs (US $))									
Support cost for lead agency [*name*]		0.09	0.135	0.855	**0.03**	0.0225	0.0075	0	
Total support costs		0.09	0.135	0.855	**0.03**	0.0225	0.0075	0	
TOTAL COST TO MULTILATERAL FUND (US $)		1.29	1.935	12.255	**0.43**	0.3225	0.1075	0	
Project cost effectiveness (US $/kg)									NA

FUNDING REQUEST: US$ 400,000. **SUPPORT COST (7.5%): US$ 30,000**

Halon 1301 phaseout schedule has been changes in 2004 as per the APP agreement..

Prepared by: SEPA Halon Sector Team **Date:** August 2006
Reviewed by: World Bank MP Team **Date:** September 2006

THE HALON SECTOR

2007 ANNUAL PROGRAM

September 11, 2006

State Environmental Protection Administration

Data Sheet

Country	China
Year of plan	2007
# of years completed	9
# of years remaining under the plan	3
Ceiling of Halon 1211 and halon 1301 consumption of the 2006 Annual Program	Halon 1211: 0MT Halon 1301: 100MT
Ceiling of Halon 1211 and Halon 1301 consumption of 2007 Annual Program	Halon 1211: 0 MT Halon 1301: 100 MT
Ceiling of halon 1211 and halon 1301 production of 2006 Annual Program	Halon 1211: 0 MT Halon 1301: 100 MT
Ceiling of halon 1211 and halon 1301 Production of 2007 Annual Program	Halon 1211: 0 MT Halon 1301: 100 MT
Funding requested for the 2007 Annual program	$ 0.4 million

National Implementing operating agency	State Environmental Protection Administration
International implementing agency	The World Bank

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The Halon Sector
2007 Annual Program

BACKGROUND

1. In accordance with the Executive Committee's approval of the Sector Plan for Halon Phaseout in China (UNEP/Ozl.Pro/ExCom/23/68) and the CFC/CTC/Halon Accelerated Phaseout Plan in China (UNEP/Ozl.Pro/Excom/44/73) (hereinafter referred to as "APP"), China is hereby requesting release of the tenth tranche of US$0.4 million for implementation of the year 2007 Annual Program. With this funding, China's halon 1211 production and consumption will remain as 0 MT in 2007. The halon 1301 production and consumption will remain as per the agreed maximum of 100 MT in 2007. Details of the annual program are in Part B. As per the phase-out target of halon 1301, China agrees to phase-out the production and consumption of halon 1301 in compliance with APP instead of the China Halon Sector Strategy. Details are in Table 3.

2. Table 1 below provides an overview over total MLF funding approved and disbursements until july 31, 2006.

Table 1: MLF Funding and disbursement

By July 31, 2006

Annual Program	Proj ID #	MLF funding	Disbursements		
			From Bank to China	Committed MLF funds	Disbursed
1998 AP	PRC/	12,400,000	12,400,000	9,045,846	9,045,846
1999 AP	PRC/	9,700,000	9,700,000	6,262,560	6,262,560
2000 AP	PRC/	10,600,000	10,600,000	12,160,331	12,103,991
2001 AP	PRC/	4,500,000	4,500,000	1,928,552	1,926,052
2002 AP	PRC/	3,700,000	3,700,000	7,079,999	5,997,190
2003 AP	PRC/	5,900,000	5,900,000	2,620,742	2,580,742
2004 AP	PRC/	1,200,000	1,200,000	2,798,714	604,354
2005 AP	PRC/	1,800,000	1,440,000	843,050	141,050
2006 AP	PRC/	11,400,000	400,000	4,147,036	2,910,636
2007 AP					
2008 AP					
2009 AP					
Total		61,200,000	49,840,000	46,886,830	41,572,421

3. In the approval of the 2006 Annual Program for the Halon Sector, the Government of China and the World Bank were requested to consider a cumulative audit of the halon sector as part of the 2006 annual program. As the halon 1211 production stopped by January 1, 2006, phaseout activities should be close to completion. A review has been undertaken and the AP includes an overview over the halon 1211 activities undertaken. The total MLF

funding used for the halon 1211 phaseout activities is shown in the table 2.

Table 2: Summary of grant fund allocation on halon 1211 phaseout activities

By July 31, 2006

	Production Phaseout (in USD)	Consumption Phaseout (in USD)	TA (in USD)	Halon Recycling and Banking (in USD)	Subtotal (in USD)
1998 AP	4,605,879	3,609,338	830,629	0	9,045,846
1999 AP	2,900,375 1,250,000	1,423,888	688,297	0	6,262,560
2000 AP	3,149,553	1,711,629 6,050,000	251,900 85,000 132,249	780,000	12,160,331
2001 AP	1,392,926	385,310	15,0316	0	1,928,552
2002 AP	1,482,000 4,400,000	301,942	824,057	0	7,007,999
2003 AP	816,000	1,578,005	166,737 60,000	0	2,620,742
2004 AP		372,144	134,370 212,200	0	718,714
2005 AP	0	660,000	183,050	0	843,050
2006 AP	3,582,000	0	45,036	0	3,627,036
Total	23,578,733	16,092,256	3,763,841	780,000	44,214,830

4. The Executive Committee of the MLF also encouraged the government of China to limit its halon 1301 production for the purpose of feedstock to the level allowed under the agreement to avoid any future unintentional consumption, which would violate the agreement with the Executive Committee and seek more effective to use more effective non-ODS chemicals if possible. The Government of China has reviewed the request and has the following comments:
   - The use of Ozone Depleting Substances as feedstock is not controlled by the Montreal Protocol and as such not by the Agreement.
   - SEPA is developing a monitoring and verification mechanism for the use of ODS as feedstock applications and the annual uses will be monitored by the Government and reported to the Ozone Secretariat as part of its annual Art 7. data reporting.
   - As the production for feedstock is not controlled by the Montreal Protocol, China does not have the legal authority to neither prevent nor limit such uses of halon as feedstock.

- It would be the responsibility of the companies to assess the feasibility and cost-effectiveness of using non-ODS substitutes. It would be up to the companies to identify alternative and more cost effective technologies and make the production changes at own cost.

5. China has informed the companies using halon 1301 as feedstock and the halon 1301 producer on the request from the Executive Committee.

6. The agreement between the Executive Committee and China includes a condition regarding expected number of CO2 fire extinguishers to be put on the market during the project as substitute for halon 1211 fire extinguishers when the project would be completed. It was agreed that "after full conversion at least 3.59 million extinguishers produced in China will, in 2005, be either CO2 extinguishers or equivalent fire extinguishers using a technology at least as expensive". Any shortcomings would evoke a penalty of US$ 3.08 per unit shortfall of CO2 or equivalent fire extinguishers. With the approval of the Accelerated Phaseout Plan, it was agreed that any penalty would be waived, but the amount could be used for the capacity building. A total of 2.255 million CO2 extinguishers were produced in 2004 and investigation on CO2 extinguisher production of 2005 is still ongoing.

7. The following provide an overview on the implementation status of the Halon Sector Plan. Detailed information on the halon 1211 program is found Part A.

8. After the approval of the China Halon Sector Strategy at the 23rd meeting of the ExCom and release of funds for the first (1998) Annual Program, China began implementation of the Halon Sector Strategy. Since the start of the program, China has developed supporting policies and regulations. Out of the initial number of 14 Halon-1211 production plants, all the 14 have been closed and dismantled their production lines completely by the end of June 2006. Only one halon 1301 producer in China continues to retain its production capacity. Actual production has consistently remained within the program limits.

9. Out of a total of 72 halon 1211 fire-fighting extinguisher manufacturers originally identified as potential beneficiaries, 14 enterprises have signed contracts to close their extinguisher production, and 47 enterprises have signed contracts to convert their manufacturing lines for fire extinguishers from halon to non-ODS fire extinguishers. All the 61 enterprises have completed their closure/conversions projects. Additional four halon 1211 fire-fighting extinguisher manufacturers operating without valid MPS licenses were identified and located in 2001. They were accordingly shut down in 2001 by administrative measure without any funding. Out of a total of 22 originally identified halon 1211 fire fighting systems manufacturers, 14 enterprises have signed contracts to convert their manufacturing of halon fire extinguishing systems from halon to non-ODS extinguishing systems; 12 of these have been completed, and the contracts for the other two were terminated by SEPA due to legal and financial issues. Based on review of the status of licensed halon 1211 fire equipment companies, it has been found that the remaining eligible 11 halon 1211 fire-fighting extinguisher manufacturers and the remaining 8 eligible halon 1211 fire extinguishing system manufacturers has either closed down or merged with other companies. When the projects for the above-mentioned halon 1211 enterprises were

completed, closed down or terminated, their halon 1211 manufacturing and sales licenses were withdrawn by MPS accordingly. As addressed in the following, halon 1301 fire fighting extinguishing system manufacturers will be addressed from 2006 and onward.

10. A total of 63 technical assistance activities have been planned as of the 2006 annual program. These TA activities include activities for strengthening implementation capacity for the Sector Plan, and preparing standards to ensure quality and reliability of halon substitute fire extinguishers and fire extinguishing systems. 44 out of 63 TA activities have been completed, 8 are ongoing and 11 cancelled of various reasons.

11. The national halon 1211 production level allowed for 2006 is 0 MT. Compared to the actual production level of 11,644 MT in 1997, the baseline year for the halon sector, a total reduction of 11,644 MT has been made. The ceiling allowed for halon 1301 production for 2006 is 100 MT, a reduction of 518 MT from 1997 baseline level of 618 MT. It is estimated that at least a total production of 55,185 tons of halon 1211 of 2,729 tons of halon 1301 have been prevented from 1998 to 2004 through the halon phase-out program. A detailed implementation status is provided in Part A.

12. Despite the higher costs of halon 1301 substitutes, the reduction in demand for halon 1301 can be assigned to the policies introduced and availability of new substitutes such as inert gases and HFC-227ea now available in China. Some of the chemical producers have invested in the development of HFC-227ea production facilities and has started production and sale of HFC-227ea. The introductions of new, but more costly substitutes, are supported by a number of TA activities and new standards and design codes.

13. As far as the other halons are concerned, halon 1202 is generated as a by-product during the production of halon 1211. According to information provided by the larger halon 1211 producers, the amount of halon 1202 generated averages between 20 and 30 kg per ton of halon 1211 produced. This halon 1202 is neither vented, nor sold, but is recycled into halon 1211 production. The ban on sales of halon 1202 in the market has been promulgated by the Ministry of Public Security (MPS) in February 1998. Based on its regulations and monitoring measures, China is confident that there is no halon 1202 sold in the market. China has never produced halon 2402, and has never had plans to do so. In accordance with national regulations, a new halon 2402 production facility would require a new production license, and such a license can no longer be obtained because of the ban on setting up new halon production facilities or expanding existing halon production facilities effective on November of 1997.

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

continue to be key elements in the halon sector plan implementation.

15. The rapid reduction of halon 1211 makes it imperative and important for fostering the supply of alternative fire extinguishing agents and fire fighting equipment in order to maintain the national fire protection and fire fighting capability. Special initiatives have been taken up to strengthen the supply of light-weight high pressure CO2 cylinders, ABC powder, and vegetable protein foam. A halon bank (Guangdong Halon Recycling Center) was established in Guangdong. Details of these initiatives are provided in Part A.

16. The production and consumption of halons in China since the start of the Halon Sector Plan is shown in Table 3 below. Consumption in this table was determined in accordance with the ExCom approval conditions as total annual production plus imports, minus exports. As indicated above, China has reported that no other halons were produced in China, including halon 1202 and halon 2402.

17. Starting from 2003 halon 1301 is also used as feedstock for producing pesticide, pesticide intermediate and pharmaceutical intermediate. As per the Montreal Protocol, controlled production of halon 1301 is defined as actual production minus amount used as feedstock. Hence, the annual production as per this agreement is defined as total annual production minus amount used as feedstock in the same year. The status of the use of halon 1301 as a feedstock has been confirmed and verified by SEPA. A total of 162.9 tons of halon 1301 were procured from ZCRI in 2004 and 277.02 tons in 2005 and used as feedstock in 2004 and 2005. The demand for halon 1301 as feedstock has increased rapidly since 2003..

18. All production and consumption data as of the year of 2005 has been verified by an annual international audit commissioned by the World Bank.

Table 3: Annual Production and Consumption of Halons under the Sector Plan (ODS MT)

	Halon 1211				Halon 1301			
	Production		Consumption		Production		Consumption	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
1997 (baseline year)	9,950	11,644	NA	10,849	618	618	NA	NA
1998	7,960	7,842	7,160	7218	618	450	300	-152 [1/]
1999	5,970	5,965	5,370	5,280	618	484	300	304
2000	3,980	3,978	3,580	3,650 [2/]	618	428	300	377 [2/]
2001	3,317	3,117	3,117	2,832	618	213	300	180
2002	2,654	2,469	2,654	2,284	600	0	150	-36
2003	1,990	1,884	1,890	1,692	600	0	150	-26
2004	1,990	1,068	1,890	833	200	22	150	-26
2005	1,990	1,276	1,890	1,046	200	165	150	131
2006	0		0		100		100	
2007	0		0		100		100	
2008	0		0		100		100	
2009	0		0		100		100	
2010	0		0		0		0	

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

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

Table 4: Halon 1301 phase-out targets under the Sector Plan

In ODS tones		2004	2005	2006	2007	2008	2009	2010
APP	Max allowable halon 1301 production	200	200	100	100	100	100	0
	Max allowable halon 1301 consumption and export	150	150	100	100	100	100	0
China Halon Sector Strategy	Halon 1301 production	600	600	150	150	150	150	0
	Halon 1301 consumption	150	150	100	100	100	100	0

Part A

Implementation Status of Previous Annual Programs

1998-2005 Annual Programs

1. ***Phaseout targets and objectives.*** As described in Table 1, production and consumption of halons has been reduced annually under the halon sector agreement. While production has consistently been retained below the agreement levels, the consumption of halons (production adjusted for net export) exceeded the targets twice (for 1998 and 2000) as exports of halons turned out to be lower than expected. This was only discovered when the final export figure became available to SEPA in the beginning of the following year. These developments were promptly reported to the ExCom, and corrective measures were taken as follows:
   (a) Reduction of excess consumption from the next year's consumption limit (for 2000);
   (b) Confiscation of excess production to not allow its consumption within the following year (described in detail in the 2001 annual program); and
   (c) Strengthening the controls on the national consumption target from 2001 onwards by limiting the initial total national production quota to the consumption target for the year. Any additional production quota (for export) can only be requested retroactively, so that an enterprise requesting such additional quota would have to provide documentation to prove that the export has already taken place.

2. The consumption data for 2001, 2002, 2003, 2004 and 2005 confirms the effectiveness of this arrangement.

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

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

5. There is also a ban on production and sale of halon and/or halon-containing products to enterprises that have been funded and completed projects under previous annual

programs. When the conversion is completed and the project is commissioned by MPS and SEPA, the license to produce and sell halon fire extinguishers and systems are withdrawn.

6. In order to support the implementation of the halon phaseout, revision of existing and development of new standards for substitute technologies played a very important role. Standards were developed as a substantial part of the technical assistance program. The table below gives an overview over the standards and design codes revised and new developed to facilitate halon phaseout.

7. The two main institutes for development of standards and testing are Shanghai Fire Research Institute and Tianjin Fire Research Institute. The Shanghai main working area is testing of fire extinguishers and Tianjin Fire Research Institute expertise is in fire extinguishing agents and fire fighting systems. Both Institutes are semi-governmental institute under Ministry of Public Security

Table 5: Testing, component and design standards developed under the program

	New standards		Revision of	
Number of standards developed/revised	Developed	Issued by MPS,MC and/or GAQSIQ*	Revision completed	Issued by MPS, MC and/or GAQSIQ
15	12 (3 not yet completed)	10	3	3

GAQSIQ: General Administration of Quality Supervision, Inspection and Quarantine
MC: Ministry of Construction P.R. China

8. The development of revisions of existing and development of new standards and design standards include laboratory and testing work to evaluate new alternatives, evaluate testing methods to ensure repeatability, accuracy etc. A technical group is established to follow the work and review the technical reports and draft standards. When the draft standard method is ready, it is submitted to the National Standard Committee who conducts a final review and adopts the proposed standard as a national standard. Annex V include the name and standard number of the national standards developed and issued. When the work is completed, the contractor for the TA submit the draft standards, a report on the work carried out and a PCR to the Halon Team at SEPA who commission and accept the project and the completion report.

Enterprise-level phaseout activities

9. ***Closure of 1211 halon production facilities.*** The halon 1211 reached its maximum production level in 1997 with a production of 11,644 MT (34,932 ODP tons). By December 2005, all the halon 1211 production facilities listed in the Halon Sector Plan have been closed down and dismantled at a cost of close to US$ 20 million.

10. The selection of halon 1211 producers for quota reduction and closure contracts were in the first couple of years of the program based on bidding where the producers offering the lowest halon production phaseout cost per tons would be the winners. When only a few producers were left, nobody was willing to reduce or stop the halon production and reduction and quota reduction contracts were based on prorated production reduction contract dictated by SEPA as mandated by the quota regulation system.

11. Full closure contracts were signed with bid winning halon producers in various annual programs. Their production facilities were dismantled and halon-producing equipment was completely dismantled and disposed. Partial closure contracts (quota reduction contracts) were also signed with some bid winners and their production quota, and in some cases, capacity was reduced accordingly. Details by year are provided in Annex II.

12. In order to ensure substitute fire extinguishing agents for halon 1211, projects for setting up additional ABC powder production capacity (HAL-99-SI-01) at one of the previous halon 1211 producers and AFFF production capacity (HAL-02-SI-03) at a producer with domestic developed foam technology are established. For further details, see the section on special initiatives.

13. ***Closure and conversion of halon 1211 fire equipment manufacturers.*** China has conducted an assessment of the number of contracts that have already been signed in the first three years for closure and conversion of equipment manufacturers to review whether the pace of conversion is appropriate, given the projected availability of halon 1211 in the next three years. This assessment has been concluded. The contracts were signed under each annual program with fire extinguisher and fire extinguishing system manufacturers for reducing halon 1211 consumption to match the declining supply of halon 1211. Of the 72 halon fire extinguisher manufacturers and 22 halon 1211 system manufacturers with production license from Ministry of Public Security, 61 extinguisher and 14 system manufacturers were funded under the Sector Plan. In addition to the 72 companies, four fire extinguisher manufactures were found producing based on licenses from the provincial government. Their licenses were withdrawn and the companies changed to other substitutes at their own cost. Some of the extinguisher manufacturers selected closure and the other selected conversion. 61 extinguisher manufacture closure and conversion activities have been completed on schedule and were commissioned by SEPA and MPS. Details are provided in Annex III.

Table 6: Conversion of the fire protection industry to change away from the manufacturing of halon 1211 fire equipment.

Total # of companies	Funded under the Halon Sector Plan			Closed/converted without funding
	Subtotal	Closure	Conversion	
76 Fire extinguisher manufacturers	61	14	47	15
22 halon 1211 fire extinguishing system manufacturers	14	0	14	8

14. Supply of CO2 cylinders for CO2 fire extinguishers turned out to be a challenge. The quality of CO2 cylinders produced by small fire extinguishing companies did not meet the national and international standard for high pressure cylinders. In addition, the cost of setting up production CO2 cylinder production lines by smaller fire equipment companies would be too high and not be financial viable. In order to overcome the problem, China decided to support the set up a production facility for light weight high pressure CO2 cylinder production facility (HAL-00-SI-04) and to support some of the larger producers of CO2 cylinders and fire extinguishers (HAL-05-SI-03). The use of light weight cylinders are now rapidly increasing. The activities are described in the section on special initiatives.

Technical assistance (TA) activities

15. All activities under TA projects of 1998 to 2005 have been completed except two in 2002, two in 2003, two in 2004 and one in 2005, which are still ongoing. Details of all these activities are in Annex V (A-E).

Halon Recycling and Banking

16. Both due to the significant amount of halon 1211 stored in millions of halon 1211 fire extinguishers and the stop of halon 1211 production, halon recovery and recycling will be an important issue during the coming years. Based on the last 9 year of halon 1211 domestic consumption, a total of about 35,000 MT has been put into the market. The total amount of halon 1211 stored in fire extinguishers and systems might be significant. The Chinese sector standard for halon 1211 fire extinguisher requires that ten year old extinguisher should be retired from the market. Hence significant number of halon fire extinguishers will be retired over the coming years and large amount of halon 1211 will have to be recovered in order to avoid venting.

17. A number of studies and demonstration projects have been carried out in order to address the issue of collection and recycling of halons:
    a. Halon Overall Management Plan and Banking study carried out in 1998-2000 estimated the amount of halon 1211 available for recycling and how to organize on a national scale. (HAL-98-TA-6)
    b. Development of disposal standard for disposal of halon 1211 fire extinguishers (HAL-99-TA-6)
    c. Demonstration projects in provinces and municipalities of Liaoning, Guangdong, Beijing and Shanghai, (HAL-98-TA-5, HAL-98-TA-8, HAL-99-TA-8, HAL-02-TA-8)
    d. A halon recycling center was established in Guangdong province. (HAL-99-TA-9 and Special initiative HAL-00-SI-03).

18. Halon recovery and recycling are seen as one of the key elements of successful implementation of the Halon Sector Plan and eliminating the production of halon 1211. The Sector Plan stipulated setting up of provincial and regional collection centers for halon extinguishers and regional halon 1211 recycling centers. As part of the 1998 Annual Program, as study on a proposal for an overall halon management plan were

initiated and carried out by Shanghai Fire Research Institute. A final plan was developed and submitted to the SEPA and MPS. The Plan included setting up collection centers and recycling facilities and were presented and discussed with the HTOC at a workshop in Beijing in November 1999.

19. Four demonstration projects were initiated from 1998 to 2004. Two in the cities of Beijing and Shanghai and two in the provinces of Liaoning and Guangdong. Among these projects various activities were carried out such as survey for halon extinguisher and system production and applications, development and issue of local policy and regulation for production, sale, maintenance and management of halon products, use of various means to publicize the knowledge of ozone protection to promote public awareness, establishment of a monopoly on sales and maintenance of halon fire equipment. Through above activities, halon phaseout work in these provinces and cities was greatly promoted.

20. ***Establishment of Guangdong Halon Recycling Center.*** The Panyu Shengjie Fire-fighting Equipment Co., Ltd. was selected as the beneficiary to set up a halon recycling center for Guangdong Halon Bank with an annual recycling capacity as 500 MT. The center is able to recycle both halon 1211 and halon 1301The grant contract was signed in August 2000 and the project has been completed and commissioned in July 2004. The halon Recycling Center started operation and recycled small quantities of halon 1211.

21. Unfortunately, it was found that the halon 1211 in some extinguishers was mixed with other chemicals. As the recycling equipment can only remove water contents and particles, but not separate halon from other chemicals, the operation stopped. The recycling center is now adding a distillation column to its facility so that it can separate contaminates from halon 1211. It is expected that the halon recycling center will be operational after the distillation column was added.

22. Halon 1211 is now in shortage in other part of the world and Chinese recycled/reclaimed halon 1211 could be the main source for the foreseeable future. It seems therefore that the halon 1211 recycling center could be commercial viable. The recycling center will set up a website through which the international buyers can reach it. The halon recycling center will be in normal operation in 2007.

23. MPS and SEPA are presently reviewing the halon management plan developed in 1998 to 2000 and updating them in order to avoid unnecessary venting of halon 1211. China will ensure that halon 1211 is recovered and reused in essential places or stored for future uses through strict monitoring. The possibility for converting surplus halon 1211 into other useful chemicals is under consideration.

Special Initiatives

24. Another main objective of the Halon Sector Plan is to ensure that the level of fire protection capability in China is not compromised as a result of halon phaseout activities, and that adequate quantities of suitable quality substitutes are available. Special initiatives have been implemented under various annual programs to achieve this

objective. The special initiatives undertaken so far are summarized in Annex VI and described below. In addition, some fire equipment companies and chemical producers have at own costs introduced new halon substitutes for both halon 1211 and halon 1301 into the Chinese market.

25. ***ABC dry chemical powder.*** To maintain the required level of fire fighting capacity in China and promote the use of ABC powder, the Foshan Electro-chemical General Plant was selected to establish an ABC dry powder production line with an annual capacity of 3000 MT. The grant contract was signed in May 1999 and the project has been completed and commissioned in November 2001. Commercial production has already started, and the production of ABC powder was 1544.75 MT in 2002, 3013.9 MT in 2003 and 3406.85MT in 2004. Foshan Electro-chemical General Plant expanded the capacity from 3000mt/y to 10,000mt/y using their owe money in 2004.

26. ***Light weight high pressure CO_2 cylinders.*** Weifang Dongming Fire-fighting Equipment Co., Ltd. was selected as the beneficiary for producing light weight CO_2 cylinders with a capacity of 600,000 units per year. The contract was signed in November 2000, completed at the beginning of 2004, and commissioned by SEPA in September 2004. The commercial production started in 2004. The production of cylinder for CO2 fire extinguishers was 379,051 units in 2005.

27. ***Halon banking (Establishment of Guangdong Halon Recycling Center)***. The Panyu Shengjie Fire-fighting Equipment Co., Ltd. was selected as the beneficiary to set up a halon recycling center for the Guangdong Halon Bank with an annual recycling capacity of 500 MT. The grant contract was signed in August 2000, and completed and commissioned in July 2004.

28. Establishing the laboratory for plant-protein based foam. The Dalian Honsen Hi-tech Co. Ltd. was selected as the beneficiary to establish a test laboratory for plant-protein-based foam. The contract was signed in August 31, 2000. The project has been completed & commissioned in October 2002.

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

30. ***Development of 3,600 MT plant-protein foam fire fighting agent production line.*** Dalian Honsen Hi-tech Co., Ltd. was selected as the beneficiary to set up the production line of 3,600 MT/y Honsen L119 plant-protein based foam. The contract was signed in October 2003. While the overall designed plant capacity is larger at 10,000 MT, the special initiative will only support this limited capacity in keeping with the requirement in the agreement between China and the Excom " China understands, consistent with Executive Committee rules, that it has a responsibility to ensure that it will not use Fund resources to build aggregate capacity for the production of substitute chemicals or substitute extinguishers that exceeds that capacity (for Halon 1211, 17,800 tons; for Halon 1301, 1000 tons; and for halon fire extinguisher production capacity of 7.71 million units." They

have finished the installation of equipment in August, 2006. The pilot production is expected to start by the end of September, 2006 in Dalian.

31. ***Survey for CO_2 extinguisher production.*** A new special initiative project was added into the 2003 annual program. This project focused on obtaining the information of exact production capacity and sales of CO_2 extinguisher and other extinguishers with clean fire extinguishing agent in China during 1998-2002. Shanghai Fire Research Institute finished the survey in September 2003. The project was commissioned in May, 2005.

32. ***Establishment of a national/trade standard of hexafluorapane extinguishing agent and its testing methodology.*** This project aims to establish a national/trade standard of HFC-236fa extinguishing agents and establish testing method of HFC-236fa extinguishing agents. The TOR of the project has been agreed by World Bank. The bidding was finished and the evaluation report was submitted to WB in Aug. 2004. Tianjin Fire Research Institute has been selected to carry out the project. The contract was signed in August 2005. The draft standard has been circulated for comments and the project is expected to be completed in 2007.

33. ***Development of Hexafluoropropane Fire Extinguishers.*** Hexafluoropropane (HFC-236fa) is a halon 1211 substitute, it has a good fire extinguishing performance, its ODP is 0 and it is already marketed internationally by abroad companies. This project aims to develop a portable Hexafluoropropane fire extinguishers as one of halon substitutes and to give out the parameters such as the kind and mass or pressure of propellant, fill density, designing data of the cylinder, operating temperature rages, effective discharge time, bulk range and class of fire. The TOR of the project has been agreed by the World Bank. The bidding process was finished and the evaluation report was submitted to WB in Aug. 2004. Shanghai Fire Research Institute has been selected to carry out the project. The contract was signed in August 2005.The project is going on.

34. ***Expansion of the production of CO2 extinguisher.*** In order to encourage the extinguisher producers to produce clean extinguishers to replace Halon extinguishers, SEPA will use some of the funds from the Halon sector plan to encourage the CO2 extinguisher producers to expand their capacity of CO2 extinguisher production. Contracts have been signed with three CO2 fire extinguisher manufactures. This activity is based on the survey of CO2 extinguishing producers conducted in 2003.

35. The implementation status of the special initiative projects are summarized in Annex VI.

2006 Annual Program

36. ***Phaseout targets and objectives.*** The phaseout target is (see Annex I) to reduce halon 1211 production and consumption to 0 MT; to maintain halon 1301 production and consumption to a maximum of 100 MT as per the revised APP phase-out schedule. Production quotas have been issued consistent with these ceilings.

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

Enterprise-level phaseout activities

38. ***Closure of halon production.*** Two complete closure contracts were signed with the remaining two halon 1211 producers and one quota reduction contract was signed with the halon 1301 producer. The national targets for halon production level in 2006 are in Annex II.

39. ***Closure & conversion of halon 1301 system manufacturers.*** China has conducted a survey on the halon 1301 consumption amount by all the remaining halon 1301 fire fighting system manufacturers. The survey shows that out of 22 halon 1301 system manufacturers in the halon sector plan with production license from MPS, there are only 12 left. A training workshop for halon 1301 fire fighting system manufacturers was held in September 2006. Contracts for 2006 AP will be signed by the end of October 2006.

Technical assistance activities

40. ***Training of Personnel Involved in Phaseout Activities*** 2005 halon performance Audit training was carried out in March 15-16, 2006. Enterprise training was held in September 2006.

41. ***Performance Audit for 2005 Annual Program*** As in previous years, CNAO conducts a performance audit for halon sector plan activities in 2005 to ensure the effective implementation of the annual program. The audit has been completed.

42. ***Investigation and Verification on feedstock application of halon 1301.*** A new TA project was added into the 2006 annual program. This project focused on two points. The first one is to verify that the related enterprises do have the facilities which use halon 1301 as feedstock. The second one is to investigate and verify through site inspection the use of halon 1301 as feedstock in terms of products, production capacity, halon 1301 used in 2005 and first six months of 2006. Based on the preliminary work carried out, it seems

possible to establish a reasonable ratio between halon 1301 use as feedstock and the products produced.

43. To meet the need of halon phaseout in China, based on MPS proposal, following TA projects will be added in 2006 AP:

44. ***Study on Testing technology and testing equipment for superfine dry powder extinguishing agent.*** Superfine dry powder extinguishing agent is a new and efficient solid extinguishing agent, which was developed in recent years. The agent can extinguish A, B and C class fires with more efficiency and has no impact on atmospheric Ozone. It is one of the ideal halon alternative agents. The standard GA578-2005 Superfine Dry Powder Extinguishing Agent has been issued in 2005. Since the establishment of testing technology and testing equipment plays an important role on implementing standards effectively, the project shall focus on studying testing technology and testing equipment for superfine dry powder extinguishing agent to implement the standard better and ensure the product quality. The project is to establish a testing technology and testing equipment.

45. ***Requirements and approval procedure for installation of gaseous extinguishing system (fire product type approval standard for gaseous systems).*** This project supports a study on the market admittance standard for halon alternative gaseous extinguishing systems. The work includes relevant product standard, design code, approval procedures for newly installed systems, inspection procedures for installed systems as well as requirement for the enterprise quality control.

46. ***Study on the condition evaluation method and the requirement of disposal technology for halon system*** In application field some halon 1211 and halon 1301 systems are in poor maintenance condition and with potential serious safety problems. According to relevant safety codes and product quality standard, the project is to study the condition of existing halon system (including alarm and control system combined), develop the condition evaluation standard and the requirement for mandatory disposal, and the disposal technology requirement for cylinder, middle or high pressure valves and halon agents.

47. The implementation statuses of 2006 technical assistant projects are summarized in Annex VII.

Halon Recycling and Banking

48. During the implementation period from 1998 to 2005, China mainly focused on the phaseout activities of halon production/consumption and related activities. With the reduction of halon 1211 production to 0 and halon 1301 production to only 100mt by Jan. 1, 2006, starting from 2006, halon recycling and banking has become the most important issue of successful implementation of the Halon Sector Plan.

49. SEPA and MPS discussed formally the halon banking issue during the first half of 2006. Two decisions were made after discussion: one is to start-up operation of halon bank Guangdong branch as soon as possible, the other one is to update the overall plan for

China halon banking and management.

50. ***Operation of Halon Bank Guangdong Branch.*** The draft new TOR is finished and now is under review of SEPA and MPS. With the approval of SEPA and MPS, the TOR will be provided to the Bank for review. The main outputs of the activities are as follows:
    a) Establishing organization structure of the branch and start-up operation.
    b) Establishing the MIS system for halon recycling and refilling at branch level.
    c) Monitoring and supporting the set up of distillation section for contaminated recycled halon so that the recycled halon can meet the national standard..
    d) Issuing local necessary policies on halon recycling and refilling.
    e) Compiling management and operational plan for halon recycling and refilling.
    f) Establishing local certificate system, including certificate for recycled halon, collecting station, etc.
    g) Set up a couple of collecting stations basing on actual situation.
    h) Related training and propaganda through various media. Share experiences and lessons with other branches.

51. Overall Plan for China Halon Banking. The draft Plan is under reviewing of SEPA and MPS. A workshop is planned to discuss and evaluate the feasibility of the Plan. Participants for the workshop will include person from SEPA, MPS, China Certification Center for Fire Products, related fire institutes, consultants etc. The main contents of the Overall Plan including the following:

a) Policies needed for halon recycling, refilling and reuse.
b) Establishing certificate system, including certificate and labeling on recycled halon, certificate on qualification of recycling center and maintenance & refilling center.
c) Establishing China halon banking, including central bank, branches, recycling centers and collecting stations.
d) Establishing MIS system for halon recycling and reclaiming management at national level.

PART B

2007 ANNUAL PROGRAM

Objectives

1. The phaseout target for the 2007 annual program is (a) to remain halon 1211 production and consumption as 0 MT and (b) to remain halon 1301 production and consumption at a maximum of 100 MT. The 2007 program will also continue actions to ensure that the fire fighting capacity is not undermined as the result of an insufficient supply of substitutes of satisfactory quality.

2. China is requesting the release of the approved amount of US$ 0.4 million for the 2007 annual program as agreed in the overall Halon Sector Phaseout Plan. To achieve these goals, the following activity is envisioned:

a. US$0.4 million to be used for technical assistance activities in order to support the halon phaseout program and ensure that existing fire protection requirements can be met.

3. Additional activities might be added and funded through unallocated balance from 2006 annual program.

Policy instruments during the year

4. ***Policies to be continued.*** In 2007, the following policies and measures will continue to be implemented by the Government. These policies are considered necessary for the success of a total halon phaseout in China.

5. ***A new ODS regulation*** "ODS management regulation" has been under development since 2004. After several discussions and revisions through workshops with related departments, authorities of legal system and other stakeholders, the first draft of the National ODS Regulation was finalized in March 2006 and then was circulated among national ministries and local authorities for comments. This draft consists of six chapters covering the management and monitoring of ODS production, consumption, use, sale, import and export and the related legal liabilities. By July 2006, the first round of collecting comments and opinions has been completed. The draft has been revised in August 2006 and will be submitted to the meeting of the ministers of SEPA for review. Then, the draft will be submitted to the Regulation Department of the State Council for further review. At the same time, a hearing of witnesses will be conducted. After the review of the Regulation Department, the draft will be submitted to the meeting of the State Council for final approval. It is foreseen that this Regulation would be issued in 2007 and serve as a solid legal basis for sustainable ODS phase-out.

6. ***Other policy action taken are:***

a. Production quota license system -- The system will be continuously implemented in 2007 to ensure halon production below agreed annual ceiling amount.
b. The ban on new installations of halon extinguishers for non-essential uses and a

gradual tightening of the definition of essential uses will continue.

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

a. SEPA/MPS will disseminate details of the ban to all prospective consumers through various channels (news media, bulletins, propaganda, etc.);
b. Local fire bureaus and environmental protection bureaus will jointly inspect consumers on a regular basis. If any consumer is found to use the newly-installed halon fire extinguishers in non-essential areas, the consumer will be required to change to non-halon systems within a defined time.
c. Joint inspection teams of the local fire bureaus and environmental protection bureaus will be required to submit regular reports to MPS and SEPA about the situation and measures in implementation of the ban.
d. Stricter control the sales of halon will be enforced by making use of the output of projects for four demonstration centers (that is Beijing, Shanghai, Guangdong province and Liaoning province) and replicating the experience to other provinces in order to reach phaseout goals.

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

9. China plans to issue policies needed for halon recycling, refilling and reuse.

10. China plans to establish certificate system, including certificate and labeling of recycled halon, certificate on qualification of recycling center and maintenance & refilling station.

Enterprise-level activities

11. ***Closure & conversion of halon 1301 system manufacturers.*** Any 1301 fire fighting system manufacturers which have not signed the conversion contracts in 2006 could apply for funds and sign phaseout contracts in 2007. The consumption phaseout activities will be on going and completed by the end of 2009.

Technical assistance (TA) activities

12. ***Study on the test method and equipment for water mist fire extinguishing system and its components*** Water mist fire extinguishing is one of halon replacement fire extinguishing systems, and its components quality is directly associated with the effect of fire extinguishing systems. In response to the implementation of *General technical specifications for components of water mist fire extinguishing system*, testing technique of components of water mist fire extinguishing system and testing equipment of are established, components of water mist fire extinguishing system for fire models on different fire scene to ensure the scientific and effective implementation of national standards.

13. ***Establishment of China engineering construction standard (national recommended***

standard):Technical regulations for HFC-23 Fire Extinguishing system HFC-23 fire extinguishing system is one of halon alternative fire extinguishing system, and is widely used in many places. The project will study and establish China Association for Engineering Construction Standardization *Technical Regulations for HFC-23 fire extinguishing system,* to decrease fire risks and protect life and property safety.

14. ***Establishment of China Engineering Construction Standard (National Recommended Standard): Regulations for Design Construction and Acceptance of Dry powder fire Extinguishing Equipment*** Dry powder extinguishing agent is one of accepted halon replacement agents, and is used in specific extinguishing systems or equipments. GA602-2006 *Dry powder fire extinguishing equipments* has been issued and implemented, in response to the implementation of the standard, this project will establish of CECS to standard and guide the use of dry-powder fire extinguishing equipments.

15. ***The integrated control technology for automatic fire detection system and halon alternative system.*** In actual engineering application the intergraded control between halon alternative systems and automatic fire detection systems does not work well in China. It is necessary to study the integrated control technology for various halon alternatives and automatic fire detection systems combined. The aim is to develop relevant engineering technical code for such product, provide technical references engineering design, construction and daily monitor and management.

16. ***Training of Personnel Involved in Phaseout Activities*** As in the previous year, it is considered necessary to train staff of local environmental protection bureaus, local fire fighting bureaus and halon enterprises in order to implement the phaseout plan effectively. Training will be also conducted to the enterprises to learn halon phaseout approach and take part in related phaseout activities. In addition, as the sector approach requires financial and performance audits, training has to be provided for audit agencies on the sector approach and the annual plan. Training workshops for the implementation of the ban on halon extinguisher uses in non-essential areas for local fire fighting bureaus are planned and will be held to maintain halon consumption phaseout achievements.

17. ***Performance Audit for 2006 Annual Program.*** As in previous years, CNAO will conduct a performance audit for sector plan activities in 2006 to ensure the effective implementation of the annual program.

18. Additional TA activities might be added during the year as needed.

Halon recycling and banking

19. In order to support the halon recycling and banking activities and prevent unnecessary emission of halon 1211, China plans to take the following actions:

a) Start-up operation of halon bank Guangdong branch and start to establish the National Halon Bank in China to initiate halon recycle action nation wide. Some of the unallocated funds from 2006 annual program will be allocated to

the activities in accordance with the Bank's operational procedures.

b) With the experiences from Guangdong branch operation, other new branches will be established based on the experiences and lessons learned.

c) Halon 1211 fire extinguishers from non essential applications and more than 10 years old halon1211 fire extinguishers will be continue to be collected by recycling stations. In order to prevent leakage, halon 1211 from such obsolete fire extinguishers will be recovered and safely stored for essential uses as per Chinese criteria.

d) One of the achievements from demonstration projects in 12 provinces and cities is that several thousand halon extinguishers have been collected. The halon banking will recover halon 1211 from the collected extinguishers.

Table BI. 2007 Annual Program

Halon phaseout targets & policy instruments				
	Start of program (MT)	End of program (MT)	Key Actions Required	Key Dates
Halon 1211 Production ceiling	0	0	1.TA activities to support introduction of substitutes and alternatives to help phaseout	1. Jan-Dec. 2007
Export				
Consumption ceiling	0	0	1. Financial support for introduction of substitutes and alternatives 2. TA activities	1. Jan-Dec. 2007
Halon 1301 Production ceiling	100	100	1. Production quota and TA activities to support introduction of substitutes.	1. Jan-Dec. 2007
Export	20	20		
Consumption ceiling	100	100	1. Conversion of halon 1301 system to non-halon system 2.Financial assistance to fire system manufacturers and TA activities to support introduction of alternatives.	1. Jan-Dec. 2007

Continuation of policy instruments		
Policy Instruments	Actions Required	Key Dates
1. Production quota license system	1. Reduction production contracts will be signed. 2. Annual production quota issued to the one halon 1301 producer. 3. Production reporting by producer and monitored by SEPA.	1. By end of 2006 2. First quarter of 2007 3. Through 2007
2. The ban on halon extinguisher uses in non-essential areas	1. Promotional campaign on the ban, through various channels. 2. Joint supervision of ban by local Fire Fighting Bureaus and Environmental Protection Bureaus.	1. Through 2007 2. Through 2007

Enterprise-level Activities						
	Funding Requested (US$ mill)	# of existing enterprises	# of enterprise targeted	# of enterprises at end of 2007	Key Actions Required	Key Dates
1. Reduction of halon 1301 production	0	1	0	1		
2. Closure/Conversion of halon 1301 system manufacturers	Funding from unallocated of 2006 AP	12	5-9	3-7		1. Contracts to be signed in 2006 2. Completed in 24 months

Table BII: 2007 Annual Program-Technical Assistance Activities

TECHNICAL ASSISTANCE ACTIVITIES			
Activities	MLF funding requested (US$ million)	Actions Required	Key Dates
1. Study on the test method and equipment for water mist fire extinguishing system and its components	0.15	Selection of qualified institutions to carry out the project	1. Contract signed no later than 3Q 2007. 2. Finish work within 18 months after signing contract
2. Establishment of China engineering construction standard (national recommended standard):Technical regulations for HFC-23 Fire Extinguishing system	0.05	Selection of qualified institutions to carry out the project	1. Contract signed no later than 3Q 2007. 2. Finish work within 18 months after signing contract
3. Establishment of China Engineering Construction Standard (National Recommended Standard): Regulations for Design Construction and Acceptance of Dry powder fire Extinguishing Equipment	0.05	Selection of qualified institutions to carry out the project	1. Contract signed no later than 3Q 2007. 2. Finish work within 18 months after signing contract
4. The integrated control technology for automatic fire detection system and halon alternative system	0.05 (Funding from unallocated of 2006 AP)	Selection of qualified institutions to carry out the project	1. Contract signed no later than 3Q 2007. 2. Finish work within 24 months after signing contract
5. Training	0.08	Training workshops will be carried out	Training will be carried out through the 2007.
6. Performance Audit for 2006 Halon sector performance	0.07	Training of the performance auditors from CNAO and conduct the audits.	1. Contract signed by March 2007. 2. Complete by end of June 2007
TOTAL	**$0.4 million**		

Table BIII: 2007 Annual Program - Proposed Performance Indicators

Halon Phaseout Targets			
Halon sector	Start of program (MT)	End of program (MT)	Performance Indicators
Halon 1211 Production ceiling	0	0	• Production levels (national aggregate halon 1211)
Exports			
Consumption ceiling	0	0	• Consumption levels (national halon production plus import minus export)
Halon 1301 Production ceiling	100	100	• Production levels (national aggregate halon 1301 production)
Exports	20	20	
Consumption ceiling	100	100	• Consumption levels (production plus imports minus exports)

Continuation of Policy Instruments	
Initiatives	Performance Indicators
Bidding system for TA projects	
The ban on halon extinguisher uses in non-essential areas	Training workshops conducted throughout the year in key provinces

Enterprise-level activities				
Activities	Funding requested (US$ mill)	Existing Enterprises	# of enterprises at end of 2007	Performance Indicators
Reduced Halon 1211 production	0	0	0	
Reduction of halon 1301 production	0	1	1	
Conversion of halon 1301 fire extinguishing system manufacturers	Funding from unallocated of 2006 AP)	12	5-9	

Table BIII: 2007 Annual Program - Proposed Performance Indicators (Contd.)

Technical assistance activities		
Activities	Amount in US$ million	Performance Indicators
1. Study on the test method and equipment for water mist fire extinguishing system and its components	0.15	1. Contract signed no later than 3Q 2007. 2. Finish work within 18 months after signing contract
2.Establishment of China engineering construction standard (national recommended standard):Technical regulations for HFC-23 Fire Extinguishing system	0.05	1. Contract signed no later than 3Q 2007. 2. Finish work within 18 months after signing contract
3. Establishment of China Engineering Construction Standard (National Recommended Standard): Regulations for Design Construction and Acceptance of Dry powder fire Extinguishing Equipment	0.05	1. Contract signed no later than 3Q 2007. 2. Finish work within 18 months after signing contract
4. The integrated control technology for automatic fire detection system and halon alternative system	0.05 (Funding from unallocated of 2006 AP)	1. Contract signed no later than 3Q 2007. 2. Finish work within 24 months after signing contract
5. Training	0.08	Audit training and enterprise training in 2007
6. Audit for 2006 Halon Sector Performance	0.07	Complete by end of June 2007
TOTAL for Phaseout Activities	**$0.4million**	

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

CHINA															
Halon Sector Phaseout Action Plan, January 1,1998 to January 1,2010															
		First Stage			**Second Stage**					**Third Stage**					**Total Funding Request**
Year	Base line production	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Halon 1211 (MT)															
Production target	9,950	7,960	5,970	3,980	3,317	2,654	1,990	1,990	1,990	0	0	0	0	0	
o.w. Export		800	600	400	200	0	100	100	0	0	0	0	0	0	
Import		0	0	0	0	0	0	0	0	0	0	0	0	0	
Domestic Consumption		7,160	5,370	3,580	3,117	2,654	1,890	1,890	1,890	0	0	0	0	0	
Production phaseout target		1,990	1,990	1,990	663	663	664	0	0	1,990	0	0	0	0	
Consumption phaseout target		1,790	1,790	1790	463	463	764	0	0	1,990	0	0	0	0	
Halon 1301 (MT)															
Production target[3/]	618	618	618	618	618	600	600	200	200	100	100	100	100	0	
o.w. Export		318	318	318	318	450	450	50	50	20	20	10	10	0	
Import		0	0	0	0	0	0	0	0	0	0	0	0	0	
Domestic Consumption		300	300	300	300	150	150	150	150	100	100	100	100	0	
Production phaseout target		0	0	0	0	150	0	400	0	100	0	0	0	100	
Consumption phaseout target		0	0	0	0	150	0	0	0	50	0	0	0	100	
Required funding from MLF ($'000)		12400	9700	10600	4500	3700	5900	1200	1800	11400	400	300	100		62000

ANNEX II
Closures of halon production

A. 1998 Annual Program

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

Name of plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1.Zhedong No.1 Chemical Plant	347	January 1, 1998	Project completed. Equipment dismantled completely	Plant closure
2.Zhejiang Dongyang No.2 Chemical Plant	1,004	January 1, 1998	Project completed Equipment dismantled completely	Plant closure
3.Zhejiang Xiaoshan Fire-fighting Chemical Plant	387	January 1, 1998	Project completed Equipment for one production plant dismantled completely	Partial closure.
4.Foshan Electro-Chemical General Plant	300	January 1, 1998	Project completed.	Partial closure.
Total	**2,038**			

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

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

B. 1999 Annual Program

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

C. 2000 Annual Program

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

D. 2001 Annual Program

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

E. 2002 Annual Program

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

F. 2003 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1. Zhejiang Dongyang Chemical Plant	240	January 1, 2003	Production based on the reduced production quota.	Quota reduction
2.Shandong Haihua Group Shouguang Fire-fighting Chemical Plant	240	January 1, 2003	Production based on the reduced production quota.	Quota reduction
Total	**480**			

G. 2004 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1.Zhejiang chemical research institute	400 (halon 1301)	January 1, 2004	Production based on the reduced halon 1301 production quota.	Quota reduction

H. 2006 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1. Zhejiang Dongyang Chemical Plant	1320	January 1, 2006	Project completed and equipment dismantled completely	Plant closure.
2.Shandong Haihua Group Shouguang Fire-fighting Chemical Plant	670	January 1, 2006	Project completed and equipment dismantled completely	Plant closure.
Total	**1990**			
1.Zhejiang chemical research institute	100 (halon 1301)	January 1, 2006	Production based on the reduced halon 1301 production quota.	Quota reduction

ANNEX III
Phaseout Activities of Halon Extinguisher Manufacturers

A. 1998 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date#	Remarks
1.Zhejiang Xiangshan No.1 Fire-fighting Equipment Plant	1998.03.14	223.0	Project completed and commissioned.	1999.12.21	Closure
2.Zhejiang Yiwu Fire-fighting Extinguisher Plant	1998.03.14	162.2	Project completed and commissioned.	1999.06.24	Closure
3.Changzhou Fire-fighting Equipment Plant	1998.03.14	47.5	Project completed and Commissioned	1999.12.26	Conversion
4.Dalian Jinzhou Fire-fighting Equipment Plant	1998.03.14	105.7	Project completed and Commissioned	2000.01.05	Conversion
5.Guangxi Wuzhou Fire-fighting Equipment Plant	1998.03.14	52.4	Project completed and Commissioned	2000.01.06	Conversion
6.Guangzhou Zhujiang Fire-fighting Equipment Plant	1998.03.14	138.4	Project completed and Commissioned	2000.01.04	Conversion
7.Jiangxi No.1 Fire-fighting Equipment Plant	1998.03.14	220.8	Project completed and Commissioned	2000.01.07	Conversion
8.Nanjing Heli Fire-fighting Equipment Plant	1998.03.14	146.4	Project completed and Commissioned	1999.12.27	Conversion
9.Ningxia Yongning Fire-fighting Equipment Plant	1998.03.14	23.0	Project completed and Commissioned	2000.01.08	Conversion
10.Panyu Shengjie Fire-fighting Equipment Plant	1998.03.14	435.1	Project completed and Commissioned	2000.01.05	Conversion
11.Shanghai Haishen Fire-fighting Equipment Plant	1998.03.14	149.6	Project completed and Commissioned	1999.12.23	Conversion
12.Shanghai Punan Fire-fighting Equipment Plant	1998.03.14	268.4	Project completed and Commissioned	1999.12.24	Conversion
13.Shanghai Qingpu Fire-fighting Equipment Plant	1998.03.14	169.9	Project completed and Commissioned	1999.12.25	Conversion
14.Shenyang Fire-fighting Equipment Plant	1998.03.14	153.7	Project completed and Commissioned	2000.01.07	Conversion
15.Xiangshan Fire-fighting Equipment Plant	1998.03.14	270.6	Project completed and Commissioned	1999.12.23	Conversion
Total (Average halon 1211 consumption 1995 to1997):		**2,566.7**			

#: **Completion date** means the date of commissioning the project by SEPA.

B. 1999 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Zhejiang Dongyang Fire-fighting Equipment Plant	1999.03.16	131.88	Project complete and commissioned.	1999.12.24	Closure
2.Shanghai Global Fire-fighting Extinguisher Plant	1999.03.16	32.66	Project complete and commissioned.	1999.12.22	Closure
3.Helongjiang Fire-fighting Equipment Plant	1999.03.16	23.4	Project completed and commissioned.	2001.03.23	Conversion
4.Guangzhou Fire-fighting	1999.03.16	83.431	Project completed and	2001.04.18	Conversion

Equipment Plant			commissioned.		
5.Jiangsu Taixin Fire-fighting Equipment Plant	1999.03.16	336.6	Project completed and commissioned.	2001.03.01	Conversion
6.Chongqing Zhendan Fire-fighting Equipment Plant	1999.03.16	60.77	Project completed and commissioned.	2001.03.12	Conversion
7.Heilongjiang Shangzhi Fire-fighting Equipment Plant	1999.03.16	78.4	Project completed and commissioned.	2001.02.24	Conversion
8.Hubei jiangling Fire-fighting Equipment Plant	1999.03.16	194.78	Project completed and commissioned.	2001.02.26	Conversion
9.Shandong Weifang Fire-fighting Equipment Plant	1999.03.16	153.116	Project completed and commissioned.	2001.04.25	Conversion
10.Shunde Fire-fighting Equipment Plant	1999.03.16	192.72	Project completed and commissioned.	2001.04.19	Conversion
Total (Average halon 1211 consumption 1995 to1997):		**1287.734**			

C. 2000 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Guangzhou Baiyun luoyang Fire-fighting Equipment Plant	2000.02.24	183.608	Project complete and commissioned.	2000.12.23	Closure
2.Zhejiang Linhai Fire-fighting Equipment Plant	2000.02.24	57.5	Project complete and commissioned.	2000.12.09	Closure
3.Anhui Bengbu Fire-fighting Equipment Plant	2000.02.24	142.124	Project complete and commissioned.	2000.12.06	Closure
4.Suzhou Fire-fighting Equipment Plant	2000.02.24	14.2677	Project completed and commissioned.	2001.07.30	Conversion
5.Shanghai No. 4 Fire-fighting Equipment Plant	2000.02.24	74.762	Project completed and commissioned	2001.07.29	Conversion
6.Lianyungang Tianyi Fire-fighting Equipment Plant	2000.02.24	52.35	Project complete and commissioned.	2001.08.01	Conversion
7.Tianjin Tanggu Fire-fighting Equipment Plant	2000.02.24	45.64	Project completed and commissioned.	2001.09.21	Conversion
8.Zhejiang Wananda Fire-fighting Equipment Plant	2000.02.24	56.5	Project complete and commissioned.	2001.07.28	Conversion
9.Zhenzhou Huanghe Fire-fighting Equipment Plant	2000.02.24	25.153	Project complete and commissioned.	2001.10.28	Conversion
10.Nanjing Honghu Fire-fighting Equipment Plant	2000.02.24	81.818	Project complete and commissioned.	2001.07.31	Conversion
11.Zhuhai Zhuzhou Fire-fighting Equipment Plant	2000.02.24	80	Project completed and commissioned.	2001.10.29	Conversion
12.Fujian Changle Fire-fighting Equipment Plant	2000.02.24	284.2	Project completed and commissioned.	2001.07.11	Conversion
Total (Average halon 1211 consumption 1995 to1997):		**1097.923**			

D. 2001 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Planned completion date	Remarks
1.Fuzhou fire-fighting equipment plant	2001.07.10	22.52	Project complete and commissioned.	2002.12.04	Closure
2.Zhenjiang fire-fighting equipment plant	2001.07.10	17.463	Project complete and commissioned.	2002.09.17	Conversion
3. Nanjing jiangpu fire-fighting equipment plant	2001.07.10	84	Project complete and commissioned.	2002.09.16	Conversion
4.Jiangsan fire-fighting equipment co.	2001.07.10	41	Project complete and commissioned.	2002.12.03	Conversion
5.Wuhan jiangan fire-fighting equipment plant	2001.07.10	16.8	Project complete and commissioned.	2002.11.13	Conversion
Total (Average halon 1211 consumption 1995 to1997):		**181.783**			

E. 2002 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1. Ningbo Yongjiang Fire Equipment Manufacturer	2002.10.28	4.2	Project complete and commissioned.	2003.10.28	Closure
2. Anhui Wuhu Wanjiang Fire Equipment Manufacturer	2002.10.28	1.17	Project complete and commissioned.	2003.10.28	Closure
3. Haerbin Longquan Fire Tools Manufacturer	2002.10.28	3.42	Project complete and commissioned.	2003.10.28	Conversion
4. Beijing Yanqing Changcheng Fire Equipment Manufacturer	2002.10.28	4.43	Project complete and commissioned.	2003.10.28	Conversion
5. Guangdong Shantou Fire Equipment Manufacturer	2002.10.28	9.12	Project complete and commissioned.	2003.10.28	Closure
6. Zigong Jianfei Fire Equipment Co. Ltd.	2002.10.28	9.177	Project complete and commissioned.	2003.10.28	Conversion
7. Bengang Fire Equipment Manufacturer	2002.10.28	17.77	Project complete and commissioned.	2003.10.28	Closure
8. Zhejiang Huzhou Meihua Group Co. Fire Equipment Manufacturer	2002.10.28	16.50	Project complete and commissioned.	2003.10.28	Closure
9. Daqin Fire Equipment Manufacturer	2002.10.28	17.63	Project complete and commissioned.	2004.04.28	Conversion
10. Ningbo Yinghai Fire Equipment Co. Ltd.	2002.10.28	104.39	Project complete and commissioned.	2004.04.28	Conversion
Total (Average halon 1211 consumption 1995 to1997):		187. 807			

F. 2003 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Haerbin Fire Equipment Manufacturer	2003.11.04	6.07	Project complete and commissioned.	2005.06.08	Conversion

2. Jizhou City Wulu Fire Equipment Manufacturer	2003.11.04	5.43	Project complete and commissioned.	2005.06.08	Conversion
3. Leqing City Donghai Fire Equipment Manufacturer	2003.11.04	1.36	Project complete and commissioned.	2005.06.08	Closure
4. Kunming City Fire Equipment Manufacturer	2003.11.04	38.87	Project complete and commissioned.	2005.04.20	Conversion
5. Zhejiang Jindun Fire Equipment Co'; Ltd.	2003.11.04	48.674	Project complete and commissioned.	2005.03.30	Conversion
6. Hongzhou Fire Equipment Manufacturer	2003.11.04	313.2	Project complete and commissioned.	2005.03.29	Conversion
Total (Average halon 1211 consumption 1995 to1997):		413. 604			

G. 2004 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Ningbo Fire Equipment Co., Ltd.	2004.11.11	108.52	Project complete and commissioned.	2005.12.8	Conversion
2. Shenyang No. 2 Fire Equipment Manufacturer	2004.11.11	0	Project complete and commissioned.	2006.2.15	Conversion
3. Zhejiang Qingyuan Fire Equipment Manufacturer	2004.11.11	10.24	Project complete and commissioned.	2006.2.15	Conversion
Total (Average halon 1211 consumption 1995 to1997):		118. 76			

ANNEX IV
Phaseout Activities of Halon System Manufacturers

A. 1998 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Ningbo Sanyou Fire-fighting Equipment Ltd.	1998.03.14	50	Project completed and Commissioned	1999.12.24	Conversion

B. 1999 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Guangzhou Fire-fighting Equipment Plant	1999.03.16	29.697	Project completed and commissioned.	2001.04.19	Conversion

C. 2000 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1. Zhuhai Zhuzhou Fire-fighting Equipment Plant	2000.02.24	40.5	Project completed and commissioned.	2001.10.29	Conversion

D. 2001 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1. Jiangxi ship's valve plant	2001.07.10	40	Project complete and commissioned.	2002.11.14	Conversion

E. 2003 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1. Chendu Engine Company Chenghua Fire Equipment Plant	2003.10.30	15.913	Project complete and commissioned.	2005.04.08	Conversion
2.Tianjin Shengda Sercurity Science Industry Company	2003.10.30	9.23	Project complete and commissioned.	2005.04.29	Conversion
3.Foshan City Yuan Fire Equipment Plant	2003.10.30	11.821	Terminated and license was withdrawn by MPS.		Conversion
4. Guangzhou City Yuanhua Electrical Appliance General Plant	2003.10.30	46.026	Project complete and commissioned.	2005.04.18	Conversion
5. Tianjin Fire Equipment General Plant	2003.10.30	16.06	Project complete and commissioned.	2005.04.28	Conversion
6. Tianjin Minan Fire Co., Ltd.	2003.10.30	18	Project complete and commissioned.	2005.04.28	Conversion
7. Nanjing Fire Equipment Co., Ltd.	2003.10.30	77.48	Project complete and	2005.03.28	Conversion

			commissioned.		
8. Xi'an Nucleus Equipment Co., Ltd. Weishi Fire Company	2003.10.30	27.503	Project complete and commissioned.	2005.04.10	Conversion
9. Baoji Fire Equipment General Plant	2003.10.30	1.12	Terminated and license was withdrawn by MPS.		Conversion
Total (Average halon 1211 consumption 1995 to1997):		**223.153**			

F. 2004 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1. Fujian Changle Minguang Fire Equipment Co., Ltd.	2004.11.11	73.21	Project complete and commissioned.	2005.12.9	Conversion

ANNEX V
Technical Assistance Activities

A. 1998 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1. HAL-98-TA-1 Export/Import study	Beijing University	1998.09.28	Completed and commissioned	1999.11.30	Completed
2. HAL-98-TA-2 Revision of Standards for ABC Powder	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2001.6.30	Completed
3. HAL-98-TA-3 Design Codes for Gaseous Fire Extinguishing Systems	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2002.09.28	Completed
4. HAL-98-TA-4 Standards for Components of Gaseous Fire Extinguishing Systems	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2001.6.30	Completed
5. HAL-98-TA-5 Halon Management Plan-Overall Management	Shanghai Fire Research Institute	1998.04.28	Completed and commissioned	1999.12.31	Completed
6. HAL-98-TA-6 Halon Management Plan-Training Courses and Propaganda Materials	Shanghai Fire Research Institute	1998.04.28	Completed and commissioned	2000.12.07	Completed
7. HAL-98-TA-7 Halon Management Plan-Provincial Promotions and Demonstration Centers	Shanghai Fire Fighting Bureau	1998.04.28	Completed and commissioned	1999.10.31	Completed
8. HAL-98-TA-8 Halon Management Plan-Provincial Promotions and Demonstration Centers	Guangdong Fire Fighting Bureau	1998.04.28	Completed and commissioned	1999.08.31	Completed
9. HAL-98-TA-9 Development of halon Management Database and Data collection System	Qinghua University	1998.04.28	Completed and commissioned	1998.09.28	Completed
10. HAL-98-TA-10 Management Information System	Qinghua University	1998.04.28	Completed and MIS accepted by SEPA	1998.04.02	Completed
11.Training	SEPA		Four training workshops have been conducted	1998.12.10	Completed

B. 1999 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1. HAL-99-TA-1 Revision of national standard for CO_2 fire extinguishing agent	Tianjin Fire Research Institute	1999.11.10	1) Test equipment has been installed; 2) Information on similar international standards collected & reviewed. 3) Project completed and commissioned	2002.06.01	Completed
2. HAL-99-TA-2 Study on test method and test equipment for CO_2 fire extinguishing agent	Tianjin Fire Research Institute	1999.11.10	1) Test equipment has been installed; 2) Information on similar international standards collected & reviewed. 3) Project completed and commissioned	2002.06.01	Completed
3. HAL-99-TA-3 Revision of the design code of CO_2 fire extinguishing systems	Tianjin Fire Research Institute	1999.11.10	1) Test equipment has been installed; 2) Information on similar international standards collected & reviewed. 3) Project completed and commissioned	2002.06.01	Completed
4. HAL-99-TA-4 Formulation of national standard for HFC227 agent	Tianjin Fire Research Institute	1999.11.10	Project completed and commissioned	2002.06.01	Completed
5. HAL-99-TA-5 Study on the standard and test method of CO_2 extinguishers with light cylinders	Shanghai Fire Research Institute	1999.11.10	PCR submitted , Project completed and commissioned	2002.06.01	Completed
6. HAL-99-TA-6 Study on the scope of use of CO_2 extinguishers	Shanghai Fire Research Institute	1999.11.10	PCR submitted , Project completed and commissioned	2002.06.01	Completed
7. HAL-99-TA-7 Study on the disposal standard for Halon 1211 extinguishers	Shanghai Fire Research Institute	1999.11.10	Project completed and commissioned	2002.06.01	Completed
8. HAL-99-TA-8 Halon management plan---establishment of demonstration centers	Beijing Fire Fighting Bureau	1999.11.10	1) The demonstration center has been established and are now in operation 1) A series of local policies have been formulated and issued. 2) Halon consumption survey has been carried out. 3) Propaganda has been launched on newspaper, magazines and TV 5) Project completed and commissioned.	2001.10.10	Completed
9. HAL-99-TA-9 Policy study of demonstrative halon bank	Guangdong Fire Fighting Bureau	1999.11.10	1) International Information on halon bank policies have been collected and reviewed; 2) The framework of Guangdong demonstrative halon bank has been formulated. 3) Recycle and reclaim procedure has been studying and testing. 4) Project completed and commissioned	2001.10.10	Completed
10.Trianing	SEPA		Four training workshops have been conducted activities completed	1999.31.12	Completed

C. 2000 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1. HAL-00-TA-1 Design code for Water Mist Fire extinguishing System					Cancelled
2. HAL-00-TA-2 Performance test Method of Components for Water Mist Fire Extinguishing Systems					Cancelled (Postpone to 2004)
3. HAL-00-TA-3 Propaganda for Halon Sector Approach and Halon Alternative Technology	Shanghai Aozhen Technology Development Company	2000.10.15	The book was finished, published and handed out to relevant parties. Project completed and commissioned	2000.12.31	Completed.
4. HAL-00-TA-4 Design Code for Dry Powder Fire Extinguishing System					Cancelled (Postpone to 2004)
5. HAL-00-TA-5 Tests equipment for light weight CO2 Cylinders	Shanghai Fire Research Institute	Oct. 2001	Completed and commissioned	2003.12.31	Completed
6. HAL-00-TA-6 Future requirements for essential uses, Special places					Cancelled
7. HAL-00-TA-7 Standards for Mechanic foam extinguishers					Cancelled
8. HAL-00-TA-8 Standards for portable dry powder extinguishers					Cancelled
9. HAL-00-TA-9 Nitrogen system					Cancelled
10. Training	DIA		Four training workshops were carried out	Within 2000	Completed

D. 2001 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1. HAL-01-TA-1 Formulating Design Code for Mist Water Fire Extinguishing System					Cancelled
2. HAL-01-TA-2 Revision of Design Code for Installation of Fire Extinguishers for Buildings					Cancelled
3. HAL-01-TA-3 Feasibility Study on Substitutes for Halon Fixed Fire Extinguishing Systems					Cancelled
4. HAL-01-TA-4 4. Studies of Market Prospect for Closure Enterprises	Seven enterprises were chosen to carry out the project	2001.4.10	Completed	December 2002	Completed
5. Training	DIA		Four training courses were carried out	2001.12.31	Completed

E. 2002 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned/ Completion Date	Remarks
1. HAL-02-TA-1 Study on Evaluation Method of Engineering Application of Inert Gases Fire-fighting System	Tianjin Fire Research Institute	2003.9.30	1. Contract signed in Sep. 2003 2. the project implementing plan was revised in Nov. 2004 3.Completed testing system design, equipment purchased ,installed and adjusted	2007-02-29	Ongoing
2. HAL-02-TA-2 Evaluation Method of Engineering Application of Heptfluoride Propane Fire-fighting System	Tianjin Fire Research Institute	2003.9.30	1. Contract signed in Sep. 2003 2. the project implementing plan was revised in Nov. 2004 3. established data collecting system, purchased equipment	2007-04-30	Ongoing
3. HAL-02-TA-3 National Standard Formulation for General Specifications of Low-pressure Carbon Dioxide Fire-fighting System and Parts	Tianjin Fire Research Institute	2002.12.31	Completed and commissioned	2005-4-28	Completed
4.HAL-02-TA-4 Study on the Testing Equipment and Technology of Aerosol Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12.31	Completed and commissioned	2004-12-31	Completed
5. HAL-02-TA-5 Standard Formulation for Aerosol Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12.31	Completed and commissioned	2004-10-31	Completed
6. HAL-02-TA-6 Study on Testing Equipment and Technology of Heptfluorid Propane Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12.31	Completed and commissioned	2004-10-31	Completed
7. HAL-02-TA-7 National Standards Formulation for Inert Gas Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12.31	Completed and commissioned	2005-4-28	Completed
8. HAL-02-TA-8 Study on the Testing Equipment and Technology of Inert Gas Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12.31	Completed and commissioned	2004-10-31	Completed
9. HAL-02-TA-9 Liaoning Halon Management Plan	Liaoning Fire Bureau	2002.11.06	Completed and commissioned	2005-5-20	Completed
10. HAL-02-TA-10 Performance Audit 2001	CNAO		Performance audit was conducted in April-June, 2002	2002.10,31	Completed
11. Training	DIA		three training courses were carried out	2002.12.31	Completed

F. 2003 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned/ Completion Date	Remarks
1. HAL-03-TA-1 Standard of "General Specifications of Aerosol Fire Extinguishing Equipment"	Tianjin Fire Research Institute	2003.12	1. collect information 2.established test method and conducted tests 3. the standard was finished and reviewed. 3. PCR is reviewed by PMO	2006.12	ongoing
2. HAL-03-TA-2 Testing Equipment and Technology for Aerosol Fire Extinguishing Equipment	Tianjin Fire Research Institute	2003.12	1. collect information 2. established testing equipment 3. carried out tests 4. PCR is reviewed by PMO	2006.12	ongoing
3. HAL-03-TA-3 Performance Audit 2002	CNAO	2003.03	Performance audit was conducted from March-June, 2003	2003.09	completed
4.Training	DIA		Two training courses have been carried out in the second half of 2003	2003.12.31	completed

G. 2004 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned/ Completion Date	Remarks
1 .HAL-04-TA-1 Standard for Performance Requirements and Test Methods of Components for Water Mist Fire Extinguishing Systems	Tianjin Fire Research Institute	2005-3-31	1. The contract was signed on March 31, 2005 2. collected information drafted the standard 3. to be reviewed by sub-committee of fire standard	2007.04	ongoing
2.. HAL-04-TA-2 Design Code for Dry Powder Fire Extinguishing Systems	Tianjin Fire Research Institute	2005-3-31	1. The contract was signed on March 31, 2005 2. the project is completed and ready for commission.	2006.12	ongoing
3. HAL-04-TA-3 Performance Audit 2003	CNAO	2004.03	Performance audit was conducted from March-June, 2004	2004.09	completed
4.Training	DIA		Two training workshops will carried out in the second half of 2004, one in the early of 2005		completed

H. 2005 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned/ Completion Date	Remarks
1 .HAL-05-TA-1 Verification of the actual production of CO_2 extinguisher of 2005	Shanghai Fire Institute	2005.12.31	The survey was completed and the PCR is under review by PMO.	2006.12	ongoing
2.. HAL-05-TA-2 Research on assessing halons' essential usages	Select qualified consultant by bidding		the project is under bidding.	24 months after contract signed	Contract to be signed by the end of 2006.
3. HAL-05-TA-3 Establishment the management and Monitoring mechanism of Guangdong halon recycling center					Cancelled and changed to operation of Guangdong halon bank.
4. HAL-05-TA-4 Survey on producers of halon 1301 system					Completed.
5. HAL-05-TA-5 Performance Audit 2004	CNAO	2005.03	Performance audit was conducted from March-June, 2004	2005-7-20	completed
6.Training	CNAO		Audit performance training was carried out in April 4-6, 2005.	2005.04	completed

I. 2006 Annual Program

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned Completion Date	Remarks
1. Study on Testing technology and testing equipment for superfine dry powder extinguishing agent	Selected by bidding.		TOR is under preparation.		
2. The market admittance standard for gaseous extinguishing system (fire product type approval standard for gaseous systems)	Selected by bidding.		TOR is under preparation.		
3. Study on the condition evaluation method and the requirement of disposal technology for halon system	Selected by bidding.		TOR is under preparation.		
4. Investigation and Verification on feedstock application of halon 1301	Prof. Hu Jianxin was selected as consultant.	2006.07	The contract for consultants' sevice was signed on July 26, 2006.	2006.12	Ongoing
5. HAL-06-TA-1 Performance Audit 2005	CNAO	2006.03	Performance audit was carried out from March to June, 2006	2006.07	completed
6. HAL-06-TA-2 Training	CNAO CNCCC		1.Audit training was carried out in March 15-16, 2006; 2. Enterprises training was held in September 2006	1. 2006.03 2. 2006.09	completed.

ANNEX VI

Special Initiatives

Special initiative	Name of the manufacturer	Project starting date	Implementation Status	Completion date	Remarks
1. HAL-99-SI-01 ABC Dry Powder Production Line	Foshan Electro-Chem. General Plant	1999.05.12	Project completed and commissioned.	2001. 10.12	Completed
2. HAL-00-SI-02 National Halon Phaseout Conference	SEPA	2000.08.01	The conference was held on Nov. 22, 2000. Activity completed	2000.12.31.	Completed
3. HAL-00-SI-03 Halon Bank (Establishment of Guangdong Halon Recycling Center)	Panyu Shengjie Fire Fighting Equipment Plant	2000.08.05	Project completed and commissioned.	2004.07.21	Completed
4. HAL-00-SI-04 Light Weight CO_2 Cylinders Production Line	Weifang Dongming Fire-fighting Equipment Co., Ltd.	2000.11.18	Project completed and commissioned.	2004.09.11	Completed
5. HAL-01-SI-01 Plant Protein Foam test laboratory Project	Honsen Fire-fighting Hi-tech Co., Ltd.	2000.08.31	Project Completed and commissioned.	2002.10.29	Completed
6. HAL-02-SI-02 Development of a 3,600 MT/Y Production Line of Honsen L119 Vegetable -protein Foam Extinguishing Agent	Dalian Honsen Hi-tech Fire-fighting Co., Ltd.	2003.10.09	All the procurement equipment has been installed and it is expected to start trial operation in Sept. 2006 in Dalian.	2006.12	Ongoing
7. HAL-03-SI-01 Survey for CO_2 Extinguisher Production	Shanghai Fire Research Institute	2003.06	Project completed and commissioned	2003.09.30	Completed
8. HAL-04-SI-01 Establishment of hexafluorapane agent standard and testing technology	Tianjin Fire Research Institute	2005.08	1.The contract was signed on Aug. 30， 2005 2. The draft standard has been circulated for comments.	2007	Ongoing
9. HAL-04-SI-02 Development of Hexafluoropropane Fire Extinguishers.	Shanghai Fire Research Institute	2005.08	1.The contract was signed on Aug. 30， 2005	2007	Ongoing
10. HAL-05-SI-03 Expand the production of CO_2 extinguisher	3 producers were selected	2005.06.16	Three contracts ware signed with 3 CO_2 extinguisher producers in June 16, 2005.	2006.11.16	Ongoing
11. HAL-06-SI-2 Operation of Halon Bank Guangdong Branch			TOR under preparation		