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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Forty-fourth Meeting
Prague, 29 November-3 December 2004

PROJECT PROPOSALS: CHINA

This document consists of the comments and recommendations of the Fund Secretariat on the following project proposals:

Foam

- Sector plan for phasing out the use of CFC in the PU foam sector: 2005 annual programme — World Bank

Fumigant

- National phase-out of methyl bromide (second tranche) — UNIDO/Italy

Halon

- Sector plan for halon phase-out: 2005 annual programme — World Bank

Process agent

- Phase out the production and consumption of CTC for process agent and other non-identified uses (Phase I): 2005 annual programme — World Bank

Production

- Sector plan for CFC production phase-out: 2005 annual programme — World Bank

Refrigeration

- Refrigeration servicing sector CFC phase-out plan — UNIDO/Japan

Solvent

- Progress report on the implementation of the solvent sector plan for ODS phase-out for 2003/2004 and the 2005 annual implementation programme — UNDP

PROJECT EVALUATION SHEET - MULTI-YEAR PROJECTS
COUNTRY: CHINA

PROJECT TITLE	BILATERAL/IMPLEMENTING AGENCY
Sector plan for phasing out the use of CFC in the PU foam sector: 2005 annual programme	World Bank

NATIONAL CO-ORDINATING AGENCY:	SEPA/FECO

LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT

A: ARTICLE-7 DATA (ODP tonnes, 2003, as of October 2004)

CFC	22,808.80	

B: COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes, 2003, as of October 2004)

ODS	Foam	Refrigeration	Aerosol	Solvents	Process agent	Tobacco
CFC	15,348.00	10,745.26	2000.00	2,115.60	76.40	711.00

CFC consumption remaining eligible for funding (ODP tonnes)	n/a

CURRENT YEAR BUSINESS PLAN: Total funding 10.827 US $ million: total phase-out 2500 ODP tonnes.

PROJECT DATA		2004	2005	2006	2007	2008	2009	2010	Total
Montreal Protocol limits (CFC)		57819	28909	28909	8673	8673	8673	0	n/a
CFC-11	National CFC-11 consumption limit	13,100	10,400	7,700	4,130	3,800	300	0	n/a
	Annual CFC-11 consumption limit sector	11,666	9,646	7,164	3,821	3,553	102	0	n.a.
	Annual phase-out newly addressed	2,500	2,500	600	551	0	0	0	6,151
TOTAL ODS CONSUMPTION TO BE PHASED OUT		2,500	2,500	600	551	0	0	0	10,651
Project cost as originally submitted (US $)		10,903	10,903	3,320	2,676	1,767	1,767	0	53,846
Final Project costs (000 US $):									
Funding for the World Bank		10,903	10,903	3,320	2,676	1,767	1,767	0	4,766.14
Total project funding		10,903	10,903	3,320	2,676	1,767	1,767	0	
Final Support costs (000 US $))									
Support cost for the World Bank		961.27	961.27	282.8	240.84	159.03	159.03	0	
Total support costs		961.27	961.27	282.8	240.84	159.03	159.03	0	
TOTAL COST TO MULTILATERAL FUND (US $)		11,864	11,864	3,603	2,917	1,926	1,926	0	
Final project cost effectiveness (US $/kg)									n/a

FUNDING REQUEST: Approval of funding for third tranche (2004) as indicated above.

SECRETARIAT'S RECOMMENDATION	Pending

PROJECT DESCRIPTION

1. The World Bank submitted the 2005 annual implementation programme for consideration by the Executive Committee at the 44th Meeting. The document is in two parts:

(a) Status of implementation of the 2004 annual programme (Part A)

(b) 2005 Annual Implementation Programme (Part B)

Background

2. The Agreement on CFC phase-out in the polyurethane foam sector in China was approved at the 35th Meeting of the Executive Committee in December 2001 at a total cost of US $53.846 million. The phase-out plan provides annual control targets for CFC-11 consumption in the polyurethane foam sector in China and related funding from 2002-2009. The first implementation programme for the period December 2001 - December 2002 was approved at the 35th Meeting, the second implementation programme covering 2003 at the 38th Meeting and the third implementation programme for 2004 at the 41st Meeting. A total amount of US $36,376,170 including support cost of US $2,963,170 to the World Bank has so far been released in the three tranches to phase out 7,000 ODP tonnes of CFC-11.

3. The CFC control targets and equivalent funding are shown in Table 1 below.

Table 1: Control targets for CFC-11 consumption in the polyurethane foam sector in China (ODP tonnes) and related funding schedule (US $ '000)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Annual national CFC-11 consumption limit (ODP tonnes)	17,200	15,500	13,100	10,400	7,700	4,130	3,800	300	0	
Annual CFC-11 consumption limit in PU foam sector (ODP tonnes)	14,143	13,830	11,666	9,646	7,164	3,821	3,553	102	0	
Annual CFC-11 phase-out targets in PU foam sector (ODP tonnes)	2,000	2,500	2,500	2,500	600	551				10,651
Total annual funding (US $ X 1,000)	9,940	12,570	10,903	10,903	3,320	2,676	1,767	1,767		53,846
Programme Support Cost (US $ X 1,000)	886.6	1,115.3	961.27	961.27	282.8	240.84	159.03	159.03		4,766.14
Total cost to the Multilateral Fund (US $ X 1,000)	**10,826.6**	**13,685.3**	**11,864.27**	**11,864.27**	**3,602.8**	**2,916.84**	**1,926.03**	**1,926.03**		**58,612.14**

4. The release of the funds is subject to the following:

(a) Confirmation that:

(i) All agreed phase-out targets and consumption limits for the previous year have been achieved;

(ii) It has been verified that the activities planned for the previous year were undertaken in accordance with the annual implementation programme;

(iii) CFC phase-out contracts have been signed, amounting to at least 50% of the current year contract targets and 100% of the previous year contract targets.

(b) Confirmation of performance through verification by site inspection of a minimum of 15% of the conversion activities, accounting for a minimum of 15% of the CFC consumption of the annual implementation programme;

(c) Consumption figures provided under the agreement are consistent with China's reports to the Ozone Secretariat under Article 7 of the Montreal Protocol.

5. The condition in paragraph 4 (a) above specifies that all agreed phase-out targets and consumption limits for the previous year are to be achieved. The agreed phase-out targets and consumption limits are:

(a) Annual national CFC-11 consumption limit (ODP tonnes)

(b) Annual CFC-11 consumption limit in PU foam sector (ODP tonnes)

(c) Annual CFC-11 phase-out targets in PU foam sector (ODP tonnes)

The limits are set out in Table 1 above.

6. In addition, Decision 41/42 of the Executive Committee requested the World Bank, as a matter of priority, to put a system into place that would provide satisfactory verification of CFC phased out in ongoing and new projects in the polyurethane foam sector, as well as the annual CFC consumption in the sector in 2003 and subsequent years. This request relates to above paragraph 5, (b) and (c).

Report on Implementation of the 2003 and 2004 Annual Programmes

7. The World Bank's original submission included two reports: The report on Foam Sector 2004 Annual Programme Verification Mission, and the 2005 Annual Programme - CFC-11 Phase out in the Polyurethane China Foam Sector. It was supplemented later by the World Bank 2003 Verification Summary Report for the China PU Foam Sector.

(a) The report on the Foam Sector Annual Programme Verification Mission described the results of visits to a sample of the enterprises to be converted, verifying their eligibility. The minimum sample size was defined in the sector plan agreement.

(b) The Annual Programme contains an implementation status report for 2002 to 2004, providing not only a narrative reflecting information such as policy and government actions, enterprise activities and technical assistance in the previous year, but also tables with data such as the implementation status of enterprise activities and projects, the verification information collected, and lists of technical assistance activities.

(c) The Verification Summary Report relates to Decision 41/42. It provides information about existing verification in the production sector and the related data. Based on such data a methodology for establishing national CFC-11 consumption in the foam sector is being proposed. In addition, the paper provides data on import and export of CFC-11, and consumption in other sectors.

8. The World Bank provided comprehensive data at the enterprise level about project status, in terms of targeted and achieved phase-out. The data includes aggregated data on a group level, starting from the 2002 Annual Programme.

9. Six technical assistance activities have been initiated under the 2003 implementation programme, of which two were completed. For 2004, 6 activities have been planned, of which one (performance audit) is already completed.

2005 Annual Implementation Programme

10. Under the 2005 annual programme, an amount of US $10.903 million is planned for approval for China with US $961,270 for the World Bank as support cost. China should meet a national consumption limit of 10,400 ODP tonnes of CFC-11, with a polyurethane foam sector consumption limit of 9,646 ODP tonnes and a phase-out target of 2,500 ODP tonnes in the PU foam sector.

11. The programme activities of the 2005 annual programme include policy and government actions, enterprise activities and technical assistance. The policy and government actions will focus on six main activities which are considered necessary for the success of total phase-out of CFC-11 in China. Similar to what was noted in the last annual programme, there are policy and control measures which have been in force for a number of years and which will continue to be enforced or made more effective. These include enforcement of a ban on new construction of CFC-11 foam production facilities, production control of CFC-11, and export and import control of ODS. In addition, the government proposes to invest in development of substitutes and institutional strengthening.

12. At the enterprise level SEPA will identify polyurethane foam enterprises to meet the phase-out target of 2,500 tonnes. This would be achieved through identification by SEPA of five to six large regional projects. A minimum of 50% of the CFC-11 reduction contracts is expected to be signed by mid-2005 and another 50% not later than the end of 2005.

13. Six technical assistance activities are foreseen including the 2004 performance audit, training of personnel involved in the implementation of phase-out activities, and phase III of standard formulation and revision. The technical assistance activities include the 2004

performance audit under which training of auditors is planned for the second quarter of 2005 after the terms of reference are agreed in the first quarter.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

14. The World Bank on behalf of China reported 2003 CFC-11 consumption of 13,994 tonnes to the Fund Secretariat, of which 11,423 ODP tonnes was consumed in the foam sector. These consumption figures are within the 2003 national and foam sector consumption limits of 15,500 ODP tonnes and 13,830 ODP tonnes that China agreed to.

15. It should be noted that China decided to split the different production and consumption sectors into separate agreements, despite the opportunity to consider combining all CFC consumption-related activities into one national phase-out agreement. This separation makes monitoring, reporting and verification of the agreement more challenging than would be the case for a national phase-out plan. In addition, China has decided to select several Implementing Agencies to implement these agreements. Under these circumstances, in order to ensure transparency and accountability it is inevitable that the different sectors will be required to produce sector specific data about the sector-specific ODS consumption and the effects of phase-out on the relevant sector.

16. The following paragraphs provide a detailed review of the data requested by the Executive Committee and the data delivered from the World Bank and China.

17. The World Bank provided the "World Bank 2003 Verification Summary Report for the China PU Foam Sector". For calculating the consumption of CFC-11 in China, the World Bank suggests a system based on the verification of the CFC-11 production from the production sector agreement. The World Bank further provides the figures of CFC-11 import and export, as reported by the ODS Import/Export Office in SEPA. These figures are shown in Table 2:

Table 2: Overall national CFC-11 consumption in 2003

Year 2003	CFC-11 production/ consumption in the agreements	Actual production/ consumption data	Verification
CFC-11 production	NA	13,828.4	Verified by the World Bank
CFC-11 imports	NA	661.6	Managed under Export/Import Licensing system*
CFC-11 exports	NA	495.7	Managed by Export/Import licensing system*
National CFC-11 consumption		**13,994.3**	**Consumption as defined by the MP**

* Managed by the ODS Import/Export Office

18. As mentioned above, the annual national CFC-11 consumption limit for China was 15,500 ODP tonnes for 2003. Reporting a consumption of 13,994.3 ODP tonnes, China has fulfilled the condition of the agreement. China has not been requested to provide verification for the national CFC-11 consumption figures. Should the verification of sector consumption be based on CFC-11 consumption data, verification of the import and export figures would become a necessity.

19. The annual CFC-11 consumption in the PU foam sector has been reported to be 11,423.48 ODP tonnes. The World Bank provided, upon request, the data shown in table 3.

Table 3: National CFC-11 consumption by sectors in 2003

Sector level CFC-11 consumption			**CFC-11 consumption (tonnes)**		**Comments**
			Target	**Actual**	
CFC-11 consumption (supply data calculated from production, export, import)				**13,994**	
Various sectors	Tobacco Sector		700	620	Reported by China. Accepted by ExCom and funding released at the 43rd meeting
	Aerosol		NA	279	Consumption identified as part of the preparation of the pharmaceutical aerosol sector plan
	Industrial, Commercial and Domestic Refrigeration		NA	1,325	As per China review and reporting
	CFC-11 used for servicing		NA	347	
PU Foam Sector	***CFC-11 consumption in the PU foam sector*** *(difference between supply and consumption of other sectors)*		***11,666***	***11,423***	
	Share of sub-sectors in foam sector consumption	CFC-11 consumption by ongoing PU foam sector project	NA	1,280	As per progress report to the MLF
		CFC-11 consumption by companies not funded by the PU foam sector project	NA	1,859	As per the agreement, China is responsible for phasing out the consumption of enterprises non-eligible for funding under the PU foam sector project
		PU Foam sector; 2003 consumption captured by 2001 and 2002 contracts	NA	1,771	
		PU Foam Sector not yet addressed	NA	6,513	Consumption by eligible PU foam companies

20. With this set of data, the World Bank has split the known consumption data for the country into a number of sectors and sub-sectors. This approach calculates, but does not verify, the foam consumption from the macro level deducing from the known national consumption the consumption data for the sectors. The approach would yield the desired result if the data on export and import would be audited and the data concerning non-PU foam sectors had a high degree of confidence.

21. The foam sector agreement prescribes an annual CFC-11 consumption limit in the PU foam sector of 13,830 ODP tonnes. China reported 11,423 ODP tones of consumption, well within the limits of the agreement. Decision 41/42 requested verification of this figure. The World Bank has provided no verification of the data, and proposes no method to verify it.

22. The Foam Sector agreement includes an annual CFC-11 phase-out target in the PU foam sector, which has been agreed for 2003 at a level of 2,500 ODP tones. The Decision 41/42 requires verification of this target. The reporting of the World Bank related to this target is closely connected to the reporting of another target, namely the signing of CFC phase-out contracts according to targets. The Agreement specifies for the latter target that CFC phase-out contracts have to be signed amounting to at least 50% of the current year contract targets and 100% of the previous year contract targets.

23. The World Bank provided data about the present status of contracts in Annex 1 of the report, but did not provide a comparison between targets and actual contracts. The Secretariat carried out the comparison and produced the results shown in Table 4 below.

24. A method of verification of the annual CFC-11 phase-out targets in PU foam sector has not been submitted, and it is not apparent that the requested verification has been carried out. It should be noted, though, that some of the data which might form one component of a verification is already available to the World Bank; the World Bank has provided, as requested in the Agreement with the Executive Committee, confirmation of performance through on-site verification of a certain percentage of the enterprises involved. The Secretariat raised the issue that the World Bank might explore how to utilize this verified data to verify the sector phase-out target. The World Bank discussed with the Secretariat characteristics of the monitoring system in China and the level of confidence it generates, but at the time of preparation of this document written advice had not been received.

25. The foam sector agreement prescribes a minimum annual phase-out of 2,500 ODP tonnes. China reported 2,721.3 ODP tones of consumption, well within the limits of the agreement, but without providing the verification requested by Decision 41/42. The target of signing at least 50% of the current year contract targets and 100% of the previous year contract targets has been fulfilled.

26. The Agreement specifies that verification has to be provided that the activities planned for the previous year were undertaken in accordance with the annual implementation programme. The data related to that request can, to a large extent, be found in the reports provided. The technical assistance activities are well documented. However, the World Bank did

not provide a comparison between planned activities versus activities undertaken, and no explanation regarding the verification of activities was provided.

Table 4: Comparison of contracts actually signed to target figures

Target phase out (tonnes)	Project Name	Annual Programme	Date of Contract	CFC-11 Consumption (tonnes)	Difference Target/Actual (tonnes)
	Lanzhou Huayu	2003	Jan.9, 2003	1075.44	
	Shaoxingshi Weike		Jan.9, 2003	997.75	
	Nantong Xinyuan		Jan.9, 2003	648.11	
2,500	**Total 2003**			**2,721.3**	**221.3**
	Dalian Yuji	2004 January to June; actual	19-Mar-04	303.9	
	Fenghua Yongxing		5-Apr-04	484	
	Beijing Zhonghai		9-Apr-04	599.8	
1,250	**Total first half 2004**			**1,387.7**	**137.7**
	Hejian Hongda	2004 July to December; expected	Not yet signed	399.7	
	Ningbo Lantian		Not yet signed	226.11	
	Shanghai Jinyuanyuhua		Not yet signed	1400	
2,500	**Total expected 2004**			**3,413.51**	**913.51**

27. The related part of the Agreement specifies that a confirmation of performance through verification by site inspection of a minimum of 15% of the conversion activities accounting for a minimum of 15% of the CFC consumption of the annual implementation programme is required.

28. The World Bank provides sufficient verification detail in the separate World Bank Verification Summary Report for the China PU Foam Sector, although the report does not contain the information of the methodology of enterprise selection, or the name and affiliation of the verifying person or company. Upon request from the Secretariat the World Bank provided information that the verification had been carried out jointly by an independent foam expert and a World Bank team.

29. The Secretariat found data inconsistencies in the verified data. The related issues were not resolved before finalisation of this document.

30. The Agreement specifies that consumption figures provided under the agreement have to be consistent with China's reports to the Ozone Secretariat under Article 7 of the Montreal Protocol.

31. While the forms from the Ozone Secretariat to report Article 7 data require reporting by substance, the Ozone Secretariat publishes data only on an aggregated level by group. Consequently, data relating specifically to the CFC-11 consumption of China has to be provided by the World Bank on behalf of China as part of their reporting. The World Bank did not provide a comparison between the data reported under the China Foam Sector Agreement and the data reported under Article 7. While the Fund Secretariat has no reason to believe that there are any differences between the two, the figures still need to be reported to demonstrate consistency.

32. The report received this year from the World Bank did not completely fulfil the requirements of the agreement nor those of the subsequent Decision 41/42. The annual national CFC-11 consumption was reported and is available, but has not been verified. The consumption in the foam sector and the achievement of phase-out targets was reported, but again not verified. The fulfilment of the remaining requirements could be deduced from the information provided or otherwise available. Some additional questions remain to be resolved.

33. China has prepared an accelerated phase-out plan for production and consumption of CFCs (CAPP). The CAPP contains a proposal speeding up implementation of the foam sector plan, and on addressing the remaining foam enterprises in the annual programmes between 2004 to 2006. There was no mention of this issue in the Annual Implementation Programme for 2005.

34. The 2005 Annual Implementation programme of the China Polyurethane Foam Sector and the Status of Implementation of the 2004 annual Programme are attached to this document. The amount of US $10,903,000 and the associated support cost of US $961,270 which are being requested to implement the 2005 annual programme are consistent with the Agreement.

RECOMMENDATION

35. The Executive Committee may wish to consider the following options:

(a) To defer the approval of the funding tranche until the auditing modalities are eventually established and the relevant audits for 2003/2004 have been provided; or

(b) To approve the funding tranche as indicated in paragraph 34 with disbursement to be withheld until the same conditions as in option (a) above have been met.

PROJECT EVALUATION SHEET - MULTI-YEAR PROJECTS
CHINA

PROJECT TITLE	BILATERAL/IMPLEMENTING AGENCY
National phase-out of methyl bromide (second phase)	UNIDO (Lead agency), Italy (Co-operating agency)

NATIONAL CO-ORDINATING AGENCY:	SEPA

LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT

A: ARTICLE-7 DATA (ODP tonnes, 2003, as of October 2004)

Annex E, methyl bromide	1,008.00		

B: COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes, 2003, as of October 2004)

ODS	Foam	Ref.	Aerosol	ODS	Solvents	Process agent	Fumigant
				Methyl bromide			1,008.0

CFC consumption remaining eligible for funding (ODP tonnes)	n/a

CURRENT YEAR BUSINESS PLAN: Total funding US $0: total phase-out 0 ODP tonnes.

PROJECT DATA	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Montreal Protocol limits	1,102.1	1,102.1	881.7	881.7	881.7	881.7	881.7	881.7	881.7	881.7	881.7	881.7	0	
Annual consumption limit	1,087.8	1,087.8	880.0	723.8	570.6	390.0	250.0	209.0	176.0	150.0	100.0	50.0	0	
Annual phase-out from ongoing projects														
Annual phase-out newly addressed UNIDO	0	0	207.8	156.2	65.2	124.6	0	0	0	0	0	0	0	553.8
Annual phase-out newly addressed Italy	0	0	0	0	88.0	56.0	140.0	41.0	33.0	26.0	50.0	50.0	50.0	534.0
Total ODS consumption to be phased out	0	0	207.8	156.2	153.2	180.6	140.0	41.0	33.0	26.0	50.0	50.0	0	1,087.8
Total ODS consumption to be phased-in (HCFCs)														n/a
Project cost as originally submitted (US $)	4,086,600	0	900,000	2,200,000	2,100,000	1,800,000	1,300,000	600,000	500,000	500,000	500,000	302,742		17,873,391
Final Project costs (US $):														
Funding for UNIDO	4,086,600	0	0	0	1,605,405	1,800,000	1,300,000	600,000	500,000	500,000	500,000	302,742	0	11,194,747
Funding for Italy	0	0	900,000	2,200,000	494,595	0	0	0	0	0	0	0	0	3,594,595
Total project funding	4,086,600	0	900,000	2,200,000	2,100,000	1,800,000	1,300,000	600,000	500,000	500,000	500,000	302,742	0	14,789,342
Final Support costs (US $)														
Support cost for UNIDO	306,495	0	0	0	120,405	135,000	97,500	45,000	37,500	37,500	37,500	22,706	0	839,606
Support cost for Italy	0	0	109,000	242,000	54,405	0	0	0	0	0	0	0	0	405,405
Total support costs	306,495	0	109,000	242,000	174,810	135,000	97,500	45,000	37,500	37,500	37,500	22,706	0	1,245,012
Total cost to Multilateral Fund (US $)	4,393,095*	0	1,009,000	2,274,810	2,274,810	1,935,000	1,397,500	645,000	537,500	537,500	537,500	325,448	0	16,034,354
Final project cost effectiveness (US $/kg)														13.61

* Funding approved at the 41st Meeting of the Executive Committee

SECRETARIAT'S RECOMMENDATION	For individual consideration

PROJECT DESCRIPTION

Background

36. UNIDO, on behalf of the Government of China, is submitting a national plan for the phase-out of MB in the consumption sector for consideration by the Executive Committee at its 44th Meeting. The project is to phase out 1,087.8 ODP tonnes of MB at a total cost to the Multilateral Fund of US $17,873,391, including the US $4,086,600 that was approved at the 41st Meeting. The project will be implemented by UNIDO (as the lead implementing agency) and the Government of Italy (as the cooperating implementing agency). An additional US $5,412,889 is to be provided by the Government of China as a counterpart contribution.

37. The methyl bromide (MB) baselines for production and consumption in China are 776.3 ODP tonnes and 1,101.6 ODP tonnes, respectively. The survey conducted during preparation of the MB phase-out plan gave the following results:

Description	**ODP tonnes**		
	2000	**2001**	**2002**
Production	1,438.2	1,391.4	2,135.4
Imports	1,290.0	858.6	813.0
Exports	628.2	609.6	900.0
Consumption including QPS and feedstock	2,100.0	1,640.4	2,048.4
QPS and feedstock uses	(480.0)	(644.4)	(960.6)
Consumption excluding QPS and feedstock	1,620.0	996.0	1,087.8

38. MB is produced in China by three companies, namely: Lianyugang Seawater Chemical Plant[1], Zhejiang Linhai Jianxin Chemical Corporation and Shandong Changyi Chemical Plant. The actual production of the three plants is about 40 per cent of installed capacity, as shown in the table below:

Production plant	**ODP tonnes**		
	Installed capacity	**Production**	**MB sold**
Lianyungang Deadsea Bromide Co	3,000	1,549	1,613
Linhai Jianxin Chemical Co.	1,500	497	497
Changyi Chemical Plant	540	89	104
Total	5,040	2,135	2,215

[1] In 1996, the multinational Deadsea Bromine company bought 60 per cent of Lianyugang Seawater Chemical Plant and changed the name of the company to Lianyungang Deadsea Bromide Corporation.

39. The MB production baseline is 776.3 ODP tonnes. The production levels as reported by the Government of China to the Ozone Secretariat under Article 7 are shown in the table below:

Year	ODP production	Year	ODP production
		1999	876.0
1995	171.0	2000	1438.2
1996	660.0	2001	1391.4
1997	876.0	2002	744.0
1998	1398.0	2003	558.4

40. On behalf of the Government of China, UNIDO submitted a national MB phase-out plan for consideration by the Executive Committee at its 41st Meeting. The total cost of the project as submitted was over US $40 million (UNEP/OzL.Pro/ExCom/41/28 and Corr.1). However, the Government only requested funding (US $17.2 million) to reduce its MB production by 45.4 ODP tonnes and its MB consumption by 389.0 ODP tonnes to achieve the Montreal Protocol's 2005 limits on production and consumption levels.

41. After considering the project proposal, the Executive Committee decided to approve US $4,086,600 plus agency support costs of US $306,495 for UNIDO to phase out 389.2 ODP tonnes of methyl bromide in the consumption sector. The Executive Committee also requested UNIDO to assist the Government of China in completing a project proposal for the phase-out of all controlled uses of methyl bromide, for submission to the Executive Committee (Decision 41/46).

42. Pursuant to paragraph c of Decision 41/46, at its 43rd Meeting, the Executive Committee approved project preparation activity, implemented by UNIDO (US $20,000) for the completion of the national plan for the phase-out of MB in the consumption sector in China. Also at its 43rd Meeting, the Executive Committee authorized the Secretariat to proceed with the technical audit of MB production which would include data collection on MB production for controlled uses and quarantine and pre-shipment (QPS) (Decision 43/43(b)).

MB consumption in China

43. MB was initially used only for QPS applications in China. However, in recent years the agricultural sector in the country has expanded, and new crops have been introduced, resulting in increased use of MB. Currently, MB is used in the fumigation of soil for the production of strawberries, cucumbers, tomatoes, eggplant, hot peppers, flowers and tobacco, and for the fumigation of commodities. MB consumption by crop/application is presented in the table below:

Crop/application	Surface area (ha)	MB (ODP tonnes)
Strawberries	1,297	312.0
Cucumbers	99	24.0
Tomatoes	400	96.0
Eggplant	148	36.0
Hot peppers	149	36.0
Flowers	149	30.0
Tobacco	250,994	427.8
Commodities		126.0
Total	**253,236**	**1,087.8**

Phase-out strategy

44. The strategy to phase out MB consumption will be based on the following principles:

(a) Enforce production and import restrictions with a production and import quota system in order to comply with the 2005 reduction of consumption;

(b) Issue licenses for QPS applications, to control QPS consumption;

(c) Control MB consumption in the tobacco sub-sector with the support of the State Tobacco Monopoly Administration, and in the fumigation of commodities with the support of the State Bureau of Grain Reserve;

(d) Implement training programmes to transfer the necessary alternate technologies to all MB users;

(e) Make MB phase-out verifiable at the country, state and grower levels;

(f) Give priority to the following crops/applications for which alternative technologies are already in use: tobacco seedbeds (floating technology is already used by 50,000 growers) and commodities fumigation (more than 4,000 tonnes of phosphine are already used).

45. Based on the above principles, the Government of China is proposing to completely phase out MB by 2015, according to the phase-out programme presented in the table below:

Crop/application	ODP tonnes											
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Strawberries	312.0	312.0	312.0	272.0	242.0	128.0	100.0	80.0	60.0	40.0	20.0	0.0
Cucumbers	24.0	24.0	24.0	12.0	6.0	0.0						0.0
Tomatoes	96.0	96.0	96.0	60.0	40.0	20.0	20.0	20.0	20.0	10.0	10.0	0.0
Eggplant	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	20.0	10.0	0.0
Hot peppers	36.0	36.0	36.0	36.0	36.0	36.0	28.0	20.0	14.0	10.0	0.0	0.0
Flowers	30.0	30.0	30.0	30.0	30.0	30.0	25.0	20.0	20.0	20.0	10.0	0.0
Tobacco	427.8	300.0	164.6	124.6	0.0							0.0
Commodities	126.0	46.0	25.2	0.0								0.0
Total consumption	1,087.8	880.0	723.8	570.6	390.0	250.0	209.0	176.0	150.0	100.0	50.0	0.0
Phase-out	0.0	207.8	156.2	153.2	180.6	140.0	41.0	33.0	26.0	50.0	50.0	50.0

Replacement technologies and costs

46. The proposed MB alternative technologies by crop/application are presented in the following table:

Crop/application	**Alternative MB technologies**
Strawberries	Metam sodium injected into the soil
Cucumbers	Grafting
Tomatoes	Metam sodium injected into the soil
Eggplant	Floating tray system in micro-tunnels
Hot peppers	Metam sodium injected into the soil
Tobacco	Floating tray system
Flowers	Sterilization
Commodities	Phosphine (tablets or pellets)

47. The phase-out plan also includes training programmes.

48. The total cost of the national MB phase-out plan is US $23,286,281. Of this amount US $5,412,889 is provided by the Government of China as counterpart funding. Therefore, the amount requested from the Multilateral Fund is US $17,873,392, distributed as follows:

Crop/application	**ODP tonnes**	**US $**				
		Capital	**Operating**	**Training**	**Contingency**	**Total**
Strawberries	312.0	1,642,476	757,531	1,733,780	337,626	4,471,413
Cucumbers	24.0	35,860	(41,323)	138,441	17,430	150,408
Tomatoes	96.0	541,477	429,993	571,577	111,305	1,654,352
Eggplant	36.0	44,027	(46,915)	213,885	25,791	236,788
Hot peppers	36.0	199,318	179,113	210,397	40,972	629,800
Flowers	30.0	1,060,000	213,279	216,998	127,700	1,617,977
Tobacco	427.8	38,318,584	(29,939,318)	774,301	3,909,289	13,062,856
Commodities	126.0	1,013,030	26,880	292,250	130,528	1,462,688
Total	1,087.8	42,854,772	(28,420,760)	4,151,629	4,700,640	23,286,281
China's contribution						(5,412,889)
Grand total (*)	1,087.8					17,873,392

(*) Including US $4,086,600 approved at the 41st Meeting of the Executive Committee.

49. The estimated time for project implementation is 11 years (2004-2015).

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

50. In its review of China's national MB phase-out plan the Secretariat noted that, in the project proposal submitted to the 44th Meeting of the Executive Committee, UNIDO took into account some of the comments raised by the Secretariat when the project was submitted to the 41st Meeting. However, other comments did not appear to have been addressed. Therefore, the

Secretariat raised the following additional comments on the proposal for UNIDO's consideration. Responses received from UNIDO are reflected below.

Project related issues

51. The Secretariat and UNIDO discussed the following: MB application rates used in the proposal for various crops, which were higher than dosage rates used for the same crops in other countries; the high amounts of chemicals used in grafting cucumber and eggplant crops compared to the amounts used when these crops are grown in greenhouses with MB applied as a fumigant; and cost issues associated with training, labour and alternative chemicals. All these issues were addressed and further explained by UNIDO as follows: lower dosage rates of alternative fumigants were used for certain crops in the calculation of the incremental operating costs; the price of metam sodium (which is locally produced in China) used in the calculation of the operating costs was reduced by almost US $0.15/l; the number of boilers requested for the steam technology for the flower sector (which also includes ginseng) as well as part of the costs of the injection machines for the application of metam sodium will be covered by farmers.

52. The Secretariat also raised and further discussed issues related to the phase-out of MB in the tobacco sector, since it represents over 56 per cent of the total cost of the project. Specifically, those issues were: the high cost of trays (US $0.82/unit) compared to trays used in similar approved projects (i.e., the actual price of trays in Argentina is US $0.72); justification for the construction of very expensive greenhouses for seedlings grown in surface areas over 30 ha (US $215.26/ha) instead of cheaper micro-tunnels (US $125.84/ha); the use of PVC pipes instead of galvanized steel arches for the construction of the micro-tunnels; and the large difference in price between regular seeds (US $1.520/ha) and pelletized seeds (US $11.438/ha). UNIDO indicated that the issue had been further discussed with the Government of China and it was agreed that the production of all tobacco seedlings would be based on micro-tunnels. The management of a large number of micro-tunnels is both complicated and uncertain; in this regard, China would immediately advice the Secretariat of any problems that could arise from the operation of a large number of micro-tunnels in small area. Furthermore, it was also agreed that some construction materials (i.e., blocks and arches) would be provided by the farmers, and a cheaper seeder machine that seems to work quite well, would be used. The project costs were therefore adjusted accordingly.

53. UNIDO also informed the Secretariat that the Government of China agreed to provide, free of cost, agricultural personnel to participate in the training programmes associated with the phase-out of MB in the different crops and applications. The revised cost of the training programme is US $1,620,130.

Agreed level of funding

54. Based on the issues raised by the Secretariat and further discussions between UNIDO and major stakeholders in China, UNIDO redesigned some of the project components resulting in reduction in project costs. The revised overall project cost is US $14,789,342, including the US $4,086,600 that was approved at the 41st Meeting of the Executive Committee. An additional US $5,412,889 would be provided by the Government of China as a counterpart contribution.

55. The revised project cost by crop and application, is summarized in the following table:

Crop / Application	ODP tonnes	US $					
		Capital	Operating	Training	Contingency	Management	Total
Strawberries	312.0	1,642,476	151,745	349,000	199,148	22,500	2,364,869
Cucumber	24.0	35,860	(41,323)	38,843	7,470	15,000	55,850
Tomato	96.0	317,200	253,394	100,427	41,763	56,250	769,034
Eggplant	36.0	44,027	(46,915)	40,016	8,404	22,500	68,032
Hot Pepper	36.0	199,318	89,774	40,016	23,933	37,500	390,541
Flowers	30.0	304,640	61,233	70,128	37,477	82,500	555,978
Tobacco	427.8	25,098,647	(19,608,307)	800,200	2,589,885	273,750	9,154,175
Commodities	126.0	1,013,030	26,880	181,500	119,453	90,000	1,430,863
Total	1,087.8	28,655,198	(19,113,519)	1,620,130	3,027,533	600,000	14,789,342

56. The cost-effectiveness of the phase-out plan is US $13.61/kg. The Government of China would have flexibility in utilizing the resources available for the phase-out of MB in any crop or application it deems more appropriate.

Agreement

57. At the time of preparing this document, the Government of China and the Government of Italy (as the cooperating implementing agency) were in the process of finalizing a memorandum of understanding on cooperation in the national phase-out plan for MB in China. The Secretariat has been advised that the memorandum of understanding will be signed in early November 2004 and that the draft agreement between the Government of China and the Executive Committee for the complete phase-out of Annex E substances (consumption) will be completed at the same time. The Secretariat will review the draft agreement upon receipt and provide advice to the Executive Committee accordingly prior to the 44th Meeting, consistent with the requirements of Decision 41/80.

RECOMMENDATION

58. Pending.

SECTOR PLAN FOR HALON PHASE-OUT: 2005 ANNUAL PROGRAMME

PROJECT DESCRIPTION

59. In accordance with the Executive Committee's approval of the Sector Plan for Halon Phase out in China (Decision 23/11), China is requesting the release of the eighth tranche of US $1.8 million for the implementation of the year 2005 Annual Programme. With this funding, China's halon-1211 production and consumption will be maintained at a maximum of 1,990 MT and 1,890 MT respectively. The halon-1301 production will be maintained at a maximum level of 600 MT and consumption will be maintained at 150 MT. Details of the annual programme are provided in the request submitted by the World Bank that is available on the Fund Secretariat's web site (www.unmfs.org). The 2005 Annual Programme includes technical assistance activities in order to support the halon phase-out programme and ensure that existing fire protection requirements can be met.

60. The Government of China will continue to implement and improve bidding for closure/conversion contracts for halon phase-out activities based on the experiences gained from the first seven annual programmes. It will continue to implement tradable production quotas and strengthen the ban on new installation of halon extinguishers for non-essential uses through a gradual tightening of the definition of essential uses. In order to support local enforcement of the ban on non-essential uses, the Government will ensure that the details of the ban will be disseminated to prospective consumers through the news media, bulletins, etc.; local fire bureaux and environmental protection bureaux will inspect consumers on a regular basis, and submit regular reports to the Ministry of Public Security (MPS) and the State Environmental Protection Agency (SEPA); and introduce stricter control on the sale of halons.

61. Through a combination of production quotas, bidding systems and administrative measures, enterprises will be granted funds for closure and conversion activities.

62. China is requesting the release of the approved amount of US $1.8 million for the 2005 annual programme to be used for technical assistance activities in order to support the halon phase-out programme and ensure that existing fire protection requirements can be met.

63. Technical assistance activities planned for the year 2005 include: verification of the actual production of CO_2 and clean agent extinguishers, research on assessing halon critical usages, establishment of the monitoring and management mechanism of Guangdong halon recycling centre, training of personnel involved in phase-out activities, survey on producers of halon-1301 extinguishing system and performance audits for annual programme enterprises.

Status of Major Initiatives

ABC powder plant

64. The ABC powder plant purchased with resources from the agreement (the Foshan Electro-chemical General plant), produced 1,545 metric tonnes in 2002 and 3,014 metric tonnes in 2003, after having been commissioned in December 2002 with an annual capacity of 3,000 tonnes.

CO2 light weight cylinder manufacturer

65. All production equipment has been completed and commercial production of cylinders started in October 2004 after commissioning by the Government of China. The plant has an annual capacity of 600,000 units.

Halon banking

66. The Panyu Shengjie Fire-fighting Equipment Company was selected as the beneficiary to set up a halon bank in Guangdong with an annual recycling capacity of 500 metric tonnes. The equipment was installed and the project was commissioned by the Government of China in July 2004.

Vegetable foam technology

67. Langfang Yida Technology Company was selected as the beneficiary to set up the production line of the Honsen L119 plant protein based foam with a production capacity of 3,600 metric tonnes.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Consumption and production targets

68. The audit report confirmed the accomplishment of the consumption and production targets for 2003.

69. For the second consecutive year, there was no halon 1301 production in China in 2003 due to lack of demand. Under the agreement, China could have produced 6,000 ODP tonnes.

Stocks at the end of 2003

70. The audit report indicated that the total stock of halon 211 at the end of 2003 was 2,416 metric tonnes (7,248 ODP tonnes) and 247.1 metric tonnes of halon 1301 (2,471 ODP tonnes). The auditors indicated that the sales price for halon 1211 had decreased by 4 per cent from 22,773 RMB/metric tonne (US $2.75/kg.) to 21,866 RMP/metric tonne (US $2.64/kg.). The sales price for halon 1301 had increased by one per cent from 68,338 (US $8.25/kg.) to 69,167 RMB/metric tonne (US $8.35/kg.)

Possible use of Halon 1301 as a Pesticide

71. The audit report indicated the possibility that halon 1301 could be used as a raw material for a pesticide called Fiprohil. The auditors indicated that they could not determine the impact on the risk relating to the phase-out programme if this market for halon 1301 were to expand in China.

CO2 fire-extinguisher production survey

72. Annex V of the document on Special Initiatives indicates that the survey for CO2 extinguishers production started in June 2003 and was supposed to be completed by 30 September 2003. Paragraph E of Decision 23/11 indicates that China also agrees that, after full conversion, at least 3.59 million extinguishers produced in China will, in 2005, be either CO2 extinguishers or extinguishers using a technology that is at least as expensive. If that is not the case, the funding should be refunded, based on a rate of US $3.08 per unit shortfall of CO2 or equivalent fire extinguishers.

73. The Bank indicated that its understanding of the Paragraph E of Decision 23/11 was that the target is cumulative rather than an annual target. However, the Fund Secretariat notes that pursuant to paragraph E, China should produce 3.59 million CO2 or comparable fire extinguishers during the year of 2005.

74. The Bank reported last year that early results from the survey suggested that national production of CO2 cylinders in 2002 was 1.56 million sets. This is an annual rate of increase from 1999 of 20 per cent. The Bank also indicated that a few more extinguisher manufacturers have indicated to SEPA that they intend to enter the CO2 cylinder business because there had been an increase in market demand. China will now conduct another survey that is expected to be completed in the first half of 2006 and reported to the Executive Committee in the context of the submission of the annual plan for the year 2007.

RECOMMENDATIONS

75. The Executive Committee may wish to approve the 2005 work programme of the China Halon Plan at the agreed level of US $1,800,000 and an agency fee of US $135,000.

PHASE OUT THE PRODUCTION AND CONSUMPTION OF CTC FOR PROCESS AGENT AND OTHER NON-IDENTIFIED USES (PHASE I):

2005 ANNUAL PROGRAMME

Background

76. At its 38th Meeting in November 2002, the Executive Committee approved, in principle, US $65 million for the Agreement with the People's Republic of China to phase out the production and consumption of CTC, and the consumption of CFC-113 as process agents (phase I) and disbursed the first tranche of US $2 million at the meeting to start implementation. China has committed to complying with the Montreal Protocol phase-out schedule for CTC production and consumption by implementing the Agreement. Subsequently at its 39th and 43rd Meetings in March 2003 and July 2004, the Executive Committee approved the 2003 and 2004 annual programmes at funding levels of US $20 million and US $16 million respectively.

77. The World Bank is now submitting the 2005 annual programme on behalf of the Government of China, noting that approval of the 4th tranche of funding of US $2 million as well as the associated support cost will be sought at the 45th Meeting with the submission of the verification of the implementation of the 2004 annual work programme. The targets, impact and other key data of the 2005 annual programme are presented below.

Targets and Impact of the 2005 Annual Programme

Consumption	
CTC for 25 PA application	
2004	5,049 ODP tonnes
2005	493 ODP tonnes
Impact	4,556 ODP tonnes
CFC-113 for process agent	
2004	14 ODP tonnes
2005	14 ODP tonnes
Impact	0
Production	
CTC	
2004	54,857 ODP tonnes
2005	38,686 ODP tonnes
Impact	16,171ODP tonnes
Total MLF funding approved in principle	US $65 million
Total funding released by the MLF by Oct. 2004	US $38 million
Level of funding requested	US $2 million

78. The submission of the World Bank starts with a progress report on the implementation of the 2004 annual programme and describes the actions taken by the Government at policy level,

by industry at enterprise level to reduce CTC production and consumption, and for technical assistance. The Government of China has continued to implement the licensing of CTC production, consumption and sales which were introduced in 2003. According to the "Circular on Implementing Carbon Tetrachloride (CTC) Production Quota-License System", all CTC producers including the newly erected chloromethane plants are issued quotas. Plants that do not have quotas have to either buy quota from other producers, or use the co-produced CTC in feedstock applications, or destroy it.

79. The "Circular on CTC Consumption Quota-License System", issued in May 2003, required CTC dealers and consuming enterprises to register and apply permits both for selling and buying the controlled substance and submit quarterly reports to SEPA. In 2004 the control was extended to all CTC consumers which included the 25 applications covered by the Agreement, other new process agent applications, non-ODS feedstock applications and solvents.

80. In 2004 the Government issued the "Circular on Management Procedures for Site Supervision of CTC Production Enterprises", which introduced the same peer monitoring system used in the CFC production phase-out plan. 20 supervisors were trained and dispatched to CTC producers from January 2004.

81. SEPA signed contracts with 3 dedicated CTC producers to reduce production by 8,514 ODP tonnes in 2004, and one distiller to close its production of 41 ODP tonnes. The combined reduction from these contracts of 8,555 ODP tonnes would reportedly ensure the achievement of the production target in the Agreement of 54,857 ODP tonnes in 2004 from the level of 61,514 ODP tonnes in 2003.

82. On the consumption side, SEPA signed contracts with 12 enterprises using CTC as process agent for a total CTC consumption of 3,209 ODP tonnes, which was below the 5,049 ODP tonnes allowable consumption target in the Agreement. A consumption quota of 14 ODP tonnes of CFC-113 was issued to 4 PTFE enterprises, the same level as the target in the Agreement. These contracts were a combination of emission control, closure and conversion activities. Tables 2 and 3 in the document provided details on these contracts for the intended reductions in production and consumption.

83. Under the technical assistance programme, the World Bank submission reports progress on a number of on-going activities, such as extension of the management information system to include CTC; training CTC producers and auditors; consulting services on conversion of CFC-113 substitute technologies in PTFE production and emission control in CSM production; however a few new activities were planned for 2004, such as the 2004 international workshop on CTC conversion and incineration technologies, and international investigation on feedstock applications of CTC.

84. The 2005 annual programme covers the planned targets and the activities proposed to be undertaken to achieve these targets. The Government of China intends to adhere to the targets established in the Agreement and reduce the CTC production by 16,167 ODP tonnes i.e. from 54,857 ODP tonnes in 2004 to 38,686 ODP tonnes in 2005 and consumption by 4,556 ODP tonnes from i.e. 5,049 ODP tonnes in 2004 to 493 ODP tonnes in 2005. The consumption of

CFC-113 for process agent would remain at 14 ODP tonnes, the level stipulated in the Agreement.

85. On the policy level, the Government plans to continue implementing the controls discussed in the preceding paragraphs both for the production and consumption of CTC and CFC-113. Quotas equal to the targets would be allocated to the producers and consumers and formalized in contracts. For the production reduction, contracts would be signed with one producer to close down its production and 3 others to reduce the level of production. Technical assistance activities for 2005 were focused on strengthening the CTC sector plan implementation and monitoring mechanisms, such as training of CTC producers, consumers, dealers, and auditors and carrying out performance audits. Daily site supervision of CTC producers would continue in 2005.

86. Table 4 provides targets for the 2005 annual programme and includes data on production, consumption, a comparison of 2004 and 2005 data, the reduction to be realized, the level of funding for each category of activity, monitoring indicators by key actions and dates. Table 5 provides a break-down of funding by policy action and enterprise activities under two categories of production and consumption, with key actions and dates of completion. Table 6 gives details on the technical assistance programme in 2005, with funding, action and dates of completion.

87. The submission estimates a total cost of US $12 million to implement the 2005 annual programme however the allocation for 2005 in the Agreement was US $2 million. The sector plan intends to cover the shortfall from the unallocated balance from the 2003-2004 annual programmes and/or unliquidated commitments to be funded in 2006/2007. Annex I provides the status of all the CTC producers in China, with the level of production up to 2004. Annex II provides a list of CTC consuming enterprises with data on CTC applications, products, annual consumption from 1997-2003. Annex III is a list of the TA activities for 2003-04.

Comments of the Secretariat

88. The 2005 annual programme has significant reductions to be achieved as required under the Agreement, namely, 16,171 ODP tonnes of CTC production and 4,556 ODP tonnes of consumption. The results of the 2005 annual programme will also be the basis for determining whether China would be able to comply with the 85 percent reduction on CTC production and consumption from the baseline level as required under the Montreal Protocol. In addition, there is the complicating issue of the co-production of CTC from the chloromethane production.

89. The Government of China has put in place rather strict controls on both production and consumption, including the requirement for all the dealers and consumers of CTC to register and obtain permits and for all the producers to produce under permit, including the chloromethane producers. Furthermore, the Government has introduced the same peer monitoring mechanism for the CTC producers as in the case of the CFC producers. The Government and the World Bank have also agreed on a monitoring and verification system for the sector plan which was reviewed and endorsed by the Executive Committee at its 43rd Meeting.

90. As a follow-up to Decision 43/25, which requested the Secretariat and the World Bank to examine the CTC agreement and report back to the Executive Committee on the composition of

the targets, the Secretariat met with the World Bank and reviewed the language and the intent of the targets in the agreement in the context of the requirement of the Montreal Protocol and the CTC production and consumption in China. It was concluded that the agreement did not intend to control the production and use of CTC as feedstock for non-ODS chemicals, and that China would verify the amount used for such applications and report on this to the Ozone Secretariat in accordance with Article 7 of the Montreal Protocol. It was agreed further that there was a need to clarify the scope of the agreement and that this should be done in the form of a decision by the Executive Committee without revising the agreement.

Recommendations

91. The Secretariat recommends that the Executive Committee may wish:

(a) To confirm that the Agreement with the People's Republic of China to Phase Out CTC in Process Agent applications (Phase I) approved at the 38th Meeting in 2002 does not control the production and use of CTC as feedstock for non-ODS chemicals, and that China should verify the amount of CTC used for such applications and report on this to the Ozone Secretariat under Article 7 of the Montreal Protocol.

(b) To approve the 2005 annual work programme but withhold the funding and the associated support cost until the 45th Meeting when the World Bank submits the verification of the 2004 work programme.

SECTOR PLAN FOR CFC PRODUCTION PHASE-OUT: 2005 ANNUAL PROGRAMME

Project Description

92. In accordance with the Agreement for the China Production Sector, which requests that annual programmes be submitted for review at the last meeting of the year preceding the year of the programme, the World Bank has submitted the 2005 annual programme for the implementation of the Agreement (attached). This is with the understanding that approval of funding for the 2005 programme will be requested at the first meeting in that year based on satisfactory performance of the programme in 2004, as per the Agreement. The table below sums up the key data of the China CFC production sector plan and those of the 2004 and 2005 work programmes.

Country	Peoples Republic of China
Project title:	Sector Plan for CFC production phase-out in China
Year of plan	2005
# of years completed	5
# of years remaining under the plan	5 (according to the original schedule)
Ceiling for 2004 CFC production (in ODP tons)	25,300 ODP tonnes
Ceiling for 2005 CFC Production (in ODP tons)	18,750 ODP tonnes
Total funding approved in principle for the CFC sector plan	$150 million
Total funding released as of Oct. 2004	$85 million
Total funding disbursed from World Bank to China (as of Oct. 2004)	$65.5 million
Level of funding requested for 2005 Annual Plan	$13 million

93. The submission has 2 parts:

(a) Part I is a summary report on the implementation by China of the Sector Phase-Out Agreement since its approval in 1999, including progress achieved in the implementation of the 2004 annual programme as of the middle of the year. The following are the most salient features of the summary report:

(i) Implementation of the China Production Sector Phase-Out Agreement between 1999 to 2004 has reduced the number of CFC-producing plants

from 37 in 1999 to 6 in 2004, and the CFC production from 50,351 ODP tonnes in 1999 to 25,300 ODP tonnes in 2004 (which will be verified in the beginning of 2005). The annual production each year has been confirmed by both a national audit of the annual programme conducted by the China National Audit Office and an international verification of the production commissioned by the World Bank. Starting from the 2004 annual programme, implementation of the CFC production closure programme began to establish linkages with other related sector plans under implementation in China. The Government will issue production quotas to ensure that the ceiling on the overall national CFC-11 consumption for 2004 and 2005 set out in the Agreement for CFC Phase-out in the Polyurethane Foam Sector in China will be met. The verification under the programme will provide monitoring of the compliance of China for the production of CFC-13 according to the Montreal Protocol control schedule on CFC-13. In addition the CFC production sector plan will also start regulating the supply of CFC-113 in connection with the China CTC sector plan for process agent uses, and the solvent sector plan for use as solvents. Implementation of the 2004 annual programme continues to rely on a combination of administrative measures and the tradable production quotas because the reduced number of producers and the continued market demand make it increasingly difficult to rely solely on voluntary production quotas to reduce CFC production. Annex 1 includes 9 tables which provides a brief history of the results of each of the 5 annual programmes implemented to date covering names of enterprises, CFC product, capacity and the status of the plant (closed or producing) in 2004. The result of implementing the 2004 programme will be verified by the World Bank and reported to the first meeting of the Executive Committee in 2005.

(ii) The progress report on the 2004 annual programme continues to list the policy controls that have been enacted by the Government of China, such as the circular on Implementing the Quota System for CFC Production issued by SEPA and the State Administration of Petroleum and Chemical Industry on 31 May 1999, the circular on Strengthening Management of ODS Import and Export issued in April 2000, and the circular on Control Mechanism of Import and Export of ODS" promulgated in December 1999. Import of CTC, a key feedstock for CFC production, was banned in April 2000. In 2004 the Government continues to implement the Regulation on Implementing Site Supervision to CFCs Production Enterprises, issued by SEPA in December 2001. Under this regulation, technical professionals from the remaining CFC producers are designated by SEPA as supervisors to be placed in the plants of peer producers to carry out year-round on-site mutual monitoring. This has proved to be an effective monitoring mechanism.

(iii) An update is provided on the implementation of the technical assistance programme under which a total of 30 activities were initiated out of the 39 planned. Apart from the traditional activities such as training of custom officers, and personnel to conduct performance audits, the submission reports on the progress made in setting up the China Compliance Centre to reinforce central management of the compliance of China with the Montreal Protocol control measures in the coming years. Part of the funds for setting up the centre would be coming from the CFC production sector plan. The 2004 annual programme also reported the successful commissioning of the HFC-134a production facility in China and consideration was given to the expansion of the capacity to 10,000 MT to meet the country's growing demand. Annex 3 includes 5 tables according to annual work programmes on the status of each of the technical assistance activities planned.

(b) Part II of the World Bank's submission is a description of the components of the 2005 programme, which includes policy actions, production reduction to be achieved by producing enterprises, and technical assistance activities. The key component, namely the production reduction, would require a phase-out of 6,555 ODP tonnes in 2005 to meet the Agreement target that the national CFC production should be reduced from 25,300 ODP tonnes in 2004 to 18,750 ODP tonnes in 2005. China will continue to implement the reductions through a combination of bidding, allocation of production quota and administrative measures. The current policy framework will continue, especially the regulation of production quotas, which will be enforced and monitored by the on-site peer supervision of the producing plants.

94. The submission of the World Bank includes an updated list of 15 HCFC producing enterprises in China as per the Agreement. No. 3 on the list changed its name, presumably following a change in management; No.6, the Shanghai Chlor-Alkali Chemical Co. Ltd. closed its HCFC production and dismantled the equipment; No.16 was added to the list, which was a new HCFC production facility. The overall number of producers remaines at 15.

95. US $13 million for implementation of the 2005 programme is currently planned to be spent entirely on compensating the enterprises for reducing CFC production, although reallocation could happen once more accurate expenditure estimates are available.

Comments of the Secretariat

96. Implementation of the 2004 annual work programme as of June of the year was proceeding as planned and CFC production at the middle point of the year was reported to be about 50 per cent of the annual allowable production level. The on-site supervision by peer CFC producers instituted by SEPA proved to be an effective tool for monitoring CFC production. A full evaluation of 2004 work programme would be available when an independent verification of the programme is submitted to the 45th Meeting in 2005.

97. The Government of China and the World Bank started to link up the CFC production sector plan with the other relevant consumption sector phase-out plans under implementation in China in 2004. This was a good practice because for a CFC producing country monitoring the CFC production assisted the monitoring of the supply of these ODS under the consumption sector agreements and made it possible to monitor the consumption of the concerned ODS in those sectors, such as the consumption of CFC-113 under the solvent sector plan and the CTC sector plan and CFC-11 under the foam sector plan. The Government of China and the World Bank were encouraged to review the linkages between the CFC production sector plan and other consumption sector plans for the purpose of monitoring their implementation.

98. The targets for the 2005 work programme were consistent with the Agreement, the activities were well planned and completion dates were reasonable. Successful implementation of the annual programme would reduce the CFC production in China to 18,750 ODP tonnes, which would be below 50 per cent reduction in China's baseline of 47,004 ODP tonnes, required under the control schedule of the Montreal Protocol.

Recommendations

99. The Secretariat recommends that the Executive Committee:

(a) Approve the 2005 work programme of the China CFC production closure programme, noting that the request for funding and support costs will be submitted by the World Bank to the 45th Meeting together with a verification report on the implementation of the 2004 annual programme.

(b) Encourage the Government of China and the World Bank to review, for monitoring purposes, the linkages between the CFC production sector phase-out plan and other relevant CFC and other ODS consumption sector plans.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
COUNTRY: CHINA

PROJECT TITLE	BILATERAL/IMPLEMENTING AGENCY
Refrigeration servicing sector CFC phase-out plan	UNIDO and Japan

NATIONAL CO-ORDINATING AGENCY:	SEPA

LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT

A: ARTICLE-7 DATA (ODP TONNES, 2003, AS OF OCTOBER 2004

CFC	22,826		

B: COUNTRY PROGRAMME SECTORAL DATA (ODP TONNES, 2003, AS OF OCTOBER 2004)

ODS	Foam	Ref.	Aerosol	ODS	Solvents	Process agent	Fumigant
CFC-11	11,423	1,672	280	CFC-113	1,677		
CFC-12	116	6,044	780				
CFC-114		8					
CFC-115		187					

CFC consumption remaining eligible for funding (ODP tonnes)	940.5

CURRENT YEAR BUSINESS PLAN: Total funding (UNIDO) US $1.075 million: total phase-out: 200 ODP tonnes.

PROJECT DATA		2004	2005	2006	2007	2008	2009	2010	Total
CFC (ODP tonnes)	Montreal Protocol limits	57,819	28,909	28,909	8,673	8,673	8,673	0	n.a.
	Annual consumption limit (refr. service)	4,628	4,162	3,424	2,704	2,051	1,590	1,100	n.a.
	Annual phase-out from ongoing projects	0	0	0	0	0	0	0	
	Annual phase-out newly addressed	0.0	466	738	720	653	461	490	3,528
	Annual unfunded phase-out	0	0	0	0	0	0		
TOTAL ODS CONSUMPTION TO BE PHASED OUT			466	738	720	653	461	490	3,528
Total ODS consumption to be phased-in (HCFCs)			0	0	0	0	0	0	0
Project cost as originally submitted (US $000)		2.070	5.520	1.251	0	0	0	0	8.841
Final Project costs (US $000):									
Funding for UNIDO		1.000	0	700	700	700	500	285	3.885
Funding for Japan		1.000	3.000	0	0	0	0	0	4.000
Total project funding		2.000	3.000	700	700	700	500	285	7.885
Final Support costs (US $ 000)									
Support cost for lead agency, UNIDO		75	0	52.5	52.5	52.5	37.5	21.375	291.375
Support cost for Japan		130	390	0	0	0	0	0	520
Total support costs		205	390	52.5	52.5	52.5	37.5	2.1375	811.375
TOTAL COST TO MULTILATERAL FUND (US $ 000)		2.205	3.390	752.5	752.5	752.5	537.5	306.375	8.696,375
Final Project cost effectiveness (US $/kg)									5.48

FUNDING REQUEST: Approval in principle of total ODS phase-out, total project funding and total support costs, and approval of funding for first tranche (2004) as indicated above.

SECRETARIAT'S RECOMMENDATION	Pending

PROJECT DESCRIPTION

100. The Government of China has submitted for consideration by the Executive Committee at its 44th Meeting a Refrigeration Servicing Sector CFC Phase-out Plan (The Plan). The Plan has been prepared by UNIDO and the Government of Japan as a bilateral project. The Plan should be considered within the context of the China Accelerated CFC Phase-out Plan, according to which China will cease CFC production two years ahead of the CFC production sector agreement, thus, no CFCs will be produced from 1 January 2008 (except CFCs for any agreed essential uses). From 2008 onwards the CFC demand will be satisfied either by available stocks or from banked CFCs recovered, recycled and reclaimed from CFC equipment. The Accelerated CFC Phase-out Plan is also submitted to the 44th Meeting by the World Bank. The implementation of the Refrigeration Servicing Sector CFC Phase-out Plan will lead to the phase-out of the remaining consumption of Annex A, Group I (CFCs) substances in the refrigeration servicing sector in China. The requested cost of the plan, as submitted, is US $8,841,100 (excluding agency support costs).

ODS consumption in China

101. The historical data on consumption and production of CFCs from 1995 to 2002 in ODP tonnes are shown in the following table:

Year	1995	1996	1997	1998	1999	2000	2001	2002
Consumption	75,290.8	47,089	51,076.4	55,414	42,983.4	39,123.6	33,922.6	30,621.2
Production	46,671.6	44,016.2	50,323.8	55,402	44,739.4	39,962.8	36,167.2	32,269

102. China's baseline average consumption of Annex A, Group I substances for the period 1995 to 1997 amounted to 57,818.7 ODP tonnes. The country has always been in compliance with the Montreal Protocol control measures for CFC consumption.

103. The following table shows CFC consumption data related to eligibility of assistance for China from the Multilateral Fund in ODP tonnes:

Baseline consumption	57,818.7
Starting point established by Decision 35/57	4,745.0
Consumption funded since the starting point	2,367.5
Remaining eligible consumption un-funded as of submission of the proposal	**2,377.5**

104. Out of 2,377.5 ODP tonnes eligible for funding, the Government of China has earmarked 1,437 ODP tonnes for the servicing sector phase-out plan.

105. By the end of 2003, most phase-out plans for CFC consumption sectors have been approved by the Executive Committee and are under implementation. These activities include the phase-out of ODS in the solvent sector, phase-out of CFC-11 in the tobacco sector, phase-out of CFC-11 in the foam sector, phase-out of CFCs in the domestic refrigeration sector and phase-out of CFCs in the industrial and commercial refrigeration sector.

106. Contingent on the approval and implementation of this service sector plan, the CFC consumption forecast for the years 2003 to 2010 as per the accelerated phase-out plan is presented by sectors in Table 5.

Table 5: Forecast of CFC consumption in China (tonnes)

Production/ Consumption	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Maximum allowed consumption	**57,818.7**	**57,818.7**	**28,909.3**	**28,909.3**	**8,672.8**	**8,672.8**	**8,672.8**	**0**
Maximum allowed production as per Agreement	30,000	25,300	18,750	13,500	9,600	7,400	3,200	0
Accelerated phase-out target for CFC production	**30,000**	**25,300**	**18,750**	**13,500**	**9,600**	**0****	**0****	**0****
	CFC-11							
Foam Sector	11,423	11,666	9,646	7,164	400	0	0	0
Tobacco Sector	620	500	300	150	0	0	0	0
Domestic Refrigeration Sector	1,325	927	649	0	0	0	0	0
Pharmaceutical Aerosol for external use	178	190	204	234	208	104	260	0
MDI	102	107	109	125	144	144	144	*
Servicing for Chillers	347	303	258	214	198	171	101	81
Total CFC-11	13,995	13,693	11,166	7,887	950	419	271	81
	CFC-12							
Foam Sector	116	100	0	0	0	0	0	0
Domestic Refrigeration Sector	331	232	162	0	0	0	0	0
Industrial and Commercial Refrigeration Sector	623	500	500	0	0	0	0	0
Pharmaceutical Aerosol for external use	513	555	580	667	592	296	74	0
MDI	267	290	309	356	409	409	409	*
Aggregate for Refrigeration Servicing	5,090	4,628	4,162	3,424	2,704	2,051	1,590	1,100
Total CFC-12 Consumption	6,940	6,305	5,713	4,447	3,705	2,756	2,073	1,100
Total demand for CFC-113	1,677	1,100	550	0	0	0	0	0
Total demand for other CFCs	212	164	164	164	164	0	0	0
Expected demand as per accelerated phase-out plan**	**22,824**	**21,262**	**17,593**	**12,498**	**4,819**	**3,175**	**2,344**	**1,181**
Export minus import	7,176	N.a.	N.a.	N.a.	N.a.	N.a.	N.a.	N.a.
Extra CFC under accelerated phase-out plan	0	4,038	1,157	1,002	4,781	-3,175	-2,344	-1,181

* Essential use, which needs to be agreed by the Parties

** Except the production for essential uses including MDI not yet phased out under separate future agreement

107. Only the refrigeration and air conditioning servicing sector and MDI manufacturing will consume CFCs after 2007. In order to meet the demand for CFCs in the servicing sector, China will bank CFCs during 2006 and 2007; and start to recover & recycle/reclaim/reuse CFCs through the servicing sector. China will also encourage retrofitting facilities to use drop-in alternative refrigerants to reduce the demand for CFCs for the servicing of industrial and commercial refrigeration equipment. Moreover, China decided to accelerate phase-out in the foam sector to reduce direct consumption in 2006 and 2007.

108. The refrigeration service sector in China has been categorized into four sub-sectors, namely, mobile air-conditioning (MAC), the domestic refrigeration sector (DRS), the industrial and commercial refrigeration sector (ICRS) and chillers. A brief description of each servicing sub-sector is provided below.

MAC sector

109. Total vehicle production in China increased from 0.71 million in 1991 to around 2.3 million in 2001. This comprised nearly 703,000 cars, 829,000 buses and 802,000 trucks. In 2001, out of 703,000 passenger cars produced in China, 697,000 cars were equipped with MAC systems, representing 99% of the total as compared to 88% in 1991. The MAC installation rate in buses was about 37% in 2001. Until 1993, all vehicles produced in China used CFC-12 as refrigerant. From 1993 onwards, vehicle and MAC manufacturers started looking into alternatives for CFC-12. In 1995, 97.6% of MAC systems in passenger cars produced in China, were CFC-based, whereas 2.4% were HFC-134a based. In 2001, the number of CFC-based MACs dropped to only 14.5%, while the proportion of HFC-134a based MACs had grown to 85.5%. In the year 2002, all MACs were HFC-134a based. Similarly, up until 1995, all imported cars were fitted with CFC-12 based MACs, but since then only HFC-134a based MAC-fitted cars have been imported. In 2001, there were nearly 678,000 CFC-based MAC-fitted imported cars in China. According to the expert team's survey findings, nearly 80% of CFC consumption is attributed to the auto-manufacturers owned servicing set-ups and authorized service stations. CFC-12 use in 2003 was 1,434 ODP tonnes.

Domestic refrigeration sector

110. In 2001, CFC-12 based refrigerators and freezers formed about 75% of the total population of about 165 million units and the remaining 25% were based on non-ODS alternatives. HFC-134a based refrigerators formed nearly 11%; R-600a based refrigerators formed 10.2%; and other refrigerants formed the remaining 3.1% of the total population. There are several categories of domestic refrigeration repair shops:

(a) Special repair shops that are established by refrigerator manufacturers to service their own products. These service shops are relatively well equipped and the service technicians are well trained. Some large manufacturers have more than 100 special repair shops;

(b) Contracted repair shops that have contracts with one or more large refrigerator manufacturer. More than 4,000 contracted repair shops work for large manufacturers. Middle-sized manufacturers have about 1,000 contract repair shops and about 100 servicing repair shops are established by small manufacturers; and

(c) Additionally, there are a number of private repair shops, established by local communities or by refrigerator dealers. These shops usually employ one or two technicians or are operated just as family businesses.

111. The estimated total CFC-12 consumption to service domestic refrigeration appliances during 2001 amounted to 484 tonnes.

Industrial & commercial refrigeration sector

112. The industrial & commercial refrigeration sector includes a variety of appliances such as food freezers, cold storages, cold drink dispensers, ice cream machines, refrigeration trucks, etc. From the servicing point of view, three categories have been considered, namely, commercial refrigerators and freezers, small-sized cold stores and industrial refrigeration systems. In 2001 the population of commercial refrigerators and freezers used in China was nearly 50 million. About 75% of these were CFC-12 based. The population of small-sized cold stores in the country in 2001 was nearly 300,000, and 40% of them were CFC-12-based.

113. The servicing of ICRS equipment is mainly undertaken by the manufacturers or their authorized maintenance-cum-servicing firms. Influenced by the management model of foreign manufacturers of refrigeration equipment operating in China, some major ICRS equipment producers in the country have established technical service departments in large and medium-sized cities to undertake maintenance of refrigeration equipment sold and supply parts. Many manufacturers also entrust the work of after-sale service and maintenance of equipment to their distributors. There is also a group of jointly run maintenance agencies. By the end of 2001, there were nearly 10,000 ICRS servicing firms in China. These employed an aggregate of nearly 100,000 technicians. The total estimated CFC consumption in ICRS servicing during 2001 was 3,474 tonnes. This included nearly 234 tonnes for servicing of commercial refrigerators and freezers, 2,400 tonnes for small-sized cold stores and 840 tonnes for industrial refrigeration systems.

Chiller sector

114. The total number of CFC-11 based chillers in the country was estimated at nearly 3,710 in 2001, out of which 1,909 were imported and the remaining were domestically produced. Similarly, the total number of CFC-12 based chillers in the same year was 338, of which 231 were imported and the rest were domestically produced. The total accumulated CFC-11 and CFC-12 in all chillers (including both imported and domestically produced) was 2,334 and 141 tonnes respectively in the year 2001. The estimated leakage rate of CFC (both CFC-11 and CFC-12) in chillers, whether imported or domestically produced, is 20% of the original charge. Estimated CFC-11 consumption for servicing in the year 2001 was 467 tonnes, which included

248 tonnes for imported and 219 tonnes for domestically produced chillers. Similarly, estimated CFC-12 consumption for servicing in the year 2001 was 28 tonnes, which included 15.5 tonnes for imported and 12.5 tonnes for domestically produced chillers.

115. According to the strategy described in Chapter 4, activities are planned for all refrigeration servicing sub-sectors to reduce CFC consumption; however assistance from the Multilateral Fund (MLF) is requested mainly for MAC servicing. CFC consumption in the industrial and commercial refrigeration and chiller sub-sectors will be reduced through additional efforts by the Chinese Government and local industry. The domestic refrigeration sub-sector will be assisted by the MLF by conducting a servicing technicians' training programme. All service sub-sectors will benefit from the planned legislative measures and awareness programmes.

The strategy for reducing CFC consumption in refrigeration servicing and operations

116. CFC usage is expected to be reduced through the implementation of awareness programmes, legislative measures and a comprehensive technician training program. The intentional release or unintentional leakage of CFC refrigerants from equipment will be reduced during service or maintenance work as well as during equipment operation thanks to better servicing practices. Furthermore, it is aimed at gradually reducing CFC consumption in the servicing sector from 2005 to 2010 by introducing the national recovery and recycling scheme for the MAC sub-sector. Thereby, service workshops will be able to rely on recovered, recycled or reclaimed refrigerants for their servicing job to a greater extent. The Government of China has identified the MAC servicing sector as a priority area in terms of investment funding request.

117. The following proposals form part of the planned phase-out strategy for MAC servicing:

(a) Training of service technicians

(b) Awareness generation

(c) Supply of recovery & recycling equipment for MAC servicing firms

(d) Establishment of a national recovery, reclamation & destruction network

(e) Strengthening national vocational schools

(f) Designing an appropriate code of practice

(g) Management Information System (MIS) & monitoring

(h) Policy development

Impact of the proposal

118. The adoption of good servicing practices can in itself help reduce leakages and thereby reduce the time between services. The quantity of CFC saved through good practices can be

conservatively considered to be about 20% of the CFC consumed in the MAC servicing sector. Three key measures, namely, training, awareness campaigns and designing an appropriate code of practice are expected to facilitate adoption of good servicing practices and R&R by MAC servicing firms, which will help the CFC phase-out process. CFCs reclaimed from retired vehicles will be available for use in the period 2010 and beyond to meet the demand for servicing the then existing population of CFC-based MAC and other refrigeration appliances/equipment.

119. In other sub-sectors, training, awareness-generation and establishing a code of good practices will jointly promote the adoption of good servicing practices by the servicing firms This will help reduce consumption of CFC refrigerants in servicing domestic and commercial appliances, since the use of CFCs for flushing & leak testing will be prevented; accurate charging methods will help avoid wastage in charging; and good brazing techniques will minimize leakages. Besides, adoption of recovery & recycling techniques will help use recovered CFCs for servicing, thereby reducing consumption of virgin CFCs.

120. A conservative estimate can be made that DRS servicing firms will be able to achieve close to a 50% reduction in CFC consumption through good practices, provided the servicing firms also use the requisite tools and equipment. In practice, it might be reasonable to assume that large CFC consuming firms in each of these sectors invest their own resources or are supported by the Government in procuring the required tools and equipment. If only 50% of such firms do so, then a net impact of reduction in CFC consumption of about 25% at least can be expected in DRS servicing. In the ICRS sector, however, it will be more difficult to realize savings to such an extent because the servicing network is very widely dispersed and it is difficult to identify and focus upon high-CFC-consuming firms. Therefore, the impact of training is considered to be a reduction of only 15% of CFC consumption. In the case of chillers, the impact of training is considered to be only 15% of CFC consumption.

121. The total 2003 CFC consumption of 5,437 ODP tonnes in the refrigeration servicing sector will be reduced gradually according to the schedule indicated in the following table. This will be achieved through implementation of the activities contained in this sector phase-out plan.

CFC demand, and consumption reduction schedule in refrigeration servicing sub-sectors, (ODP tonnes)

Sub-Sector	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mobile air conditioning servicing (CFC-12)	1,434	1,303	1,139	946	674	384	220	73	18	5	0		
Domestic appliance servicing (CFC-12)	474	463	447	417	380	346	316	288	210	170	121	74	37
Industrial and commercial ref. servicing (CFC-12)	3,159	2,843	2,559	2,047	1,637	1,310	1,048	734	607	498	358	221	115
Chiller servicing (CFC-11)	347	303	258	214	198	171	101	81	70	62	54	47	41
Chiller servicing (CFC-12)	23	19	17	14	13	11	6	5	4	3	2	1	1
Sub-total (CFC-12)	5,090	4,628	4,162	3,424	2,704	2,051	1,590	1,100	839	676	481	296	153

Sub-Sector	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sub-total (CFC-11)	347	303	258	214	198	171	101	81	70	62	54	47	41
Total demand in the ref. Servicing sector	5,437	4,931	4,420	3,638	2,902	2,222	1,691	1,181	909	738	535	343	194
Total reduction	0	506	511	782	736	680	531	510	272	171	203	192	149

122. It is evident that there will still be a substantial demand for CFC-12 in the year 2010 and beyond due to the need for servicing existing CFC-based refrigeration equipment. Also as a result of non-availability of CFC on the market, the end users may have to take the option of retrofitting existing appliances with alternative refrigerants when the time comes to service the refrigeration equipment. Similar options will need to be exercised for large commercial refrigeration equipment. For chillers, cold storages and industrial refrigeration equipment, the option of retrofitting as well as early retirement prior to 2010 may have to be adopted.

Incremental costs

123. The following table gives an overview of activities and incremental costs. An overall cost forecast of US $8.84 million has been made. The major components of the plan are: training of technicians, including equipment purchase for the training centers; equipment support in R&R to MAC servicing firms and the establishment of a reclamation center; and awareness generation and designing of an appropriate code of practice, as well as monitoring & MIS. Flexibility will be given to China for the use of these funds and, based on the progress of the project and the experience gathered, the investment component will be adjusted to fully satisfy the needs of the training component.

Items	Description	Agency	Sub-total
Monitoring and MIS	Design of MIS, monitoring of training, R&R, recovery etc.	UNIDO	140,000
Coordination, consultant, office set-up, office equipment, local services, travel, reports, etc.		UNIDO	100,000
Capacity-building of the management structure for local national institutions		UNIDO	100,000
Policy development and research studies		UNIDO	30,000
Awareness generation	Brochures for public awareness, CD's, workshops	UNIDO	340,000
Code of service practices	Workshops with experts to design, examine and revise the appropriate code of practice	JAPAN	50,000
Code of service practices	Printing the code and its distribution	JAPAN	50,000
Project Management Sub-Total			**810,000**
Equipment for 30 training centers	Two sets of equipment for each center	JAPAN	330,000
Equipping 1 national training center	For the training of the trainers	JAPAN	55,000
Training material development	Including translation and printing	UNIDO	80,000

Items	Description	Agency	Sub-total
Training of trainers	No. of workshops, training of trainers	JAPAN	280,000
Training cost	3-days training, cost per participant, fee for teachers, rental fees, training kit etc.	UNIDO	2,250,000
On-line training		UNIDO	20,000
Strengthening vocational schools	Counterpart share		0
Training of technicians sub-total			**3,015,000**
R&R equipment for MAC	Only partial funding, due to limited funding availability	JAPAN	4,060,000
Recovery equipment for local recovery of CFC from retired vehicles	Including storage	JAPAN	150,000
Reclamation center for retired refrigerants		UNIDO	350,000
Contingency, 10 %			456,000
R&R and recycling sub-total			**5,016,000**
Sub-total for Japan			**4,975,000**
Sub-total for UNIDO			**3,866,000**
Total net project costs			**8,841,000**
Agency support cost for Japan	13%		**646,750**
Agency support cost for UNIDO	7.50%		**289,950**
Total ASC			**936,700**
TOTAL for JAPAN			**5,621,750**
TOTAL for UNIDO			**4,155,950**
GRAND TOTAL			**9,777,700**

Management, monitoring and evaluation

124. The leading implementation role lies with SEPA, which will provide the overall direction, in consultation with UNIDO. The Project Management Office (PMO) of SEPA will supervise all activities. To ensure the participation of stakeholders from the concerned sub-sectors, a Special Working Group (SWG) including officers from SEPA, industry associations and the concerned line ministries will be established. The key industry associations include the China Association of Automobile Industry (CAAI), China Household and Electrical Appliance Association (CHEAA) and China Refrigeration and Air-conditioning Industry Association (CRAA). CHEAA represents the domestic refrigeration sector, including refrigerator and freezer producers and servicing stations under those producers. CRAA represents the Industrial and Commercial Refrigeration sector and Chiller producers and servicing stations under those producers. CAAI represents automobile producers, including MAC producers and MAC servicing stations. The key line ministries, which should be represented in the SWG, include the Ministry of Labor, Ministry of Transportation and State Industry and Commercial Administration.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

125. The Secretariat indicated to UNIDO that the monitoring and reporting of CFC phase-out in the refrigeration servicing sector in Article 5 countries is difficult. The monitoring of CFC consumption in the refrigeration servicing sector is only possible within the context of reporting at the national level under Article 7 of the Montreal Protocol. The Secretariat suggested that for this reason it might be useful to submit the refrigeration servicing sector phase-out plan in China in the context of an overall agreement for national CFC phase-out incorporating all the remaining CFC consumption eligible for funding.

126. The accelerated CFC phase-out plan (APP) has been submitted to the 44th Meeting. The resultant overall national consumption in a particular year in APP represents a national CFC reduction target. The CFC reduction schedule proposed in the refrigeration servicing sector phase-out plan (RSSPP) is part of the consolidated CFC reduction schedule in China. The Secretariat noted that the achievement of reduction targets and monitoring of progress in the implementation of the RSSPP would be possible by getting a comprehensive picture of how the reductions in each sector plan sum up to the overall reductions in the country as per the accelerated phase-out plan. UNIDO indicated that in the Agreement, CFC consumption targets in the RSSPP would be linked with total allowable CFC consumption targets envisaged in the APP.

127. The RSSPP will address the phase-out of total CFC consumption in the refrigeration servicing sector, which is identified to be 5,437 ODP tonnes. The remaining eligible consumption in China is 2,377.5 ODP tonnes as of April 2004. The Government of China was allocated 1,437 ODP tonnes from the total remaining eligible consumption for the refrigeration servicing CFC phase-out plan. With approval of the RSSPP, the remaining eligible consumption in China will be 940.5 ODP tonnes.

128. In the World Bank's 2004 progress report, the World Bank indicated that China intended to reallocate funding under the final project in the commercial refrigeration sector plan to commercial refrigeration servicing activities. The RSSPP submitted by UNIDO includes activities and requests for funding in the commercial refrigeration servicing sub-sector. The Secretariat advised the World Bank that reallocation of approved funding to another sub-sector for which funding has been sought would constitute double counting, unless account was taken of the phase-out to be achieved with the re-allocated funds and deducted from China's remaining eligible consumption. Subsequently, the Secretariat was informed by the World Bank that the unallocated balance approved for the commercial refrigeration sector would be used for other activities not related to servicing.

129. The Secretariat and UNIDO discussed the unit cost of recovery and recycling equipment that will be locally produced in China. The unit cost appeared to be higher than could be expected in comparison with relevant cost of equipment available from international suppliers. The Secretariat drew UNIDO's attention to potential duplication of activities included in the awareness programme and training programme, as well as to the relevance of projects on policy

training approved earlier for China. The Secretariat therefore proposed to reduce the requested budget for project management, monitoring, awareness and the policy development component. Subsequently the Secretariat and UNIDO agreed on overall incremental costs of US $7,885,000, including the project management component, which is requested at US $700,000 representing 9.74% of the investment component. The investment part of the budget is equal to US $7,185,000 with a cost-effectiveness of US $5.00/kg. The agency support cost of US $192,800 for UNIDO, calculated at 7.5% and US $520,000 for the Government of Japan, calculated at 13%.

130. The draft agreement between the Government of China and the Executive Committee for the complete phase-out of Annex A (Group I) substances in the refrigeration servicing sector was received at the Fund Secretariat on 29 October 2004. The Secretariat queried UNIDO on the methodology of independent verification of consumption limits and reduction targets spelled out in the draft agreement. UNIDO clarified that the verification of consumption in the refrigeration servicing sector would be possible subject to provision of comprehensive data on the CFC consumption in the remaining manufacturing sectors by the Government of China. The above methodology has been under discussion between UNIDO and the Government of China. Because of the link between RSSPP and APP related to the monitoring of reduction targets, the preparation of the draft agreement and the formulation of recommendation is contingent upon the finalization of the APP evaluation document to be submitted to the Executive Committee. The Executive Committee will be advised accordingly.

RECOMMENDATION

131. Pending.

PROGRESS REPORT ON THE IMPLEMENTATION OF THE SOLVENT SECTOR PLAN FOR ODS PHASE-OUT IN CHINA FOR 2003/2004 AND THE 2005 ANNUAL IMPLEMENTATION PROGRAMME

PROJECT DESCRIPTION

Background

132. On behalf of the Government of China, UNDP has submitted to the 44th Meeting of the Executive Committee the 2004 Annual Progress Report and Implementation Programme for 2005 for the Solvent Sector Plan for ODS Phase-out in China. Consistent with previous tranches, funding for the 2005 annual implementation programme of US $5,9761,625, including support costs, is not requested at this meeting but will be included in UNDP's 2005 business plan.

133. The solvent sector plan for China was approved in principle at the 30th Meeting at a total cost of US $52 million. Funds totalling US $31,345,000 have been approved for the first five annual tranches from 2000 to 2004 inclusive.

134. The phase-out is being achieved through a combination of investment activities targeting specific enterprises and a technical assistance programme for smaller enterprises managed through a voucher system. Consumption limits are being maintained through regulation of production and imports. The reductions in production are controlled under China's production sector phase-out plans for CFCs and CTC. The use of CTC as a cleaning solvent has been prohibited since 1 June 2003.

Phase-out from investment projects and activities

135. SEPA and UNDP continued to implement enterprise level phase-out activities through ODS Reduction Contracts initiated in 2001, 2002 and 2003, as well as the new activities under a voucher system and the retroactive reimbursement and self-phase-out mechanisms initiated in 2003.

2003 ODS Phase-out Activities

136. As required in the Agreement, China is required to phase-out 550 ODP tonnes of CFC-113, and 78 ODP tonnes of TCA by the end of 2004. Phase-out activities at 12 enterprises have been finalized and ODS Reduction Contracts signed in November 2003 to phase-out 223 ODP tonnes of CFC-113 and 1.5 ODP tonnes of TCA.

137. Through the Voucher System, 71 small and medium sized enterprises (SMEs) had signed up to phase out 142.37 ODP tonnes of CFC-113 and 8.21 ODP tonnes of TCA in 2004.

138. In addition to the ODS Reduction Contracts and Voucher System, China has signed agreements with 143 enterprises that would directly undertake gradual phase-out of CFC-113 consumption in 2004 and 2005 and phase out of TCA to be achieved between 2004 - 2009. The

agreements signed in 2003 would phase out a total of 109.9 ODP tonnes of CFC-113 and 28.2 ODP tonnes of TCA that would contribute to the 2004 phase-out targets. In all, a total of 475.3 ODP tonnes of CFC-113, 37.9 ODP tonnes of TCA would be phased out by the activities finalized in 2003.

139. The SARS situation in the first half of 2003 delayed the 2003 programme. However, as a result of the retroactive reimbursement and self-phase-out mechanisms, 142.1 ODP tonnes of CFC-113 and 37.9 ODP tonnes of TCA have already been recorded as a contribution to the 2003 phase-out targets.

2004 ODS Phase-out Activities

140. As stipulated in the Agreement, China is required to phase-out 550 ODP tonnes of CFC-113 and 85 ODP tonnes of TCA in 2005. The 2004 ODS phase-out activities will achieve the phase-out through a combination of ODS Reduction Contracts, the voucher system, the retroactive reimbursement mechanism and the reductions in consumption to be achieved in 2005 by those enterprises which signed agreements for gradual self phase-out in 2003.

141. A summary of progress with phase-out through investment activities is indicated in Table 3 of UNDP's project submission, as reproduced below.

Table 3: Phase-out through 2000 – 2004 ODS Reduction Contracts, Voucher System, Retroactive Reimbursement and Self Phase-out Mechanisms

			CFC-113 (ODP tonnes)	**TCA (ODP tonnes)**	**CTC (ODP tonnes)**	**No. of Enterprises**	**Funding (US$ 1,000)**
2000	Contracts for future phase out	Planned	372.8	10	0	10 – 20	$5,000
		Signed	378.4	10.1	8.36	16	$4,132
	Phase-out achieved	On-going projects	-	7.4	-		
		Total 2000 phase out	-	7.4	-		
2001	Contracts for future phase out	Planned	524	10	0	10 – 20	$5,505
		Signed	541.6	10.6	0	21	$4,361
	Phase-out achieved	On-going Projects	54.1	-			
		2000 Contracts	340.1	9.8	8.36		
		Total 2001 phase out	394.2	9.8	8.36		
2002	Contracts for future phase out	Planned	500	25	55	20 – 40	$5,830
		Signed	535.8	43.2	17.94	32	$4,004
	Phase-out achieved	On-going Projects	291.3	41.7			
		2000 Contracts	38.4	0.4	-		
		2001 Contracts	-	-			

			CFC-113 (ODP tonnes)	TCA (ODP tonnes)	CTC (ODP tonnes)	No. of Enterprises	Funding (US$ 1,000)
		Total 2002 phase out	329.7	42.1	-		
2003	Activities for future phase out	Planned	600	78	55	120-140	$5,255
		Signed	475.3	37.9	0	226	$5,100
	Phase-out achieved	On-going Projects	-	-	-		
		2001 Contracts	336.3	7.3			
		2002 Contracts	-	-	-		
		2003 Activities *	142.1	37.9			
		Total 2003 phase out	478.4	45.2	-		
2004	Activities for future phase out	Planned	550	85	-		$4,000
		Signed	767.3	119.7		216	$4,729
	Phase-out achieved	2001 Contracts	205.3	3.3			
		2002 Contracts +	108.6	18.3	16.5		
		2003 Activities					
		2004 Activities *	49.4	9.8			
		Total 2004 phase out	363.3	31.4	17.94		
Five Year Cumulative Total	Phase-out Planned		2,546.8	208	110		
	Phase-out Targets		2,750	197	110		
	Phase-out to be achieved by completion of on-going projects and signed contracts		2,698.4	221.5	26.3		
	Actual Phase-out achieved +		1,565.6	135.9	26.3		

* From retroactive reimbursement and gradual self-phase-out activities
\+ Phase-out achieved as of September 2004

142. UNDP has indicated that that difference between the planned and actual phase-out is due to:

- Delays in recording phase-out which has actually occurred until all administrative procedures necessary to declare a project complete have been undertaken

- Gradual phase-out during implementation, prior to project completion, which results in national level reductions in consumption being greater than the recorded enterprise level phase-out.

Voucher System

143. Implementation of the Voucher System was initiated in June 2003 as a pilot with three intermediate execution agents (IEA) in Chengdu, Guangzhou and Shaanxi provinces. The

network of IEAs has since been expanded to 8, and its success can be witnessed from the number of SMEs that have signed up for participation, which has risen from 71 in 2003 to 167 in 2004. From 2005 onwards, the Voucher System will become a prominent mechanism to reach out to all the smaller OD solvents consumers.

Policy Measures

144. Since the implementation of the Solvent Sector Plan in March 2000, China has initiated and effectively implemented policy actions to control the production quota as well as the sales of CFC-113, TCA and CTC for solvent use. Based on the experience gained in 2002 the China Cleaning Engineering Technique Cooperation Association (CCETCA) issued ODS Usage Certificates to ODS producers and consumers for the period August to December 2003. In December 2003, Usage Certificates for 2004 were issued at a level that would meet the phase-out targets for 2004. In addition, this notification also requires ODS producing factories, distributors and importers to report to CCETCA information on their ODS production, sales, consumption and the names of all users.

145. On 13 September 2004, SEPA issued a "Notice on Recommended Alternatives (First List) for the Elimination of ODS" for all sectors, including the solvent sector.

Technical Assistance Activities

146. Training activities were conducted in June 2003 for national experts, IEAs and candidate enterprises and were repeated for new participants in 2004. In addition, training was also conducted for the independent auditors who undertook the financial and management audit, as well as the performance verification.

147. Experiments on alternative technologies and production-scale tests continued and standards on non-ODS cleaning applications were developed. A comprehensive strategy on alternative solvents is being prepared. The availability of locally produced good quality alternative solvents at reasonable price is a critical requirement to ensure smooth phase-out. To this end China will continue to explore and facilitate the development of locally produced alternatives.

148. The Solvent Sector Plan was promoted through print media, radio and television. A website is in active use to promote implementation of ODS phase out activities, to publicize important policies, phase-out schedules and substitute technologies and to facilitate the sharing of technologies among national, international and enterprise experts. The second International Cleaning Technologies Forum and Expo was organized in Shanghai in August 2004.

Verification of 2003 phase-out targets

149. Based on official data and statistics on production, import & export obtained by SEPA, the total national consumption of CFC-113 and TCA in 2003 has met the phase-out targets specified in Table A of the Agreement. CFC production figures are identical to the audited data reported in the CFC Production Sector Plan presented to the Executive Committee by the World Bank. Import and export data are those obtained from official customs records. On the basis of

statistical sampling identical to that used for all previous annual reports, the national level of consumption of CTC for solvent cleaning was determined to be established as 5.53 ODP tonnes. This is consistent with the ban on consumption of CTC for solvent cleaning, which became effective 1 June 2003. It is reasonable to conclude that national level consumption of CTC as a cleaning solvent for 2003 did not exceed the 55 ODP tonnes limit.

150. These figures were verified through an audit carried out by an independent accounting firm, Beijing Tian Hua Zheng Certified Public Accountants Co. Ltd. Commissioned by SEPA and UNDP. The auditors based their audit on the China National Audit Office Audit Report on CFC-113 production, official government import and export data, data reported by TCA manufacturers and the above statistical sample of enterprises that were potential users of CTC. The methodology was similar to that used for previous performance verification audits.

151. The national consumption of CFC-113, TCA and CTC in 2003 is presented in Table 4 of UNDP's project submission reproduced below.

Table 4: ODS Solvent Consumption for the Year 2003 (ODP tonnes)

	CFC-113	**TCA**	**CTC**
	ODP tonnes	**ODP tonnes**	**ODP tonnes**
Consumption Control Target	**1,700**	**580**	**55**
Production	1699.94	86.8	
Import	-	250.0	
Export	23.2	-	
Raw Material Usage	0	0	
Solvent Consumption	**1,676.74**	**336.8**	**<55**

152. As required under the Agreement, the names of all enterprises using CTC as a feedstock, as a process agent or for other applications not yet approved as ODS process agents, and the quantities used by each in 2003 were included in the progress report. The total quantity was 45,041 ODP tonnes which is within the specified limit of 71,500 ODP tonnes.

153. A total of 17.1 ODP tonnes of CFC-113 was consumed as a process agent and 383 ODP tonnes was consumed as a chemical intermediate in the manufacture of CFC-115. The Agreement stipulates that the limit of CFC-113 use as a feedstock is 10 ODP tonnes. UNDP indicated that China had already reported to the 42nd Meeting of the Executive Committee that the intent of the limitation to ensure that "CFC-113 is not diverted to solvent use" has been verified by the CFC Production Sector Report, in which it is confirmed that the total quantities were used as a process agent and as a chemical intermediate, as indicated.

Performance audits

154. The auditors also examined the implementation of phase-out activities and phase-out achieved in 2003 at enterprise-level and the implementation of other policy and technical activities.

155. At the enterprise level, the performance verification report identified the main reasons for implementation delays which included dissatisfaction with the chosen alternative solvents. The auditor recommended that relevant parties should provide continuous support to solve the problem and highlighted the need for availability of good quality, locally produced alternative solvents at a reasonable price. However the auditors also recognized the yearly reductions in ODS consumption at the enterprise level in 2002, 2003 and the first seven months of 2004, and were of the opinion that overall consumption generally decreased year-by-year and that the phase-out activities were being implemented smoothly.

156. The performance verification also confirmed the implementation of policies and technical assistance activities and noted that all enterprises using ODS solvents have licenses and purchase ODS solvent according to their quota, which indicates that the policy implemented by SEPA has performed effectively. In addition, it was also noted that the 21 remaining CTC consuming enterprises stopped consuming CTC as a cleaning solvent well before the effective ban date of 1 June 2003, which indicated that the policy measure was also effective.

Technical Audit

157. In September 2004, UNDP's international and national solvent sector experts team carried out a technical evaluation of eight of the 32 enterprises under the 2002 ODS Reduction Contracts. The team found that delays in equipment procurement were experienced by all eight enterprises and noted that the standard 18-month project duration is not possible for more complicated projects. The technical auditors made recommendations about the need for: improved communications when specifying and building new equipment; continued technology transfer after phase-out; documentation of design developments, and; ensuring the effectiveness of less expensive alternative solvents.

The 2005 annual implementation programme

158. The Government of China has also submitted for review and approval by the Executive Committee the 2005 Annual Implementation Programme. It is proposed to phase out 550 ODP tonnes of CFC-113 and 85 ODP tonnes of TCA, contributing to the 2005 consumption control limits specified in the Agreement. Phase-out activities initiated in 2003 and 2004 will also contribute to the 2005 phase-out targets. With the reduction of the 550 ODP tonnes of CFC-113, China will completely phase out the consumption of CFC-113 as a cleaning solvent by 1 January 2006. In order to meet this target, activities will be initiated in early 2005.

159. Necessary technical assistance activities, legislative measures and monitoring and enforcement mechanisms are also included in the 2005 Annual Implementation Programme. They cover strengthening training on financial and administrative management for enterprises that will participate in the phase-out activities to ensure appropriate use of Multilateral Fund

funds and efficient management of the sub-projects. In addition, the supervision and monitoring functions of the Solvents Working Group will be strengthened.

160. The investment and technical assistance activities proposed in 2005 are indicated in the following tables.

Phase-out Activities	Quantity of Phase-out			
	CFC-113 (ODP tonnes)	**TCA (ODP tonnes)**	**CTC (ODP tonnes)**	**No. of Enterprises**
Completion of 2002 ODS Reduction Contracts - Commissioning and destruction of baseline equipment at 2 remaining enterprises by May 2005	133.8	9.4	-	2
Completion of 2003 ODS Reduction Contracts (12), Voucher System (71 SMEs), Self Gradual Phase-out (143) and Reimbursement Mechanism - complete equipment procurement, delivery, installation, commissioning and destruction of baseline equipment at 12 enterprises under 2003 ODS Reduction Contract; - Phase-out activities completed at 71 SMEs under the Voucher System; - Verify agreed solvent reduction at 143 enterprises that signed agreement for gradual phase-out; - Identify enterprises that completed phase-out activities at its own costs, verify eligibility and quantity of phase-out and process retroactive reimbursement	333.2	-	-	226
Continue implementation of 2004 phase-out activities: 31 ODS Reduction Contracts, 167 enterprises under Voucher System and 18 under Retroactive Reimbursement Mechanism: - complete equipment procurement, delivery, installation, commissioning and destruction of baseline equipment; - Phase-out activities completed under the Voucher System; - Verify agreed solvent reduction at 167 enterprises that signed agreement for gradual phase-out; - Verify eligibility and quantity of phase-out and process retroactive reimbursement	767.3	119.7	-	216
Initiate 2005 phase-out activities - Identify TCA consumers and all remaining CFC-113 consumers to participate in phase-out activities, through Voucher System, Retroactive Reimbursement mechanism; - Continue to identify enterprises for gradual self phase-out and finalize agreement	*	*		
Total Phase-out to be achieved in 2005	**1,234.3**	**214.1**	**-**	
Phase-out targets in 2005	**550**	**85**	**0**	

** 2005 phase out activities to achieve 550 ODP tonnes of CFC-113 and 85 ODP tonnes of TCA in 2006.*

Technical Assistance Activities	Description	
Establishment of a National Training Centre on ODS phase-out and non-ODS cleaning applications in the solvent sector	Objective	Training on non-ODS cleaning applications and solvents
	Target group	Entreprise technical personnel, national experts, professionnel
	Impact	Improved knowledge on available non-ODS cleaning applications
Public Awareness	Objective	Introduce and publicize country-wide ODS phase-out in solvent sector to attract attention and participation
	Target Group	Small solvent consumers in both formal and informal enterprises
	Impact	Increase awareness and interest in participation
Support usage of Alternative Solvents	Objective	To ensure result of phase-out activities and avoid the enterprise to revert to ODS use after completion
	Target Group	Enterprises converted to non-ODS cleaning and enterprises with potential to participate in phase-out activities
	Impact	Sustained non-ODS conversion
Study on Essential Use	Objective	To address demand of alternative substitute after 2010
	Target Group	Research institutions and enterprises requiring essential use of certain OD solvents
	Impact	Smooth management of essential ODS usage
Programme against illegal import, illegal production and illegal consumption of ODS	Objective	To ensure effective monitoring and enforcement on ODS usage
	Target Group	Local EPB, customs authorities
	Impact	Effective mechanism to tackle illegal ODS production and usage
Study on substitute technology for medical equipment cleaning application	Objective	To acquire technology on non-ODS cleaning application in the sector
	Target Group	Institutions and experts and enterprises in the sub-sector
	Impact	Facilitate the smooth and successful conversion to non-ODS cleaning
Study on alternatives development and research for PCB cleaning applications	Objective	To address the demand for substitute for PCB cleaning
	Target Group	Electronic enterprises to convert to non-ODS cleaning
	Impact	Sustained non-ODS conversion

2005 Budget

161. The total amount requested for the 2005 annual implementation programme is US $5,680,000 plus support costs of US $426,000 for UNDP. In the proposal as submitted, funding for the 2005 tranche was requested for approval at the 44th Executive Committee Meeting. Subsequently, the Secretariat clarified with UNDP that, consistent with previous practice and with the Agreement, funding would be sought at the first meeting in 2005, namely the 45th Meeting. The breakdown of expenditure is indicated below.

Activity	Planned Expenditures (US $)
Enterprise-level phase-out activities - Voucher System, Retroactive Reimbursement and Gradual Self Phase-out mechanism	4,280,000
Technical Assistance - National Training Centre ($500,000) - Public Awareness ($100,000) - Support usage of alternative solvents ($100,000) - Study on essential use ($20,000) - Programme against illegal production, illegal import and illegal consumption of ODS ($350,000) - Standards and Technical Specifications ($100,000) - Study on alternatives for PCB ($100,000) - Training and Audit on performance audit ($30,000) - International and national technical experts ($100,000)	1,400,000
TOTAL	**5,680,000**

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

162. According to the information provided in the progress report including the verification audit, China has met the consumption limits specified in the agreement for CFC-113, TCA and CTC. China has also substantially implemented the programme of technical assistance and policy activities foreshadowed in the 2004 annual implementation plan. The main performance requirements in the Agreement have therefore been met.

163. The actual phase-out at enterprise level continues to be much lower than planned. The annual progress report provides reasons for this and the performance and technical audits carried out by SEPA and China have made recommendations on relevant technical and implementation issues. As in previous years, the lower than planned phase-out at the enterprise level has not affected the ability of China to meet its consumption limits.

164. The use of CFC-113 as a feedstock or a chemical intermediate continues to exceed the level of 10 ODP tonnes also specified in the agreement. China has indicated that it explained in the report to the 42nd Meeting of the Executive Committee that the intent of the limitation on feedstock use to ensure that "CFC-113 is not diverted to solvent use" has been verified by the CFC production sector report. Funding for the 2004 tranche was approved at the 42nd Meeting on this basis.

165. The 2005 annual implementation plan provides the data required on consumption limits, phase-out targets, technical assistance activities on a programme by programme basis, and government actions. A budget breakdown is provided for the technical assistance programmes. A separate table on performance indicators previously used in annual programmes and reports

for this project had not been included. The information in it duplicates that provided in Table 3 on enterprise level phase-out and in the narrative on technical assistance and government actions, and the table is no longer an essential element of these reports.

RECOMMENDATIONS

166. The Executive Committee may wish to note with appreciation the progress report from the Government of China and UNDP on the implementation of the solvent sector plan for ODS phase-out in China for 2004/2004 and approve the annual implementation programme for 2005, funding for which will be requested at the 45th Meeting.

Report On Foam Sector 2004 Annual Program Verification Mission

July 2004

Purpose of verification

1. Under the EXCOM's approval of the "Agreement for CFC Phase-out in the Polyurethane foam sector in China"(UNEP/Ozl.Pro/EXCOM/35/19, Decision and Annex), China was required to phaseout 2,500MT of CFC -11 consumption in 2004 in the PU foam sector. The Bank is required to carry out verification of a minimum of 15% of the activities covering a minimum of 15% of CFC11 consumption. The number of enterprises selected and phase out target of those enterprises selected for this verification exceed 15% of number of enterprises and annual phase out target respectively.

Target of verification

2. Dalian Fishing Machinery Co. Ltd. and Beijing Zhonghai Runda Co. Ltd. are two leading companies (coordinators) for two of the five contracts signed under 2004 annual program for phasing out CFC-11 in polyurethane rigid and flexible foam sub-sectors.

3. There are fifteen enterprises under the coordination of Dalian Fishing Machinery Co. Ltd. and Beijing Zhonghai Runda Co. Ltd.. Dalian group has seven enterprises located in Liaoning Province. Beijing group has eight enterprises located in Beijing, Tianjin and Hebei Province. The names of these fifteen enterprises are as follow:

- Dalian Zhongshan Insulation Pipe Plant
- Dalian Zhongda Refrigeration Equipment Co. Ltd.
- Dalian Xingsheng Insulation Material Plant
- Lushun Insulation Material Plant
- Dalian Binshan Group Co. Ltd.
- DEDZ Polyurethane Foam Corporation
- Dalian Fishing Machinery Co. Ltd.
- Beijing Zhonghai Runda Co. Ltd.
- Beijing Xinxing Tiandi Insulation Material Co. Ltd.
- Beijing Direct Insulation Pipe Plant
- Hebei Jiangfeng Pipe Co. Ltd.
- Tianjin Xiatong Refrigeration Equipment Co. Ltd.
- Tianjin Yuesheng New Material Research Institute
- Tianjin Lifeng Development Co. Ltd.
- Chengde Hongxing Refrigeration Equipment Co. Ltd.

4. For number and consumption of these fifteen enterprises all exceed ExCom's requirement for verification, these fifteen enterprises are selected as target for 2004 foam sector verification mission.

Scope of verification

5. The World Bank terms of reference requires the mission to verify the following aspects of the fifteen enterprises:

- Date of establishment
- Number of employees
- Industrial and commercial registration of the enterprises
- Types of foam products
- Technical data of each type of foam product
- Annual production and sales figures of 2002 and 2003
- Annual CFC consumption of 1999, 2001,2002 and 2003
- Baseline equipment (Including date of manufacture, date of installation, brand, model, serial number, capacity, purchase price and current working condition)
- Status of production and machinery

Result of verification

6. 2004 annual program verification mission visited the fifteen enterprises and was able to verify the following aspects of those enterprises:

- Date of establishment
- Number of employees
- Industrial and commercial registration of the enterprises
- Types of foam products
- Technical data of each type of foam product
- Annual production and sales figures of 2002 and 2003
- Annual CFC consumption of 1999, 2001,2002 and 2003
- Baseline equipment (Including date of manufacture, date of installation, brand, model, serial number, capacity, purchase price and current working condition)
- Status of production and machinery

7. The mission has reached the following conclusion after the verification.

- All enterprises were established before July 25, 1995
- Most foaming equipment was installed before July 25, 1995. Some enterprises have foaming equipment installed after July 1995. The mission concluded that as foaming equipment in China especially locally made foaming equipment have short life time, the replacement rate of foaming equipment is high;
- Total consumption of CFC-11 of these fifteen enterprises in 1999 (baseline year) was 900.29 tons;
- Many enterprises are using CFC-11 and HCFC-141b simultaneously, a sign of increasing demand of non-CFC products. Two enterprises mistakenly recorded some of its HCFC-141b consumption as CFC-11 consumption. The CFC-11 consumption of those two enterprises have been corrected accordingly;
- Some enterprises also have preblended polyol business, the mission checked relevant financial records to avoid doubt-counting;

- Beijing Zhonghai Runda Co. Ltd., as a coordinator for Beijing Group Project, does not consume CFCs.

Table 1. Consumption of CFC-11 of 15 Enterprises **Unit: ton**

	1999	2001	2002	2003
Dalian Zhongshan Insulation Pipe Plant	40.5	50.3	46.7	32
Dalian Zhongda Refrigeration Equipment Co. Ltd.	37.85	47.75	33.52	41.81
Dalian Xingsheng Insulation Material Plant16.63	16.63	20.68	23.58	8.02
Lushun Insulation Material Plant	15	15.05	7.5	14
Dalian Binshan Group Co. Ltd.	77.15	87.75	88	18.25
DEDZ Polyurethane Foam Corporation22.17	22.17	24	32.5	31.25
Dalian Fishing Engine Industry Corporation	92	109.71	107.47	73
Beijing Zhonghai Runda Co. Ltd.	0	0	0	0
Beijing Xinxing Tiandi Insulation Material Co. Ltd.	68.11	85.13	86	72.14
Beijing Direct Insulation Pipe Plant	108.98	112.02	107.94	112.36
Hebei Jiangfeng Pipe Co. Ltd.	123.85	109.24	120.88	118.02
Tianjin Xiatong Refrigeration Equipment Co. Ltd.	21.63	25.72	69.86	36.25
Tianjin Yuesheng New Material Research Institute	49	59.59	62	45
Tianjin Lifeng Development Co. Ltd.	110.67	124.25	129.31	126.29
Chengde Hongxing Refrigeration Equipment Co. Ltd.	116.75	124.24	125.07	101.06
Total	900.29			

8. Detailed information about each enterprise can be checked in individual report for each enterprise.

Dalian Zhongshan Insulation Pipe Plant

Enterprise Background

9. Dalian Zhongshan Insulation Pipe Plant (Zhongshan) was established in 1993. Zhongshan has 15 employees and mainly produces pipe-in-pipe for district heating. Zhongshan has two foaming machines. One is a low pressure foam dispenser (output 50 kg/min) made by Leqing. The other is a low pressure foam dispenser (output 120 kg/min) made by Leqing. Both machines were installed in 1993.

10. Name of the director and his contact information are as follow:

Xianyu Lu
Telephone: 86-130-1948-2017
Fax: None
Address: 143 Lesheng Street, Hekou District, Dalian 116023, China

Verification

11. The World Bank mission has taken the following verification steps at Zhongshan:

- Listened to Mr. Lu's introduction of Zhongshan and production of foam products;
- Checked and copied Zhongshan's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Dalian Zhongshan Insulation Pipe Plant was established before July 1995;
- Zhongshan has two foaming machines. Both installed before July 1995;
- Zhongshan consumed 40.5 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 50.3 tons, 46.7 tons, and 32 tons respectively;
- Production of foam in 2002 and 2003 are 377 tons and 214.4 tons respectively.

Table 2. 1999 Zhongshan Procurement Record of CFC-11

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.4.8	6	Dalian Fuda Polyurethane Co.	0264999
2	1999.8.30	7	Dalian Fishing Machinery Co.	0717808
3	1999.9.26	6.8	Dalian Fishing Machinery Co	0717812
4	1999.10.6	7.75	Dalian Fishing Machinery Co	0717814
5	1999.10.30	7.2	Dalian Fishing Machinery Co	0717816
6	1999.11.3	5.75	Dalian Fishing Machinery Co	0717818
	Total	40.5	Dalian Fishing Machinery Co	

Dalian Zhongda Refrigeration Equipment Co. Ltd.

Enterprise Background

12. Dalian Zhongda Refrigeration Equipment Co. Ltd. (Zhongda) was established in May 1995. Zhongda has 26 employees and mainly produces spraying foam for cold storage and fishing boats. Zhongda has four foaming machines. The high pressure spray foam machine (output: 8 kg/min) made by Glas-Craft was installed in 1998. Three low pressure spray foam machines locally made were installed in 1995, 1996, and 1998 respectively.

13. Name of the director and his contact information are as follow:

Chunzhong Mu
Telephone: 86-411-440-7919
Fax: 86-411-440-7098
Address: 70 Huaxin Road, Ganzi District, Dalian 116039, China

Verification

14. The World Bank mission has taken the following verification steps at Zhongda:

- Listened to Mr. Mu's introduction of Zhongda and its spray foam business;
- Checked and copied Zhongda's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Dalian Zhongda Refrigeration Equipment Co. Ltd. was established before July 1995;
- Zhongda has four foaming machines. One installed before July 1995 and the others after;
- Zhongda consumed 37.85 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 47.75 tons, 33.52 tons, and 41.81 tons respectively;
- Production of foam in 2002 and 2003 are 295.6 tons and 326.19 respectively.

Table 3. 1999 Zhongda Procurement Record of CFC-11

	Date	Amount (ton)	Supplier	Invoice Number
1	1/18	0.5	Dalian Fishing Machinery Co	8267
2	2/3	2.5	Dalian Fishing Machinery Co	4605
3	3/11	0.5	Dalian Fishing Machinery Co	4612
4	4/20	0.5	Dalian Fishing Machinery Co	9142
5	5/5	1	Dalian Fishing Machinery Co	9165
6	5/5	1.25	Dalian Fishing Machinery Co	9167
7	5/31	0.75	Dalian Fishing Machinery Co	4996
8	5/31	0.25	Dalian Fishing Machinery Co	4991
9	6/14	0.25	Dalian Fishing Machinery Co	5002
10	6/14	0.41	Dalian Fishing Machinery Co	5004
11	7/20	0.25	Dalian Fishing Machinery Co	7554
12	7/20	1.75	Dalian Fishing Machinery Co	5025
13	7/20	2	Dalian Fishing Machinery Co	5023
14	8/1	2.75	Dalian Fishing Machinery Co	7571
15	8/1	0.25	Dalian Fishing Machinery Co	7569
16	9/24	0.5	Dalian Fishing Machinery Co	3303
17	9/24	2.5	Dalian Fishing Machinery Co	3304
18	9/24	2.5	Dalian Fishing Machinery Co	3301
19	9/24	0.75	Dalian Fishing Machinery Co	3307
20	10/11	0.75	Dalian Fishing Machinery Co	1152
21	10/11	1	Dalian Fishing Machinery Co	3315
22	11/15	0.6	Dalian Fishing Machinery Co	4780
23	11/15	0.475	Dalian Fishing Machinery Co	4777
24	11/15	0.5	Dalian Fishing Machinery Co	4783

25	10/11	1.75	Dalian Fishing Machinery Co.	1155
26	10/11	0.75	Dalian Fishing Machinery Co.	3323
27	10/11	0.3	Dalian Fishing Machinery Co.	3319
28	10/11	0.2	Dalian Fishing Machinery Co.	3318
29	11/15	1.5	Dalian Fishing Machinery Co.	4785
30	12/31	0.75	Dalian Fishing Machinery Co.	0006
31	12/31	0.5	Dalian Fishing Machinery Co.	6225
32	12/31	1.5	Dalian Fishing Machinery Co.	0008
34	12/31	0.75	Dalian Fishing Machinery Co.	0004
35	12/31	0.75	Dalian Fishing Machinery Co.	6222
36	12/31	4.61		
	Total	37.845		

Dalian Xingsheng Insulation Material Plant

Enterprise Background

15. Dalian Xingsheng Insulation Material Plant (Xingsheng) was established in June 1995. Xingsheng has 17 employees and mainly produces pipe-in-pipe for district heating and petrochemical industry. Xingsheng does not have any foaming equipment. It produces pipes with manual mixing of polyols.

16. Name of the director and his contact information are as follow:

Guoyu Yang
Telephone: 86-411-640-0786
Fax: None
Address: Changzhenbao, Ganzi District, Dalian 116035, China

Verification

17. The World Bank mission has taken the following verification steps at Xingsheng:

- Listened to Mr. Yang's introduction of Xingsheng and production of foam products;
- Checked and copied Xingsheng's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Dalian Xingsheng Insulation Material Plant was established before July 1995;
- Xingsheng does not have foaming equipment;
- Xingsheng consumed 16.63 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 20.68 tons, 23.58 tons, and 8.02 tons respectively;
- Production of foam in 2002 and 2003 are 251 tons and 64.16 tons respectively.

Table 4. 1999 Xingsheng CFC-11 Procurement Record

	Date	Amount (ton)	Supplier	Invoice Number
1	5/27	0.25	Dalian Chaofan Trade Co.	00303533
2	6/10	6	Dalian Chaofan Trade Co.	00607545
3	9/24	0.5	Dalian Chaofan Trade Co.	00362741
4	12/27	6.88	Dalian Chaofan Trade Co.	00616144
5	12/31	3		
	Total	16.63		

Lushun Insulation Material Plant

Enterprise Background

18. Lushun Insulation Material Plant (Lushun) was established in 1992. It has 5 employees and mainly produces pipe-in-pipe for district heating. Lushun has two foaming machines. Both of them low pressure spray foam machine with an output of 1 kg/min. Both machines were installed in 1993.

19. Name of the director and his contact information are as follow:

Xinqi Han
Telephone: None
Fax: None
Address: Sanji County, Lushun, Dalian 116043 , China

Verification

20. The World Bank mission has taken the following verification steps at Lushun:

- Listened to Mr. Han's introduction of Lushun and production of foam products;
- Checked and copied Lushun's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Lushun Insulation Material Plant was established before July 1995;
- Lushun has two foaming machines. Both installed before July 1995;
- Lushun consumed 15 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 15.05 tons, 7.5 tons, and 14 tons respectively;
- Production of foam in 2002 and 2003 are 261 tons and 112 tons respectively.

Table 5. 1999 Lushun CFC-11 Procurement Record

	Date	Amount (ton)	Supplier	Invoice Number
1	4/17	0.5	Dalian Fishing Machinery Co.	00489139
2	5/25	10	Dalian Fishing Machinery Co.	0372859
3	9/24	2	Dalian Chaofan Trade Co.	00362740
4	11/1	2	Dalian Fuda Polyurethane Plant	00389312
5	12/4	0.5	Dalian Fishing Machinery Co.	00080980
	Total	15		

Dalian Binshan Group Co. Ltd.

Enterprise Background

21. Dalian Binshan Group Co. Ltd. (Bingshan) was established in 1994. Bingshan has 11 employees and mainly doing spray foam for fishing boats. Bingshan has one Glas-Craft high pressure spray foam machine installed in 1998.

22. Name of the director and his contact information are as follow:

Yanjin Miao
Telephone:86-411-441-9799
Fax: None
Address: , China

Verification

23. The World Bank mission has taken the following verification steps at Bingshan:

- Listened to Mr. Miao's introduction of Bingshan and its contract with fishing boat plants;
- Checked and copied Bingshan's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Dalian Bingshan Group Co. Ltd. was established before July 1995;
- Bingshan has one foaming machine installed after July 1995;
- Bingshan consumed 77.15 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 87.75 tons, 88 tons, and 18.25 tons respectively;
- Production of foam in 2002 and 2003 are 702 tons and 131.4 tons.

Table 6. 1999 Bingshan Procurement Record of Preblended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	3/25	20	Dalian Fishing Machinery Co.	0555653
2	3/29	35	Dalian Fishing Machinery Co.	0555654
3	4/1	35	Dalian Fishing Machinery Co.	0555656
4	4/29	12.5	Dalian Fishing Machinery Co.	0555658
5	5/8	37.5	Dalian Fishing Machinery Co.	0555659
6	5/25	38.5	Dalian Fishing Machinery Co.	0555660
7	6/20	39	Dalian Fishing Machinery Co.	0555661
8	7/19	30	Dalian Fishing Machinery Co.	0555662
9	7/25	32.5	Dalian Fishing Machinery Co.	0555663
10	8/5	39	Dalian Fishing Machinery Co.	0555664
	Total Preblended Polyol	319		
	Total CFC-11	77.15		

DEDZ Polyurethane Foam Corporation

Enterprise Background

24. DEDZ Polyurethane Foam Corporation (DEDZ) was established in 1993. Zhongshan has 55 employees and mainly produces pipe-in-pipe for district heating. DEDZ has four foaming machines. Two were installed before July 1995 and two after. Two machines installed before July 1995 are low pressure spray foam machines (output 4kg/min) made by Leqing. Two machines installed after July 1995 are low pressure foam dispensers (output 150kg/min) made by Leqing.

25 Name of the director and his contact information are as follow:

Jifa Zheng
Telephone: 86-1390-411-6767
Fax: 86-411-763-8870
Address: 16 Qingsongbeili, Dalian 116600, China

Verification

26. The World Bank mission has taken the following verification steps at DEDZ:

- Listened to Mr. Zheng's introduction of DEDZ and production of foam products;
- Checked and copied DEDZ's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Dalian DEDZ Insulation Pipe Plant was established before July 1995;
- DEDZ has four foaming machines. Two were installed before July 1995 and two after;
- DEDZ consumed 22.17 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 24 ton, 32.5 tons, and 31.25 tons respectively;
- Production of foam in 2002 and 2003 are 263tons and 203.13 tons respectively.

Table 7. 1999 DEDZ CFC-11 procurement Record

	Date	Amount (ton)	Supplier	Invoice Number
1	4/15	0.25	Dalian Chaofan Trade Co.	00303556
2	6/28	8.2	Dalian Fishing Machinery Co.	0717817
3	9/27	2	Shenyang Yongxing Trade Co.	0069491
4	11/17	1.5	Tianjin Huawen Polyurethane	00921050
5	11/24	3	Shenyang Yongxing Trade Co.	003368888
6	12/31	7.22		
	Total	22.17		

Dalian Fishing Machinery Co. Ltd.

Enterprise Background

27. Dalian Fishing Machinery Co. Ltd. (Dalian Fishing) was established in 1979. Zhongshan has 50 employees and mainly produces insulation foam for fishing boats. Dalian Fishing has twelve foaming machines. Among twelve machines, four were installed before July 1995 and eight after. Six machines are out of service and six are in service during the visit. These six machines in service are all spray foam machines installed after July 1995.

28. Name of the director and his contact information are as follow:

Mingfu Yan
Telephone: 86-411-254-1356
Fax: None
Address: , China

Verification

29. The World Bank mission has taken the following verification steps at Dalian Fishing:

- Listened to Mr. Yan's introduction of Dalian Fishing and its insulation foam for fishing industry;
- Checked and copied Dalian Fishing's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Dalian Fishing Machinery Co. Ltd. was established before July 1995;
- Dalian Fishing has twelve foaming machines. Four were installed before July 1995 and eight after;
- Dalian Fishing consumed 92 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 109.71 tons, 107.47 tons, and 73 tons respectively;
- Production of foam in 2002 and 2003 are 858.2 tons and 547.5 tons respectively.

Table 8. 1999 Dalian Fishing procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1/25	3	Dalian Fishing Machinery Co.	0372851
2	2/7	5	Dalian Fishing Machinery Co.	0372853
3	3/8	8	Dalian Fishing Machinery Co.	0372856
4	5/30	7	Dalian Fishing Machinery Co.	0372860
5	6/8	9	Dalian Fishing Machinery Co.	0372863
6	6/13	3	Dalian Fishing Machinery Co.	0372866
7	6/25	6	Dalian Fishing Machinery Co.	0372868
8	7/30	3	Dalian Fishing Machinery Co.	0372876
9	7/30	4	Dalian Fishing Machinery Co.	0372877
10	9/25	8	Dalian Fishing Machinery Co.	0372882
11	9/27	5	Dalian Fishing Machinery Co.	0372888
12	10/15	5	Dalian Fishing Machinery Co.	0372893
13	11/3	4.5	Dalian Fishing Machinery Co.	0372901
14	11/20	6	Dalian Fishing Machinery Co.	0372904
15	12/25	7.5	Dalian Fishing Machinery Co.	0372909
16	12/30	8	Dalian Fishing Machinery Co.	0372912
	Total	92		

Beijing Zhonghai Runda Co. Ltd.

Enterprise Background

30. Beijing Zhonghai Runda Co. Ltd. (Zhonghai) was established in 1997. It has 42 employees and mainly does research on polyurethane products.

31. Name of the director and his contact information are as follow:

Ge Feng
Telephone: 86-10-6216-6988
Fax: 86-10-6216-6868
Address: 48 Nandajie, Haidian District, Beijing 100081, China

Verification

32. The World Bank mission has taken the following verification steps at Zhonghai:

- Listened to Mr. Feng's introduction of Zhonghai;
- Checked and copied Zhonghai's Industrial and Commercial Registration (License);

Conclusion

- Beijing Zhonghai Runda Co. Ltd. was established in 1997;
- Zhonghai currently does not produce polyurethane products, nor consume any CFCs.

Beijing Xinxing Tiandi Insulation Material Co. Ltd.

Enterprise Background

33. Beijing Xinxing Tiandi Insulation Material Co. Ltd. (Xinxing) was established in 1990. It has 50 employees and mainly produces pipe-in-pipe for civil and petroleum industries. It has two foaming machines. The high pressure foam dispenser (output: 140 kg/min) made by Yanjin was installed in 1999. The low pressure spray foam machine produced by Yanjin was procured in April 1995.

34. Name of the director and his contact information are as follow:

Yuanli Yao
Telephone: 86-10-6771-6540
Fax: 86-10-6774-9335
Address: Fanjifen Village, Chaoyang District, Beijing 100022, China

Verification

35. The World Bank mission has taken the following verification steps at Xinxing:

- Listened to Mr. Yao's introduction of Xinxing and its production of foam products;
- Checked and copied Xinxing's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Beijing Xinxing Tiandi Insulation Material Co. Ltd. was established before July 1995;
- Xinxing was in normal production of polyurethane foam pipes;
- Xinxing has two foaming machines. One installed before July 1995 and the other after;
- Xinxing consumed 68.11 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 85.13 tons, 86 tons, and 72.14 tons respectively.
- Production of foam in 2002 and 2003 are 561.53 tons and 469.62 tons.

Table 9. 1999 Xinxing Procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.4.9	51	Beijing Shunda Chemical Material Corporation	5205828
2	1999.4.28	2.02	Beijing Electric Technology Research Center	07908455
3	1999.5.4	2.5	Beijing Electric Technology Research Center	07908460
4	1999.6.21	45	Beijing Shunda Chemical Material Corporation	5205831
5	1999.6.23	2.5	Beijing Baola Polyurethane Co. Ltd.	02419919
6	1999.8.25	50	Beijing Shunda Chemical Material Corporation	5762087
7	1999.9.9	7	Beijing Baola Polyurethane Co. Ltd.	06469658
8	1999.7.22	4	Beijing Baola Polyurethane Co. Ltd.	02970472
9	1999.7.22	3.44	Beijing Baola Polyurethane Co. Ltd.	02970474
10	1999.10.17	50	Beijing Shunda Chemical Material Corporation	5762096
11	1999.10.21	8.25	Beijing Baola Polyurethane Co. Ltd.	06607016
12	1999.10.21	6.74	Beijing Baola Polyurethane Co. Ltd.	06607015
13	1999.11.11	6	Beijing Baola Polyurethane Co. Ltd.	06738096
14	1999.11.18	7	Beijing Baola Polyurethane Co. Ltd.	06738116
15	1999.11.18	6.72	Beijing Baola Polyurethane Co. Ltd.	06738117
16	1999.11.24	6.25	Beijing Baola Polyurethane Co. Ltd.	06738135
17	1999.12.27	7	Beijing Maohua Insulation Co.	00700808
18	1999.12.27	7	Beijing Maohua Insulation Co.	00700809
	Total	272.42		
	CFC-11	68.11		

Beijing Direct Insulation Pipe Plant

Enterprise Background

36. Beijing Direct Insulation Pipe Plant (Beijing Direct) was established in 1990. It has 96 employees and mainly produces pipe-in-pipe for civil and petroleum industries. It has two foaming machines. The high pressure foam dispenser (output: 220 kg/min) made by Dacheng was installed in 2001. The low pressure foam dispenser (100 kg/min) produced by Tianjin was installed in 1993.

37. Name of the director and his contact information are as follow:

Peilin Yan
Telephone: 86-10-8956-7048
Fax: 86-10-8956-7227
Address: Songzhuang Village, Tongzhou District, Beijing 101119, China

Verification

38. The World Bank mission has taken the following verification steps at Beijing Direct:

- Listened to Mr. Yan's introduction of Xinxing and its production of foam products;
- Checked and copied Beijing Direct's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Beijing Direct Insulation Pipe Plant was established before July 1995;
- Beijing Direct was in normal production of polyurethane foam pipes;
- Beijing Direct has two foaming machines. One installed before July 1995 and the other after;
- Beijing Direct consumed 108.98 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 112.02 tons, 107.94 tons, and 112.36 respectively;
- Production of foam in 2002 and 2003 are 753.38 tons and 817.15 tons.

Table 10. 1999 Beijing Direct Procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.1.15	40	Beijing Hongjiang Chemical Trading Co. Ltd.	5762126
2	1999.1.28	1	Beijing Baola Polyurethane Co. Ltd.	08615976
3	1999.2.1	0.6	Beijing Baola Polyurethane Co. Ltd.	08615987
4	1999.2.2	0.8	Beijing Baola Polyurethane Co. Ltd.	08615992
5	1999.3.3	1	Beijing Baola Polyurethane Co. Ltd.	08616021
6	1999.3.9	1.5	Tianjin Plastic Group	00327893
7	1999.3.9	1	Beijing Baola Polyurethane Co. Ltd.	08853084
8	1999.3.22	3	Beijing Baola Polyurethane Co. Ltd.	08853110
9	1999.3.28	45	Beijing Hongjiang Chemical Trading Co. Ltd.	5762131
10	1999.4.2	0.6	Beijing Jingjiu Equipmetn Co.	08652963
11	1999.4.23	2	Dongda Polymer Co. Ltd.	00246534
12	1999.4.26	58	Beijing Hongjiang Chemical Trading Co. Ltd.	5762135
13	1999.5.18	0.4	Beijing Baola Polyurethane Co. Ltd.	01500614
14	1999.5.18	2	Dongda Polymer Co. Ltd.	00247421
15	1999.5.27	2	Tianjin Plastic Group	00454839
16	1999.5.31	2	Dongda Polymer Co. Ltd.	00247933
17	1999.6.9	60	Beijing Hongjiang Chemical Trading Co. Ltd.	5762138
18	1999.6.10	2	Dongda Polymer Co. Ltd.	00247998
19	1999.6.16	2	Tianjin Plastic Group	00454951
20	1999.6.16	1	Tianjin Plastic Group	00454949
21	1999.6.22	2	Dongda Polymer Co. Ltd.	01892606
22	1999.7.8	0.5	Beijing Baola Polyurethane Co. Ltd.	02419959
23	1999.7.13	0.5	Beijing Baola Polyurethane Co. Ltd.	02419974
24	1999.7.16	2	Dongda Polymer Co. Ltd.	00808618

25	1999.7.21	1	Beijing Baola Polyurethane Co. Ltd.	02970468
26	1999.7.27	2	Dongda Polymer Co. Ltd.	00462485
27	1999.8.2	52	Beijing Hongjiang Chemical Trading Co. Ltd.	5762142
28	1999.8.5	2	Dongda Polymer Co. Ltd.	00452521
29	1999.8.9	2	Dongda Polymer Co. Ltd.	00462535
30	1999.8.9	3	Dongda Polymer Co. Ltd.	00462534
31	1999.8.13	1	Beijing Baola Polyurethane Co. Ltd.	02970521
32	1999.8.17	4	Dongda Polymer Co. Ltd.	00462582
33	1999.8.23	2	Dongda Polymer Co. Ltd.	00462600
34	1999.9.3	3	Dongda Polymer Co. Ltd.	00053344
35	1999.9.13	4	Dongda Polymer Co. Ltd.	00053394
36	1999.9.17	2	Beijing Baola Polyurethane Co. Ltd.	06469683
37	1999.9.17	1	Beijing Baola Polyurethane Co. Ltd.	06469684
38	1999.9.25	50	Beijing Hongjiang Chemical Trading Co. Ltd.	5762145
39	1999.9.29	3	Dongda Polymer Co. Ltd.	00053471
40	1999.10.8	3	Dongda Polymer Co. Ltd.	00053500
41	1999.10.11	2	Dongda Polymer Co. Ltd.	00074607
42	1999.10.15	4	Dongda Polymer Co. Ltd.	00074625
43	1999.10.19	2	Dongda Polymer Co. Ltd.	00074547
44	1999.10.22	3	Dongda Polymer Co. Ltd.	00074658
45	1999.10.26	2	Beijing Baola Polyurethane Co. Ltd.	06607028
46	1999.10.29	4	Dongda Polymer Co. Ltd.	00074687
47	1999.11.5	4	Dongda Polymer Co. Ltd.	00024722
48	1999.11.3	45	Beijing Hongjiang Chemical Trading Co. Ltd.	5762148
49	1999.11.19	4	Dongda Polymer Co. Ltd.	00024781
50	Total Preblended Polyol	435.9		
	Total CFC-11	108.98		

Hebei Jiangfeng Pipe Co. Ltd.

Enterprise Background

39. Hebei Jiangfeng Pipe Co. Ltd. (Hebei Jiangfeng) was established in 1994. It has 102 employees and mainly produces pipe-in-pipe for civil and petroleum industries. It has two foaming machines. The high pressure foam dispenser (output: 220 kg/min) made by Hebei was installed in 2004. The low pressure foam dispenser (120 kg/min) produced by Leqing was installed in May 1995.

40. Name of the director and his contact information are as follow:

Yanjiang Zhang
Telephone: 86-317-681-3188
Fax: 86-317-681-1188
Address: Xindian, Cangzhou, Hebei 061400, China

Verification

41. The World Bank mission has taken the following verification steps at Hebei Jiangfeng:

- Listened to Mr. Zhang's introduction of Jiangfeng and its production of foam products;
- Checked and copied Jiangfeng's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Hebei Jiangfeng Insulation Pipe Plant was established before July 1995;
- Hebei Jiangfeng was in normal production of polyurethane foam pipes;
- Hebei Jiangfeng has two foaming machines. One installed before July 1995 and the other after;
- Hebei Jiangfeng consumed 123.85 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 109.24 tons, 120.88 tons, and 118.02 tons respectively;
- Production of foam in 2002 and 2003 are 814.46 tons and 792.46 tons.

Table 11. 1999 Hebei Jiangfeng Procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.1.12	2	Tianjin Yuesheng New Material Research Institute	01161068
2	1999.1.19	25	Beijing Yatai Chemical Co. Ltd.	5761951
3	1999.3.20	45	Beijing Shunda Chemical Co. Ltd.	5762080
4	1999.4.18	50	Beijing Yatai Chemical Co. Ltd.	5761954
5	1999.5.12	52	Beijing Yatai Chemical Co. Ltd.	6093547
6	1999.6.1	50	Beijing Yatai Chemical Co. Ltd.	5761958
7	1999.7.1	58	Beijing Yatai Chemical Co. Ltd.	6096114
8	1999.7.29	40	Beijing Yatai Chemical Co. Ltd.	6096115
9	1999.8.17	0.405	Tianjin Yuesheng New Material Research Institute	00934890
10	1999.9.28	50	Beijing Yatai Chemical Co. Ltd.	6096119
11	1999.10.30	48	Beijing Yatai Chemical Co. Ltd.	5761972
12	1999.11.30	40	Beijing Yatai Chemical Co. Ltd.	5761975
13	1999.12.2	3	Tianjin Beichen New Material Plant	00274751
14	1999.12.20	32	Beijing Shunda Chemical Co. Ltd.	5762100
15	Total Preblended Polyol	495.405		
16	Total CFC-11	123.85		

Tianjin Xiatong Refrigeration Equipment Co. Ltd.

Enterprise Background

42. Tianjin Xiatong Refrigeration Equipment Co. Ltd. (Xiatong) was established in 1992. It has 65 employees and mainly produces sandwich panels. Xiatong uses hand mixing in its panel production and does not have any foaming machines.

43. Name of the director and his contact information are as follow:

Zikui Chen
Telephone: 86-22-6058-1102
Fax: 86-22-2691-0200
Address: Tiedong Road, Beichen District, Tianjin 300400, China

Verification

44. The World Bank mission has taken the following verification steps at Hebei Xiatong:

- Listened to Mr. Chen's introduction of Xiatong and its production of foam products;
- Checked and copied Xiatong's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Tianjin Xiatong Refrigeration Equipment Co. Ltd. was established before July 1995;
- Xiatong was in normal production of polyurethane foam panels;
- Xiatong does not have any foaming machines;
- Xiatong consumed 21.63 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 25.72 tons, 69.86 tons, and 36.25 tons respectively;
- Production of foam in 2002 and 2003 are 435.28 tons and 225.86 tons.

Table 12. 1999 Xiatong Procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.3.20	26	Beijing Shunda Chemical Co. Ltd.	5205826
2	1999.4.1	1.25	Tianjin Furong Polyurethane Plant	0405163
3	1999.4.19	0.5	Tianjin Furong Polyurethane Plant	0405167
4	1999.5.13	32	Beijing Shunda Chemical Co. Ltd.	5205829
5	1999.8.12	25	Beijing Longhai Petrochemical Corporation	0314777
6	1999.8.23	0.5	Tianjin Furong Polyurethane Plant	00046071
7	1999.9.2	0.75	Tianjin Jinman Polyurethane Plant	01468677
8	1999.9.6	0.5	Tianjin Jinman Polyurethane Plant	01468680
9	Total Preblended Polyol	86.5		
10	Total CFC-11	21.63		

Tianjin Yuesheng New Material Research Institute

Enterprise Background

45. Tianjin Yuesheng New Material Research Institute (Yuesheng) was established in 1991. It has 28 employees and mainly produces pipe-in-pipe, sandwich panel, and spraying foam for cold storage. Yuesheng has two foaming machines. The low pressure foam dispenser (output: 120 kg/min) made by Yanjin was installed in 1994. The low pressure spray foam machine (7 kg/min) produced by Leqing was procured in 1994.

46. Name of the director and his contact information are as follow:

Zhaosheng Song
Telephone: 86-22-2470-3272
Fax: 86-22-8481-6423
Address: Dabizhuang County, Dongli District, Tianjin 300240, China

Verification

47. The World Bank mission has taken the following verification steps at Yuesheng:

- Listened to Mr. Song's introduction of Yuesheng and its production of foam products;
- Checked and copied Yuesheng's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Tianjin Yuesheng New Material Research Institute was established before July 1995;
- Yuesheng was in normal production of polyurethane foam pipes;
- Yuesheng has two foaming machines. Both of them installed before July 1995;
- Yuesheng has both consumption and sale of pre-blended polyol. Sale of pre-blended polyol and CFC-11 are excluded from the consumption figures;
- Yuesheng consumed 49 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 59.59 tons, 62 tons, and 45 tons respectively;
- Production of foam in 2002 and 2003 are 410.15 tons and 297.69 tons.

Table 13. 1999 Yuesheng Procurement Record of Pre-blended Polyol

	Date	Amount	Supplier	Invoice
1	1999.1.12	0.75	Tianjin Dasi Chemical Co. Ltd.	01343046
2	1999.1.20	0.5	Tianjin Nianfeng Tradel Co. Ltd.	00077237
3	1999.1.25	1	Tianjin Huaqiang Polyurethane Co. Ltd.	01671673
4	1999.2.2	0.25	Tianjin Nianfeng Tradel Co. Ltd.	00588178
5	1999.3.12	0.25	Tianjin Nianfeng Tradel Co. Ltd.	00691940
6	1999.3.24	0.5	Tianjin Huaqiang Polyurethane Co. Ltd.	00758986
7	1999.3.27	0.25	Tianjin Dasi Chemical Co. Ltd.	00185881
8	1999.4.19	10	Beijing Yatai Chemical Co. Ltd.	5761955
9	1999.5.17	0.5	Tianjin Huaqiang Polyurethane Co. Ltd.	00433278
10	1999.5.24	1	Tianjin Qunrui Trade Co. Ltd.	00462951
11	1999.6.3	14	Beijing Yatai Chemical Co. Ltd.	5761959
12	1999.6.8	0.5	Tianjin Nianfeng Tradel Co. Ltd.	00476905
13	1999.6.8	0.75	Tianjin Nianfeng Tradel Co. Ltd.	00476906
14	1999.6.18	0.5	Tianjin Huaqiang Polyurethane Co. Ltd.	01042028
15	1999.6.21	0.75	Tianjin Aolunte Chemical Corporation	00756237
16	1999.7.20	18	Beijing Yatai Chemical Co. Ltd.	5761965
17	1999.9.5	12	Beijing Yatai Chemical Co. Ltd.	5761969
18	1999.10.28	0.75	Tianjin Yanxing Material Co. Ltd.	00012985
19	1999.11.1	14.5	Beijing Yatai Chemical Co. Ltd.	5761973
20	1999.11.10	2	Tianjin Huaqiang Polyurethane Co. Ltd.	00921036
21	1999.11.29	1	Tianjin Yanxing Material Co. Ltd.	00960378
22	1999.12.10	0.75	Tianjin Aolunte Chemical Corporation	01167525
23	1999.12.30	1	Tianjin Dasi Chemical Co. Ltd.	01403735

24	合计	81.5*		

*Yuesheng has both consumption and sale of its preblended polyol. Among 81.5 tons, 49 tons was consumption in 1999.

Tianjin Lifeng Development Co. Ltd.

Enterprise Background

48. Tianjin Lifeng Development Co. Ltd. (Lifeng) was established in 1992. It has 68 employees and mainly produces pipe-in-pipe for district heating and petroleum industries. Lifeng has three foaming machines. Two machines were installed in 1993 and one was installed in 1998. Two 1993 machines are low pressure foam dispensers (output:150 kg/min) made by Jinghai. 1998 machine is high pressure foam dispenser (output: 150 kgt/min) made by Leqing.

49. Name of the director and his contact information are as follow:

Baoyuan Zhao
Telephone: 86-22-2632-3358
Fax: 86-22-2632-3398
Address: Zhaoguli, Hebei District, Tianjin 300251, China

Verification

50. The World Bank mission has taken the following verification steps at Lifeng:

- Listened to Mr. Zhao's introduction of Lifeng and its production of foam products;
- Checked and copied Lifeng's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Tianjin Lifeng Development Co. Ltd. was established before July 1995;
- Lifeng was in normal production of polyurethane foam pipes;
- Lifeng has three foaming machines. Two of them were installed before July 1995 and one after;
- Lifeng consumed 110.67 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 124.25 tons, 129.31 tons, and 126.29 tons respectively;
- Production of foam in 2002 and 2003 are 823.62 tons and 805.23 tons.

Table 14. 1999 Lifeng Procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.1.19	30	Beijing Shunda Chemical Co. Ltd.	5762077
2	1999.2.3	1	Tianjin Aide Fine Chemical Corporation	00137582
3	1999.4.25	52	Tianjin Jinghai Plastic Plant	0262930
4	1999.5.30	55	Beijing Shunda Chemical Co. Ltd.	5762083
5	1999.6.24	4	Tianjin Aide Fine Chemical Corporation	00663736
6	1999.6.25	55	Beijing Yatai Chemical Co. Ltd.	6096110
7	1999.7.3	1	Tianjin Aide Fine Chemical Corporation	00990260
8	1999.8.12	7.4	Tianjin Aide Fine Chemical Corporation	00663747
9	1999.8.12	6.6	Tianjin Aide Fine Chemical Corporation	00663748
10	1999.8.14	50	Beijing Shunda Chemical Co. Ltd.	5762086
11	1999.9.16	6.5	Tianjin Aide Fine Chemical Corporation	00166804
12	1999.9.16	6	Tianjin Aide Fine Chemical Corporation	00166806
13	1999.9.16	6.5	Tianjin Aide Fine Chemical Corporation	00166803
14	1999.9.16	6.5	Aide Fine Chemical Co.	00166805
15	1999.9.28	40	Beijing Shunda Chemical Co. Ltd.	5762093
16	1999.9.29	4.545	Tianjin Aide Fine Chemical Corporation	00166811
17	1999.9.29	5.455	Tianjin Aide Fine Chemical Corporation	00166812
18	1999.10.8	3.08*	ICI	00721519
19	1999.10.25	40	Beijing Shunda Chemical Co. Ltd.	5762097
20	1999.11.15	8	Tianjin Aide Fine Chemical Corporation	00599814
21	1999.11.15	8	Tianjin Aide Fine Chemical Corporation	00599815
22	1999.11.20	8	Tianjin Xinnuo Chemical Co. Ltd.	00166757
23	1999.11.21	8	Tianjin Xinnuo Chemical Co. Ltd.	00166758
24	1999.11.22	8	Tianjin Xinnuo Chemical Co. Ltd.	00166759

25	1999.11.29	7	Tianjin Xinnuo Chemical Co. Ltd.	00166760
26	1999.11.29	7.72	Tianjin Xinnuo Chemical Co. Ltd.	00166761
27	1999.12.14	0.459	Tianjin Aide Fine Chemical Corporation	00940570
28	1999.12.25	5	Tianjin Tongda Polyurethan Plant	01239113
29	1999.12.25	5	Tianjin Tongda Polyurethan Plant	01239114
	Total Preblended Polyol	445.759		
	Total CFC-11	110.67		

*The mission has found that 3.08 tons of preblended polyol procured from ICI was non-CFC. So 0.77 tons was deducted from total of 111.44 tons.

Chengde Hongxing Refrigeration Equipment Co. Ltd.

Enterprise Background

51. Chengde Hongxing Refrigeration Equipment Co. Ltd. (Hongxing) was established in 1985. It has 120 employees and mainly produces sandwich panels and spray foam for cold storage. It has two foaming machines. The high pressure foam dispenser (output: 150 kg/min) made by Zhongyi was installed in 1998. The low pressure spray foam machine (9 kg/min) produced by Nangong was procured in 1994.

52. Name of the director and his contact information are as follow:

Jingzhu Han
Telephone: 86-314-610-5004
Fax: 86-314-610-5004
Address: Hongshanzui County, Pingquan, Hebei 067500, China

Verification

53. The World Bank mission has taken the following verification steps at Hongxing:

- Listened to Mr. Han's introduction of Hongxing and its production of foam products;
- Checked and copied Hongxing's Industrial and Commercial Registration (License);
- Visited production line and took photos;
- Visited inventory of raw materials and final products;
- Checked financial records and copied CFC-11 receipts year 1999, 2001, 2002, and 2003;

Conclusion

- Chengde Hongxing Refrigeration Equipment Co. Ltd. was established before July 1995;
- Hongxing was in normal production of polyurethane foam pipes;
- Hongxing has two foaming machines. One installed before July 1995 and the other after;
- Hongxing consumed 116.75 tons of CFC-11 in 1999;
- Consumption of CFC-11 in 2001, 2002, and 2003 are 124.24 tons, 125.07 tons, and 101.06 tons respectively;
- Production of foam in 2002 and 2003 are 813.08 tons and 623.54 tons.

Table 15. 1999 Hongxing Procurement Record of Pre-blended Polyol

	Date	Amount (ton)	Supplier	Invoice Number
1	1999.1.7	30	Beijing Shunda Chemical Co. Ltd.	5762076
2	1999.3.5	45	Beijing Shunda Chemical Co. Ltd.	5762078
3	1999.4.30	58	Beijing Shunda Chemical Co. Ltd.	5762082
4	1999.5.28	56	Beijing Yatai Chemical Co. Ltd.	5761957
5	1999.6.25	52	Beijing Yatai Chemical Co. Ltd.	5761962
6	1999.7.30	60	Beijing Yatai Chemical Co. Ltd.	5761966
7	1999.8.10	60	Beijing Shunda Chemical Co. Ltd.	5762085
8	1999.9.30	55	Beijing Shunda Chemical Co. Ltd.	5762094
9	1999.11.2	50	Beijing Shunda Chemical Co. Ltd.	5762098
10	1999.11.9	1	Dongda Polymer Corporation	0148832
11	Total Preblended Polyol	467		
12	Total CFC-11	116.75		

CFC-11 PHASEOUT IN THE POLYURETHANE CHINA FOAM SECTOR

2005 ANNUAL PROGRAM

MP PROJECT MANAGEMENT OFFICE
STATE ENVIRONMENTAL PROTECTION AGENCY, CHINA

AND

THE WORLD BANK

September 30, 2004

Data Sheet

Country	People's Republic of China
Project title:	Sector Plan for phasing out the use of CFC in the PU Foam Sector
Year of plan	2005
# of years completed	3
# of years remaining under the plan	4
Ceiling for 2004 national CFC consumption (in ODP tons), 2003 Annual Plan	13,100 ODP tonnes
Ceiling for 2005 national CFC consumption (in ODP tons), 2004 Annual Plan	10,400 ODP tonnes
Ceiling for 2004 CFC consumption in the PU foam sector	11,666 ODP tones
Ceiling for 2005 CFC consumption in the PU sector	9,646 ODP tones
Total funding approved in principle for the foam sector plan	US$53.846 million
Total funding released as of Oct. 2004	US$33.413 million
Level of funding requested for 2005 Annual Plan	US$10.903 million

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

TABLE OF CONTENTS

Introduction

1. In accordance with the Executive Committee's approval of the "Agreement for the China CFC 11 PU Foam Sector" (UNEP/Ozl.Pro/ExCom/35/19, Decision and Annex), China is hereby requesting release of the **fourth tranche of US$10.903 million** for the implementation of the 2005 annual program. With this funding, China's CFC-11 consumption in the PU foam sector will be limited to a **maximum of 9,646 ODP MT** by the end of 2005. Details of the 2005 annual program are provided in Section B.

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

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

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

Statistics of China's Annual CFC-11 Consumption in 2003

3. China's annual national CFC-11 consumption and the CFC-11 consumption in PU foam sector in the year of 2003. China's national CFC-11 consumption in 2003 was 13,994.34 tonnes, CFC-11 consumption in PU foam sector was 11,423.48 tonnes. Both were controlled within the consumption limits set forth in the Agreement for the China CFC 11 PU Foam Sector.

Part A

IMPLEMENTATION STATUS OF THE 2002-2004 ANNUAL PROGRAMS

Policy and Government Actions

4. In order to put production, trade, import & export, and consumption of ODS under control, the government made greater efforts to push the effective enforcement of existing regulations and laws and take further measures to step up the campaign against the illegal production, trade, and consumption of ODS. These actions greatly support the smooth implementation of the sector plan and laid a solid foundation for the success of overall CFC-11 phaseout in China.

a. ***Raising public awareness of the related existing policies.*** The government is always raising the public awareness of the related regulations and laws in place on ODS phaseout by various ways including training programs and sino-PU website. The sino-PU website has been operating favorably since its establishment and received more than 41,000 visits.

b. ***Production control of CFC-11.*** The regulation on Tradable Production Quota has been under implementation since 1999. Production of CFC-11 was under control as previous years.

a. ***Export and import control of ODS***. The Management Regulation on Export/Import Control of ODS, promulgated in December 1999 by SEPA in collaboration with Ministry of Foreign Trade and Economic Cooperation (MOFTEC) and General Administration of Customs (GAC), covers all ODS as well as related equipment and facilities that produce or consume ODS. ODS Export/Import quota and permit systems have been adopted, and all enterprises wishing to export or import ODS must hold both a quota issued by SEPA and MOFTEC, as well as specific export/import permits. GAC supervises exports and imports of ODS. China has also promulgated the Export/Import Control List of ODS in China, the First Group in January, 2000, the Second Group in January 2001, and the third group in January 2004. Under this regulation, China has banned imports of CTC , import and export of CFC-113 used as solvent and introduced quota and permit requirements exports and imports of CFC-11, CFC-12, CFC-113 (not used as solvent), CFC-114, CFC-115, CFC-13 and TCA.

c. ***Consumption control of CFC-11 in other sectors.*** Together with the PU foam sector plan, the tobacco sector plan, the domestic refrigeration sector plan, and the industrial and commercial refrigeration sector plan, are also under implementation. Thus, CFC-11 consumption for these three sectors was under control on an annual basis under each sector plan, which enables the foam sector to limit its national CFC-11 consumption limit to the agreed targets.

d. Substitute development. The government attaches great importance to the substitute to CFC-11 for foam production and encourages research and development activities carried out by enterprises and research institutes. Seminars and workshops were held and participated by experts and specialists to exchange information on substitute technologies, including possible solutions to solve problems occurred in foam production using HCFC 141b, and possible application of new technologies with HFC 245fa.

e. ***Capacity Building.*** Government held several workshops and training sessions to improve knowledge and capabilities of CFC-11 foam enterprises on the use of substitute and understanding of substitute technologies. SEPA staffs were also provided training on project management.

Enterprise Phaseout Activities

5. As of June 2004, nine conversion contracts have been signed, accounting for a total of 6,461.98 ODP tons of CFC-11 to be phased out. (See Annex 1 table 1.1)

6. The 2002 annual program comprised three restructuring projects: Xinxiang Xinyuan, Chengdu Jinjiang, and Zhejiang Chunhui. The Chengdu Project will phase out 552 MT of CFC-11 in seven enterprises, the Xinxiang Project will phase out 636 MT of CFC-11 in eight enterprises, and the Chunhui Project will phase out 1164.98 MT of CFC-11 in 31 enterprises. Under these three projects, a total of 2,353 MT of CFC-11 consumption will be phased out by the end of 2005 (eliminating the use of CFC-11 at 46 enterprises). Some CFC-11 foam production lines and equipment have so far been disposed. The CFC-11 consumption of these three projects is going down. More details of implementation status are summarized in Annex 1 table 1.1 and 1.2.

7. Under the 2003 Annual Program, three restructuring project contracts were signed including Lanzhou Huayu, Shaoxing Weike, and Nantong Xinyuan. The Lanzhou Project will phase out 1,075.44 MT of CFC-11 in 19 enterprises, the Shaoxing Project will phase out 997.75 MT of CFC-11 in five enterprises, and the Nantong Project will phase out 648.11 MT of CFC-11 in 11 enterprises. Under these three projects, a total of 2,721 MT of CFC-11 consumption will be eliminated by the end of 2006 (eliminating the use of CFC-1 at 35 enterprises). Some CFC-11 foam production lines and equipment have so far been disposed. The CFC-11 consumption of these three projects is going down. More details of implementation status are summarized in Annex 1 table 1.1 and 1.2.

8. Under the 2004 Annual Program, six restructuring project contracts are covered: Dalian Yuji, Fenghua Yongxing, Beijing Zhonghai, Hejian Hongda, Ningbo Lantian, and Shanghai Jinyuanyuhua. Three conversion contracts for Dalian Yuji, Fenghua Yongxing, Beijing Zhonghai were signed in March and May 2004. The Dalian Project will phaseout 303.9 MT of CFC-11 in seven enterprises, the Fenghua Project will phaseout 484 MT of CFC-11 in nine enterprises, and the Beijing Project will phaseout 599.8 MT of CFC-11 in eight enterprises. The feasibility studies for the other three projects, Hejian, Ningbo, and Shanghai were approved and their conversion contracts will be signed in September and November 2004. The Hejian Project will phaseout 399.7 MT of CFC-11 in 25 enterprises; the Ningbo Project will phaseout 226.11 MT of CFC-11 in five enterprises; and the Shanghai project will phaseout 1,400 MT of CFC-11 in 26 enterprises. A total of 3,413.51 MT of CFC-11 consumption for the six projects will be phased out by the end of 2006 (eliminating the use of CFC-11 at 80 enterprises). More details of implementation status are summarized in Annex 1 table 1.1 and 1.2.

9. As indicated above, the implementation of 2002 annual program was audited by the China National Audit Office in 2003; the implementation of 2003 annual program was audited by the China National Audit Office in 2004.

10. **World Bank Verification of CFC-11 Consumption in Signed Reduction Contracts (Annex 2).**

a. In August 2002, the Bank verified and confirmed that CFC –11 consumption in Chengdu project which consumed a total of 552 MT. This is one of the three contracts in the 2002 annual program. This project constitutes about 22% of the 2,500MT targets, and 33% of the contracts (3) signed.
b. In August 2003, the Bank verified and confirmed that CFC-11 consumption in the Nantong project which consumed a total of 649.1 MT. This is one of the three contracts in the 2003 annual program. This project constitutes about 26% of the 2,500MT targets, and 33% of the contracts (3) signed.
c. In June 2004, the Bank has verified and confirmed that CFC-11 consumption in Beijing and Dalian projects which consumed a total of 900.29 MT. These are two of the five contracts in the 2004 annual program. These projects constitute about 36% of the 3,413.51MT targets, and 16% of the contracts (6) signed.

Technical Assistance Activities

11. TA activities envisaged under the Sector Plan concentrate on strengthening: (a) the overall institutional framework for phaseout; (b) substitute chemical development; (c) management, monitoring & evaluation capabilities of participating institutions; (d) skills of enterprise managers involved in CFC-11 consumption phaseout activities; and (e) information exchange. These are all essential to the success of the phaseout.

12. Twenty-one technical assistance activities have so far been planned under 2002-2004 annual programs, among them, 9 is under 2002 Annual Program and 6 under each of 2003 and 2004 Annual Programs. The project of *Manual on substitute technology in the PU foam Sector* under 2003 Annual Program was cancelled and the project of *Preparation of Feasibility Study Reports* was proposed by SEPA, approved by the World Bank and put in 2003 Annual Program. The total project number remains unchanged. Among these, twelve (12) have been completed and nine (9) are under implementation (Annex 3). All terms of reference and detailed work programs will be agreed with the World Bank before implementation. Most of these activities are expected to be completed within two years. The general status of the 2002-2004 technical assistance activities are summarized in the annex 3. The status of the 2004 technical assistance activities with details is summarized as follows:

a. ***F-04-TA1-Training of personnel in implementation of phaseout activities.*** The Terms of Reference for this project was by the World Bank in June 2004. Three workshops will be organized under this project for staff in the foam team in the ozone unit, local experts, prospective beneficiaries in the 2004 and 2005 annual programs, the DIA, procurement agency, general contractors, and enterprises under the 2002 and 2003 annual programs. The training includes (1) international agreements and conventions on ozone layer protection, (2) foam sector plan, (3) project implementation manual, (4) CFC-11 consumption verification, (5) preparation of feasibility study report, (6) procurement procedure and requirement, (7) project financial management and audit, (8) progress report preparation, and (9) CFC-11-based equipment disposal requirement and procedure. It is

planned that one training workshop will be conducted by the end of 2004, the other two will be held in 2005.

b. ***F-04-TA2-PU foam products standard formulation and revision (Phase II).*** According to the study results of the TA project in 2002, 33 technical standards were identified for revision and formulation. Six relevant standards were arranged under the 2003 annual program. Another seven standards will be revised and formulated under the 2004 annual program. The formulation and revision of foam products standards will last until 2007. The Terms of Reference for the 2004 TA was cleared by the Bank in June 2004 and the potential implementing institute is under selection.

c. ***F-04-TA3-The 2003 performance audit.*** A Performance audit is required under the foam sector plan to be carried out by the China National Audit Office (CNAO). The 2003 performance audit was undertaken in June 2004 and the final audit report was submitted to the Bank in August 2004.

d. ***F-04-TA4-A Research on the application of HFC-245fa technology.*** Substitute technology is one of the most important elements for the implementation of the Foam Sector Plan. As a substitute to CFC-11 with zero ODP, HFC-245fa application has been commercially applied in developed countries, especially in United States and European countries. Besides, one of raw materials of HFC-245fa production is CTC. If the application of HFC-245fa is successful in China, it could have a contribution to CTC production phaseout in China. This proposed TA would conduct a research on the application of HFC-245fa to foam production, which could include (i) initial study and screening of formulation basing on the local available PU foam raw materials, (ii) performance comparison of foam products produced with different PU systems of HFC-245fa, HCFC-141b, and CFC-11, and (iii) comparison on economic and technical factors of the above three systems to provide basis for the application of HFC-245fa technology in China. The Terms of Reference was cleared by the Bank in June 2004 and the potential implementing institute is under selection. The bidders have sent their bidding documents to SEPA for evaluation.

e. ***F-04-TA5- Study tours.*** Two study tours are necessary to know about the application of the HFC-245fa technology in foreign countries where the technology is working well. The study teams will go to Europe and the Untied States to (i) visit foam producers using HFC-245fa technology, (ii) visit chemical companies to get information on raw materials and formulation for foam production using HFC-245fa, and (iii) visit related research institutes to learn the status and trend of HFC-245fa technology development. The Terms of Reference for the project was cleared by the Bank in June 2004 and the two study tours will be in late 2004 or early 2005.

f. ***F-04-TA6- Consultant services.*** Three groups of local consultants have been recruited under previous annual programs to provide technical assistances for enterprises. Consultant services have been proved to be very useful to the implementation of the foam sector plan. The Terms of Reference for this TA was cleared by the Bank in June 2004. 14 individual consultants in different groups have signed contracts with SEPA.

PART B

2005 ANNUAL PROGRAM

Phaseout Targets

13. By the end of 2005, national CFC-11 consumption target will be limited to 10,400 MT through the control of CFC-11 production in the CFC production sector being implemented, and the control of net CFC-11 import. At the same time, CFC-11 consumption in the PU foam sector will not exceed 9,646 MT through the completion of individual investment projects that were approved by ExCom and funded by the MLF in the past five to six years. For 2005, the CFC-11 phaseout targets in PU foam sector is 2,500 MT, which will be phased out by the end of 2007. All contracts for these 2,500 MT of CFC-11 will be signed in 2005. It is envisaged that the US$10,903 million will be allocated to PU foam enterprises to convert from CFC-11 foam production to non-CFC foam production and for technical assistance activities.

Program Activities in 2005

14. ***Policy and government actions***. In 2005, the following government actions will continue to support program activities and are considered necessary for the success of total CFC-11 phaseout in the PU foam sector in China.

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

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

c. ***Export and import control of ODS.*** All policies on ODS import and export described in Para. 4/c under Part A will continue effective.

d. ***Consumption control of CFC-11 in other sectors.*** All other sector plans will continue implementation of CFC phaseout according to the agreement.

e. Substitute development. Government will continue its support to the development of substitutes and research for non-CFC chemicals for foam production.

f. Institutional strengthening. Government will continue its efforts to improve knowledge and capabilities of project management personnel and various parties which involved in the phaseout program including foam enterprises in terms of related policies and understanding of new substitute technologies.

15. **Enterprise activities**. SEPA will identify PU foam enterprises with total CFC-11 consumption amounting to at least 2,500 MT under 2005 AP according to agreement. A minimum of 50% of the reduction contracts are expected to be signed by the mid-2005, and another 50% to be signed not later than by the end of 2005. Based on the current preparation status, SEPA expects five to six large regional projects to be included in the 2005 annual program. The enterprise activities will be changed depending on the CFC accelerated phaseout plan.

16. **Technical assistance activities.** The following activities are proposed for 2005:

a. ***F-05-TA1-Training of personnel in implementation of phaseout activities.*** Training for concerned stakeholders has been proved to be very important for the implementation of the foam sector phaseout plan according to the past few year's experience. Due to staff change and new enterprises involved, training in 2005 will continue to be provided to: (i) CFC-11 foam producers; (ii) local environment protection agencies and sector bureaus, (iii) audit agencies, and (iv) local experts. Training will help them to understand all policies related to CFC-11 consumption phaseout, and the sector plan implementation mechanism. This type of training will need to be repeated every year in the first few years of implementation. Three workshops are planned under this TA.

b. ***F-05-TA2-PU foam products standard formulation and revision (Phase III).*** According to the study results of the TA project in 2002, 33 technical standards were identified for revision or formulation. It was planned that six relevant standards would be revised or formulated each year since 2003. The formulation and revision of foam products standards will last until 2007. It is planned that five to six standards will be revised and formulated in 2005. In order to bring the standards established/revised under this TA project in line with international practice, two study tours will be organized to go to Europe, United States and Japan to exchange views and experiences with counterparts. These counterparts include (1) related associations which are responsible for formulation of foam product standards, (2) foam producers with these standards, and (3) research institutes for foam production techniques , raw materials of foam production, and applications of technical standards for foam production. Participants of the tours will include representatives from the institute which will implement this TA, project management staff from SEPA and DIA, and typical enterprise representatives, as well as technical experts for foam production.

c. ***F-05-TA3-The 2004 performance audit.*** Since the yearly performance audit is a requirement of implementing the Sector Plan, it will continue to be done in 2005. The audit of 2004 AP will be carried out in the second quarter of 2005 and completed by the end of June 2005.

d. ***F-05-TA4- International Forum on CFC Accelerated Phaseout Plan for PU Foam Sector in China.*** An international forum on CFC accelerated phaseout plan (APP) in the foam sector will be held after it gets approval. Based on the CFC APP, CFCs in the foam sector will be totally phased out by the end of 2007, two years ahead of the current foam agreement. The purpose of the international forum is to give all related stakeholders an opportunity to discuss how to successfully implement the CFC APP in the foam sector. About 600 participants will be invited from related governmental agencies, international implementing agencies of MP projects, project enterprises and other foam enterprises, related industrial associations, universities and research institutes, individual experts.

e. ***F-05-TA5- Consultant services.*** Consultant services will be continued to help the Sector Plan implementation in 2005.

17. The above policy and government actions, enterprise-level activities and technical assistance activities are summarized in Table 2 below.

Table 2: 2005 Annual Program

(Amount in US$ Million)

Please revise the "policy measures" part

CFC 11 control targets			
Control targets in 2005	**CFC 11 in MT ODP**	**Performance Indicators**	**Key Dates**
National CFC 11 consumption limit	10,400	g. Government confirms that the two CFC-11 consumption targets for 2004 are met.	j. June 2005
CFC 11 consumption limit in PU sector	9,646	h. ODS reduction contracts amounting to at least 1,250 MT of CFC11 in the 2005 annual program to be signed before mid-2005.	k. June 2005
CFC 11 phaseout targets in PU foam sector	2,500	i. Implementation of TA activities to help phaseout.	3. Throughout the year

Policy Measures			
Measures	**Funding**	**Performance Indicators**	**Key Dates**
Ban on new construction of CFC-11 foam production	n.a.	1. training workshops to be held for local government officers and all stakeholders	Throughout the year
Production control of CFC-11	n.a.	1. Establish 2005 annual CFC-11 production quota 2. Issue annual production quota to CFC-11 producers for 2005	1. Nov. 2004 2. April 2005
Import/Export control of ODSs	n.a.	1. Implement the import/export license system	Throughout the year
Consumption control of CFC-11in other sectors	n.a.	1. Other CFC-11 consuming sectors will continue implementation as per their sector plans	Throughout the year
Substitute development	n.a.	1. Development and application of new substitute technologies in CFC phaseout will be encouraged and supported.	Throughout the year
Institutional strengthening	n.a.	1. Training workshops and PU website will be used as means to meet the target	Throughout the year

Enterprise activities			
Activities	**Funding (US$ million)**	**Performance Indicators**	**Key Dates**
Conversion of CFC-11 consuming enterprises in PU foam enterprises	Not determined yet	1. Training workshops to be held to invite participation of prospective enterprises for 2005 annual program 2. Project proposals prepared and evaluated 3. To determine grant funds after project evaluation 4. Selection of enterprises to be included in the annual program 5. 50% of the 2005 AP Reduction contracts signed 6. Implementation of signed projects	1. Throughout the year 2. Throughout the year 3. Throughout the year 4. Throughout the year 5. Throughout the year 6. Throughout the year

Table 2: 2005 Annual Program (cont.')

(Amount in US$ million)

Technical Assistance Activities				
TA#	**Activities**	**Funding[1/] (US$ Million)**	**Performance Indicators**	**Key Dates**
F-05-TA1	Training of Personnel Involved in Implementation of Phaseout Activities	0.05	1. TOR to be agreed with the Bank 2. Conduct all workshops	1. 1Q 2005 2. Throughout 2005 and 2006
F-05-TA2	Standard Formulation and Revision (Phase III)	0.10	1. TOR to be agreed with the Bank 2. Start process in recruiting a consulting firm 3. Study tours 4. Formulation and revision of standards 5. Submit final report	1. 1Q-2Q2005 2. 3Q2005 3. 4Q2005 4. 4Q2005 - 2Q2006 5. 3Q2006
F-05-TA3	The 2003 Performance Audit	0.07	1. TOR to be agreed with the Bank 2. Training of auditors 3. Audit 4. Submit audit report before June 30, 2005	1. 1Q 2005 2. 1Q 2005 3. 2Q 2005 4. June 30, 2005
F-05-TA4	International Forum on ODS Accelerated Phaseout Plan for PU Foam Sector in China (about 600 people)	0.136	1. TOR to be agreed with the Bank 2. Advertise by website and newpapers 3. Invite dissertation 4. Hold the forum	1. 1Q 2005 2. 1Q 2005 3. 1Q 2005 4. Sept. 2005
F-05-TA5	Consultant Services	0.06	1. TOR to be agreed with the Bank 2. Recruitment of consultants to Provide consulting services in 2005	1. 1Q 2005 2. Throughout 2005
Total		**0.416**		
Total for phaseout activities		**10.903**		

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

Annex 1

Implementation Status of Enterprise Activities under 2002 - 2004 Annual Programs

Table 1.1: Basic Information on Conversion Projects as of June 30, 2004

Project Name	CFC-11 Consumption (tons)	Contract Number	Grant Amount (1,000 USD)	Annual Program	Date of Contract Signing
1. Xinxiang Huojia	636	Con-F-02-Iv-01	2,441.6	2002	Sept.2, 2002
2. Chengdu Jinjiang	552	Con-F-02-Iv-02	2,166.3	2002	Aug.20, 2002
3. Zhejiang Chunhui	1164.98	Con-F-02-Iv-03	5,125.9	2002	Dec.27, 2002
4. Lanzhou Huayu	1075.44	Con-F-03-Iv-01	4,664.3	2003	Jan.9, 2003
5. Shaoxingshi Weike	997.75	Con-F-03-Iv-02	4,264.22	2003	Jan.9, 2003
6. Nantong Xinyuan	648.11	Con-F-03-Iv-03	2,510.93	2003	Jan.9, 2003
7. Dalian Yuji	303.9	F/III/S/04/093	1,295	2004	March 19, 2004
8. Fenghua Yongxing	484	F/III/S/04/094	1,800	2004	April 5, 2004
9. Beijing Zhonghai	599.8	F/III/S/04/095	2,595.6	2004	April 9, 2004
10. Hejian Hongda	399.7	Not signed yet		2004	
11. Ningbo Lantian	226.11	Not signed yet		2004	
12. Shanghai Jinyuanyuhua	1400	Not signed yet		2004	
Total	8487.79				

Table 1.2: Implementing Status of Conversion Projects under 2002 - 2004 Annual Programs

Project Name	CFC Equipment Disposal	CFC Consumption in 2003	New Equipment Procurement	Civil works of Projects	Estimated Physical Completion Date
1. Xinxiang Xinyuan	Total: 8 lines Disposal Completed	0	Will arrive in Oct., 2004	Under construction	March 2005
2. Chengdu Jinjiang	Total: 7 lines 4 foam production lines using CFC-11 disposed	356	Will arrive in Oct., 2004	Under construction	March 2005
3. Zhejiang Chunhui	Total: 101 units 41 units disposed	45.59	Will arrive in Oct., 2004	Under construction	June 2005
4. Lanzhou Huayu	Total: 34 units 19 units disposed	979.007	Will arrive in Oct., 2004	Under construction	June 2005
5. Shaoxingshi Weike	Total: 65 units Disposal Completed	273.52	Will arrive in Oct., 2004	Under construction	June 2005

Project Name	CFC Equipment Disposal	CFC Consumption in 2003	New Equipment Procurement	Civil works of Projects	Estimated Physical Completion Date
6. Nantong Xinyuan	Total: 11 lines 6 lines disposed	116.5	Will arrive in Oct., 2004	Under construction	June 2005
7. Beijing Zhonghai	Total: 13 units 0 disposed	601.41	Not start yet	Not start yet	December 2006
8. Dalian Yuji	Total: 20 units 0 disposed	219.58	Not start yet	In bidding	June 2006
9. Fenghua Yongxing	Total: 9 lines 0 disposed	469.86	Not start yet	In bidding	June 2006
10. Hejian Hongda	Total: 49 units 0 disposed	494.19	Not start yet	Not start yet	December 2006
11. Ningbo Lantian	Total: 12 units 0 disposed	264	Not start yet	Not start yet	December 2006
12. Shanghai Jinyuanyuhua	Total: 217 units 0 disposed	1747.85	Not start yet	Not start yet	December 2006

Annex 2: World Bank Verification of CFC-11 Consumption in Signed Reduction Contracts

Table 2.1: World Bank Verification of Eligibility and CFC-11 Phaseout Amounts in August 2002 for 2002 Annual Program

Name of Enterprises	Date of Establishment	CFC-11 Consumption				Verified
		1997	1998	1999	1997-99	
Chengdu Industrial Restructuring PU Flexible foam project – The Chengdu JinJiang Foam General						
1. Duocai Co. Ltd.	1993	67	74	88	76.33	Verified
2. Huiyu Co. Ltd.	1994	76	86	95	85.67	Verified
3. Hongyang Foam Plant	1994	68	75	84	75.67	Verified
4. Liuli Foam Plant	1991	70	75	96	80.33	Verified
5. Qianjin Foam Plant	1992	69	81	87	79.00	Verified
6. Dongzikou Foam Plant	1989	78	71	89	79.33	Verified
7. Chongqing Jinjiang Foam Plant	1994	57	71	99	75.67	Verified
Total		**485**	**533**	**638**	**552**	

Table 2.2: World Bank Verification of Eligibility and CFC-11 Phaseout Amounts in August 2003 for 2003 Annual Program

Name of Enterprises	Date of Establishment	CFC-11 Consumption				Verified
		1999	2000	2001	99-01	
Nantong Xinyuan Industrial Restructuring PU Flexible foam project						
1. Tongzhou Xianfeng Xinan Polyurethane Foam Plant	1991	67.5	44	31	47.5	Verified
2. Tongzhou Xianfeng Polyurethane Foam Co. Ltd.	1993	91.5	80	72.5	81.33	Verified
3. Nantong Haoli Laminating Textile Plant	1992	55.5	54.5	45	51.67	Verified
4. Tongzhou Nanxing Polyurethane Foam Plant	1992	65.5	45	39.5	50	Verified
5. Rugao Jinru Polyurethane Foam Co. Ltd.	1994	79.5	88.5	80	82.67	Verified
6. Rugao Jixing Polyurethane Foam Co. Ltd.	1993	94	81.5	72.3	82.6	Verified
7. Xuzhou Tongshan Polyurethane Foam Plant	1990	89	79	66	78	Verified
8. Fengxian Pengya Polyurethane Foam Plant	1995	53	40	32	41.67	Verified
9. Pizhou Kesheng Polyurethane Foam Co. Ltd.	1993	50	43.3	34	42.43	Verified

Name of Enterprises	Date of Establishment	CFC-11 Consumption				Verified
		1999	2000	2001	99-01	
10. Dafeng Zhongyi Laminating Foam Plant	1986	67.7	46.1	19.8	44.53	Verified
11. Jiangyan Harbor Plastic Foam Plant	1991	65.3	42.5	32.3	46.7	Verified
Total		**778.55**	**644.4**	**524.4**	**649.1**	

Table 2.3: World Bank Verification of Eligibility and CFC-11 Phaseout Amounts in June 2004 for 2004 Annual Program

Name of Enterprises	Date of Establishment	CFC-11 Consumption				Verified
		2001	2002	2003	Baseline (1999)	
Dalian Yuji project						
1. Dalian Zhongshan Insulation Pipe Plant	1993	50.3	46.7	32	40.5	Verified
2. Dalian Zhongda Refrigeration Equipment Co. Ltd.	May 1995	47.75	33.52	41.81	37.85	Verified
3. Dalian Xingsheng Insulation Material Plant16.63	June 1995	20.68	23.58	8.02	16.63	Verified
4. Lushun Insulation Material Plant	1992	15.05	7.5	14	15	Verified
5. Dalian Binshan Group Co. Ltd.	1994	87.75	88	18.25	77.15	Verified
6. DEDZ Polyurethane Foam Corporation	1993	24	32.5	31.25	22.17	Verified
7. Dalian Fishing Engine Industry Corporation	1979	109.71	107.47	73	92	Verified
Beijing Zhonghai						
1. Beijing Zhonghai Runda Co. Ltd.	1997	0	0	0	0	Verified
2. Beijing Xinxing Tiandi Insulation Material Co. Ltd.	1990	85.13	86	72.14	68.11	Verified
3. Beijing Direct Insulation Pipe Plant	1990	112.02	107.94	112.36	108.98	Verified
4. Hebei Jiangfeng Pipe Co. Ltd.	1994	109.24	120.88	118.02	123.85	Verified
5. Tianjin Xiatong Refrigeration Equipment Co. Ltd.	1992	25.72	69.86	36.25	21.63	Verified
6. Tianjin Yuesheng New Material Research Institute	1991	59.59	62	45	49	Verified
7. Tianjin Lifeng Development Co. Ltd.	1992	124.25	129.31	126.29	110.67	Verified
8. Chengde Hongxing Refrigeration Equipment Co. Ltd.	1985	124.24	125.07	101.06	116.75	Verified

Name of Enterprises	Date of Establishment	CFC-11 Consumption				Verified
		2001	2002	2003	Baseline (1999)	
Total					900.29	

Annex 3 Technical Assistance Activities, 2002-2004

Table 3.1: Implementation of Technical Assistance Activities in the 2002 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Planed Completion Date	Implementation status/remarks
F-02-TA1	MIS Equipment	FECO	2003-4-15	2003-4-16	Completed
F-02-TA2	Study Tours	FECO/DIA	n.a.	3Q 2002	Completed
F-02-TA3	PU website establishment	FECO/DIA	n.a.	2003-6-30	Completed
F-02-TA4	Consultant Service	Individual consultants		2003-12-31	Completed
F-02-TA5	Standard Revision Preparation	IPPA[1]	2002-9-1	2003-2	Completed
F-02-TA6	IOC Management Research	Beijing University	2002-9-1	2003-3-15	Completed
F-02-TA7	Training	FECO/DIA	n.a.	2003-12	Completed
F-02-TA8	PU International Forum	FECO/DIA	2002-11	2003-5-1	Completed
F-02-TA9	CO_2 and H_2O technology Survey	JRICI[2]	2002-9-13	2003-3-30	Completed

1. Institute of Plastics Processing & Application of Light Industry
2. Jiangsu Research Institute of Chemical Industy

Table 3.2: Implementation of Technical Assistance Activities in the 2003 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Planed Completion Date	Implementation status/remarks
F-03-TA1	Training	FECO/DIA	n.a.	2004-12-31	Under Implementation
F-03-TA2	Standard Revision	IPPA	2004-3	2005-9-30	Completed
F-03-TA3	2002 Performance Audit	CNAO	2003-7	2004-6-30	Completed
F-03-TA4	PU website management	FECO/DIA	n.a.	2005-10-31	Under Implementation
F-03-TA5	Preparation of Feasibility Study Reports for the Potential Investment Projects	Qualified Institute		2004-12-31	Under Implementation
F-03-TA6	Consultant Service	Individual consultants		2004-12-31	Under Implementation

Table 3.3: Implementation of Technical Assistance Activities in the 2004 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Planed Completion Date	Implementation status/remarks
F-04-TA1	Training	FECO/DIA	n.a.	2005-12-31	TOR cleared
F-04-TA2	Standard Revision	To be selected through bidding		2005-1-31	TOR cleared
F-04-TA3	2003 Performance Audit	CNAO		2004-6-30	Completed
F-04-TA4	A Research on the application of HFC-245fa technology	To be selected through bidding		2004-12-31	TOR cleared
F-04-TA5	Study tour	FECO/DIA	n.a.	2005-6-30	TOR cleared
F-04-TA6	Consultant Service	Individual consultants		2005-12-31	TOR cleared

Annex 4: Enterprise list of Conversion Projects under 2002 - 2004Annual Programs

Table 4.1: Enterprises in the Xinxiang Xinyuan Project in 2002 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Average of 97-99	CFC-11 Consumption (MT) in 2003
1	Huixian Zijinshan Foam Plant	Dec. 89	84.3	0
2	Yanshi Foam Plant	March 94	86.2	0
3	Shangqiushi Foam Plant	Sept. 93	75.3	0
4	Shangqiushi Yongfeng Foam Plant	April 95	65.3	0
5	Zhengzhou Development Zone Foam Plant	Dec. 94	79.3	0
6	Wuzhi Fuli Foam Plant	Sept. 92	73.7	0
7	Yiyang jinjiu Foam Plant	April 93	85.3	0
8	Luoyang Jinling Foam Plant	April 95	87.3	0
	Total		**636.7**	**0**

Table 4.2: Enterprises in the Chengdu Jinjiang Project in 2002 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Average of 97-99	CFC-11 Consumption (MT) in 2003
1	Duocai Co. Ltd.	Feb. 93	76	0
2	Huiyu Co. Ltd.	March 94	86	121
3	Hongyang Foam Plant	April 94	76	110
4	Liuli Foam Plant	Oct. 91	80	125
5	Qianjin Foam Plant	Oct. 92	79	0
6	Dongzikou Foam Plant	June 89	79	0
7	Chongqing Jinjiang Foam Plant	Oct. 94	76	0
	Total		**552**	**356**

Table 4.3: Enterprises in the Zhejiang Chunhui Project in 2002 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 2001	CFC-11 Consumption (MT) Year 2003
1	Wujin Henglin Refrigeration Equipment Plant	Jan. 93	33.2	5.5
2	Wujin Luoyang Taihu refrigeration Equipment Plant	April 94	24.3	0
3	Wujin Youyi Regrigeration Equipment Plant	Aug. 92	16.58	0
4	Wujin Huanyu Freezing Equipment Plant	March 95	29.2	0
5	Wujin Xuelian Freezing Equipment Plant	April 94	32.4	4.5

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 2001	CFC-11 Consumption (MT) Year 2003
6	Wujin Yuzhou Freezing Equipment Plant	Dec. 93	17.5	0
7	Wujin Luoyang Dongfang Cold-Storage Factory	Jan. 93	26.5	5.67
8	Wujin Daixi Refrigeration Equipment Plant	Dec. 91	41.34	3.33
9	Wujin Snowball Refrigeration Equipment Plant	Dec. 92	27.3	5.92
10	Wujin Jinggong Refrigeration Equipment Plant	Aug. 88	25.8	3
11	Wujin Yueqiu Refrigeration Equipment Plant	Jan.93	29.7	0
12	Changzhou Snowball Refrigeration Equipment Plant	April 94	40.4	1.5
13	Changzhou Lidong Refrigeration Equipment Plant	March 94	41.25	0
14	Wujin Luoyang Refrigeration Equipment Plant	March 92	47	3.33
15	Wujin Hangyu Refrigeration Equipment Limited Company	May 95	34.8	1.67
16	Wujin Luoyang Metal Material Plant	Sept. 93	42	1.67
17	Wujin Huazhong Chemical Equipment Limited Company	April 94	33.14	2
18	Wujin Luoyang Cold-Storage Factory	Oct. 92	33.9	0
19	Wujin No.1 Refrigeration Equipment Plant	Jan. 92	58.72	3.67
20	Wujin Xinyue Refrigeration Equipment Plant	Oct. 92	79.65	3.83
21	Shengzhou Chunlian Refrigeration Equipment Plant	Aug. 82	30.63	0
22	Shangyu Tianyu Refrigeration Equipment Plant	Jan. 95	52.4	0
23	Shangyu Southeast Refrigeration Equipment Plant	June 93	41.7	0
24	Yuyao Moushan Xingsheng Refrigeration Equipment Plant	May 93	41.78	0
25	Zhejiang Commercial Machinary Company	Nov. 93	21	0
26	Hangzhou South Refrigeration Equipment Plant	July 81	22.4	0
27	Shangyu Refrigeration Equipment Plant	Jan. 94	40.3	0
28	Shaoxing Refrigeration Equipment Plant	Oct. 93	110.1	0
29	Shanghai Minhang Refrigerator Plant	March 90	42.74	0
30	Shanghai Lianglun Refrigeration Equipment Plant	Oct. 92	24.3	0
31	Shanyu LiDong Youlong Equipment Plant	March 90	22.95	0
	Total		**1164.98**	**45.59**

Table 4.4: Enterprises in the Nantong Xinyuan Project in 2003 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Average of 99-01	CFC-11 Consumption (MT) in 2003
1	Tongzhou Xianfeng Xinan Polyurethane Foam Plant	May 91	47.5	0
2	Tongzhou Xianfeng Polyurethane Foam Co. Ltd.	March 93	81.33	10.5
3	Nantong Haoli Laminating Textile Plant	Aug. 92	50.5	2
4	Tongzhou Nanxing Polyurethane Foam Plant	Aug. 92	50	0
5	Rugao Jinru Polyurethane Foam Co. Ltd.	June 94	82.67	10.5
6	Rugao Jixing Polyurethane Foam Co. Ltd.	Sept. 93	82.58	25.5
7	Xuzhou Tongshan Polyurethane Foam Plant	Aug. 90	78.25	0
8	Fengxian Pengya Polyurethane Foam Plant	April 95	41.67	8
9	Pizhou Kesheng Polyurethane Foam Co. Ltd.	Dec. 93	42.42	24.5
10	Dafeng Zhongyi Laminating Foam Plant	Dec. 86	44.52	23
11	Jiangyan Harbor Plastic Foam Plant	Nov. 91	46.67	12.5
	Total		**648.11**	**116.5**

Table 4.5: Enterprises in the Shaoxing Weike Project in 2003 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11Consumption (MT) Year 2001	CFC-11 Consumption (MT) in 2003
1	Shaoxing Weike Polyurethane Co.,Ltd.	Jan-95	221	113
2	Zhejiang New Southeast Limited Company	Jan-94	191.75	14
3	Shaoxing Anti-Corrosion Engineering Company	Jul-89	139	57.5
4	Shangyu Xingmao Equipment Plant	May-93	256	36
5	Shaoxing Jialong Engineering Company	Apr-88	190	53.02
	Total		**997.75**	**273.52**

Table 4.6: Enterprises in the Lanzhou Huayu Project in 2003 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 consumption (MT) Year 2001	CFC-11 Consumption (MT) in 2003
1	Lanzhou Huayu Innovation Technoogy	Sept. 88	201.35	316.50

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 consumption (MT) Year 2001	CFC-11 Consumption (MT) in 2003
	Co.,Ltd.			
2	Lanzhou Xinxin Polyurethane Material plant	July 94	64.22	21.50
3	Lanzhou Tianyuan Pipeline Plant	Oct. 94	34.18	15.20
4	Jiayuguan Fuli Foam Plant	April 91	48.16	82.415
5	Jiayuguan Hongsheng Building Material Limited Company	Feb. 94	37.28	18.90
6	Yinchuan Themal Insulation Material Limited Companuy	May 94	64.28	61.85
7	Yinhcuan Xingyuan Pipeline Plant	March 95	35.1	11.25
8	Gansu Zhenhao Trade Limited Company	Jan. 93	61.5	32.45
9	Ku'erle Xinying Limited Company	April 95	31.38	28.65
10	Lanzhou Xiangyun Goods Limited Company	May 95	22.08	11.05
11	Wulumuqi Haoyu Pipeline Limited Company	Feb. 93	69.5	56.03
12	Gansu Wuwei Wanbao Plant	July 94	26.24	11.00
13	Gansu Gaotai Hongfa Building Material Limited Company	March 95	20.53	4.55
14	Kelamayi Xiwang Hi-tech Development Company	Jan. 91	56.87	47.65
15	Ningxia Yinchuan Themal Insulation Material Plant	March 95	22.93	9.80
16	Xi'an Tongtai Limited Company	Oct. 92	22.7	12.05
17	Xi'an Hongxing Limited Company	Jan. 91	162.6	200.61
18	Shanxi Sida Engineering Limited Company	Oct. 94	71.55	23.55
19	Gansu Polyurethane Research Institute	Jan. 92	23	14.00
	Total		**1075.45**	**979.005**

Table 4.7: Enterprises in the Beijing Zhonghai Project in 2004 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT)	CFC-11 Consumption (MT) in 2003
1	Beijing Zhonghai Runda Co. Ltd.	Jan.29, 1994	0	0
2	Chengde Hongxing Refrigeration Equipment Co. Ltd.	Apr.26, 1992	116.75	95.875
3	Beijing Direct Insulation Pipe Plant	Dec.18, 1990	108.98	112.25
4	Beijing Xinxing Tiandi Insulation Material Co. Ltd.	Aug.4, 1990	68.11	72.14
5	Tianjin Lifeng Development Co. Ltd.	Apr. 26, 1992	111.44	124.625
6	Tianjin Xiatong Refrigeration Equipment Co. Ltd.	July 16, 1992	21.62	36.25

7	Tianjin Yuesheng New Material Research Institute	June 10, 1991	49	45
8	Hebei Jiangfeng Pipe Co. Ltd.	Jan. 1994	123.85	115.27
	Toal		**599.8**	**601.41**

Table 4.8: Enterprises in the Dalian Yuji Project in 2004 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT)	CFC-11 Consumption (MT) in 2003
1	Dalian Fishing Engine Industry Corporation	Dec.,1979	64.48	73
2	Dalian Zhongda Refrigeration Equipment Co., Ltd.	Feb.,1995	42.18	44.58
3	DEDZ Polyurethane Foam Corporation	Feb.,1993	39.22	31.25
4	Dalian Zhongshan Insulation Pipe Plant	May, 1993	28.02	32
5	Dalian Binshan Group Co. Ltd.	Mar.,1994	74.01	18.25
6	Dalian Xingsheng Insulation Material Plant	June,1995	32.97	6.5
7	Lushun Heat Prevention Material Products Factory	Jan.,1992	24.06	14
	Total		**303. 9**	**219.58**

Table 4.9: Enterprises in the Fenghua Yongxing Project in 2004 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT)	CFC-11 Consumption (MT) in 2003
1	Fenghua Yongxing Sponge Products Factory	May 8, 1992	168	167.45
2	Linan Sanxin Plastic Chemical Industry Co., Ltd.	Feb.18, 1992	62	59.2
3	Linhai Donghai PU Industry Company	March 2, 1994	56.5	56.91
4	Tiantai Cangshan Dongheng Sponge Factor	May 24, 1993	54	52.09
5	Ningbo Beilun Wangxing Culture and Education Sponge Products Co., Ltd.	May 14, 1993	49.5	46.4
6	Ningbo Beilun Chaiqiao Xinya Furniture Sponge Factory	March 15, 1995	27	25.12
7	Ningbo Haishu Huaxin Sponge Factory	May 2, 1994	25.5	24.4
8	Fenghua Renhe Vehicle Products Factory	May 20, 1993	21.5	19.87
9	Zhoushan Dinghai Xinrong Foam	June 8, 1994	20	18.42

	Plastic Products Factory			
	Total		**484**	**469.86**

Table 4.10: Enterprises in the Hejian Hongda Project in 2004 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 1999	CFC-11 Consumption (MT) Year 2003
1	Hejian Jinlong PU Antisepsis Heat Prevention Factory	March 1993	16.4	9.78
2	Hejian Longta PU Factory	May 1991	21.9	12.5
3	Hejian Dongli PU Heat Prevention Material Factory	April 1993	17	20.25
4	Hejian Fulai PU Heat Prevention Material Factory	Oct. 1993	19.7	29.75
5	Hejian Tianshan PU Heat Prevention Material Factory	Aug. 1992	19.4	20.95
6	Hejian Quanhai PU Heat Prevention Material Factory	March 1992	20.3	25.28
7	Hejian Ruifeng PU Heat Prevention Material Factory	May 1992	3.5	25.14
8	Hejian Fuhua PU Heat Prevention Factory	Sept. 1993	21.7	23.33
9	Hejian Gaotai PU Products Factory	March 1993	23.3	28.77
10	Hejian Tiancheng PU Heat Prevention Material Factory	July 1992	24.5	29.33
11	Hejian Bole PU Products Factory	May 1993	23.3	30.73
12	Hejian Huiyuan PU Heat Prevention Material Factory	April 1994	24.7	29.47
13	Hejian Canghe PU Products Factory	June 1992	17.1	12.57
14	Hejian Debao PU Factory	June 1994	24.1	25.14
15	Hejian Nianfa PU Heat Prevention Material Factory	March 1994	23.9	26.96
16	Hejian Xinyi PU Heat Prevention Material Factory	April 1993	24.6	18.86
17	Hejian Changtian PU Heat Prevention Material Factory	April 1993	3.8	29.05
18	Hejian Shengfa PU Heat Prevention Material Factory	Aug. 1993	3.7	31.85
19	Hejian Niansheng PU Heat Prevention Material Factory	Oct. 1993	22.3	22.35
20	Hejian Lixiang PU Heat Prevention Material Factory	March 1994	3.4	16.76
21	Hejian Qingfeng PU Pipe Factory	May 1993	3.8	25.28

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 1999	CFC-11 Consumption (MT) Year 2003
22	Hejian Hengchang PU Factory	Jan. 1994	4.6	0
23	Hejian Shenghua PU Heat Prevention Material Factory	March 1993	11.3	0
24	Hejian Jinsheng PU Factory	July 1993	21.4	0
	Total		**399.7**	**494.19**

Table 4.11: Enterprises in theNingbo Lantian Project in 2004 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 1999	CFC-11 Consumption (MT) in 2003
1	Jinan Lixia Zhenhua PU Factory	April 1994	41.76	104
2	Yantai Qianwei PU Refrigeration Heat Prevention Factory	March 1992	44.6	53
3	Yantai Chengxin Antisepsis Heat Prevention Engineering Co., Ltd.	1991	32.5	40
4	Jingjiang Chemical Industry Construction Material Company	Aug. 1994	22.75	35
5	Henan Huangpu Construction Installation Co., Ltd.	May 1993	84.5	32
	Total		**226.11**	**264**

Table 4.12: Enterprises in the Shanghai Jinyuanyuhua Project in 2004 Annual Program

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 1999	CFC-11 Consumption (MT) Year 2003
1	Xianghe Chuncheng Foam Plant	May 1994	90	125
2	Laishui Shulin Sponge Factory	March 1995	61	64
3	Linyi Lanshan Fuhe Sponge Factory	April 1991	83	124
4	Weifang Jinghua Sponge Factory	May 1995	41.5	83
5	Wenshui Nanqitengda Sponge Factory	August 1993	85.5	121.5
6	Xianghe Quanxing Sponge Factory	January 1995	63	60
7	Jinan Beiyuan Ruiyun Sponge Factory	May 1995	61	67
8	Zibo Zhoucun Fuli Sponge Factory	December 1989	75	123
9	Jiangdu Fuyang Sponge Factory	November 1994	44	49
10	Nanjing Junda Sponge Factory	February 1993	47.75	34
11	Yangzhou Hengyang Sponge Co. Ltd.	December 1994	45.5	41.5

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 1999	CFC-11 Consumption (MT) Year 2003
12	Zhenjiang Huaxia Sponge Company	February 1995	49.75	33.25
13	Hefei Kangya Chemical Products Co. Ltd.	May 1995	45.5	50.5
14	Pinghu Jintang Sponge Factory	June 1992	47.5	33
15	Zhengzhou Xihu Sponge Co. Ltd.	April 1995	51.056	57.84
16	Henan Xuanyang Sanhuan Sponge Co. Ltd.	February 1995	46.726	58.47
17	Chengan Minzheng Plastics Foam Plant	October 1994	48.294	58.14
18	Heze Zhenye Sponge Co. Ltd.	September 1993	46.725	63.42
19	Gaocheng Foam Products Co. Ltd.	August 1993	54.337	59.92
20	Yanshi Dongxin Sponge Factory	April 1995	32.862	62.31
21	Daxian Dongteng Foam Plant	March 1995	32	63
22	Xian Yinfeng Sponge Co. Ltd.	June 1993	55	70
23	Hanzhong Xian Latex Plant	July 1993	46	60
24	Xian Changan Foam Plant	March 1993	58	72
25	Chongqing Jinrong Foam Co. Ltd	June 1995	58	63
26	Xian Yushan Sponge Co. Ltd.	July 1995	31	62
	Total		**1400**	**1747.85**

Sector Plan for Phaseout of ODS in Phase One of Chemical Process Agent Applications and Carbon Tetrachloride Production in China

2005 ANNUAL PROGRAM

August 27, 2004

Data Sheet

Country	China
Name of project	Sector Plan for Phaseout of ODS in Phase One of Chemical Process Agent Applications and Carbon Tetrachloride Production in China
Year of plan	2005
# of years completed	2
# of years remaining under the plan	5
Target ODS consumption of the preceding year	Not to exceed 5049 ODP Tons (Max.) for CTC consumption in 25 PA applications and 14 ODP tons for CFC-113
Target ODS consumption of the year of plan	Not to exceed 493 ODP Tons (Max.) for CTC consumption in 25 PA applications and 14 ODP Tons for CFC-113.
Target ODS Production of the year of plan	Not to exceed 38,686 ODP Tons of CTC production
Total MLF funding approved in principle	US$ 65 million
Total MLF funding released (by Oct 2004)	US$ 38 million
Level of funding requested	US$ 2 million

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

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Introduction

1. At its 38th meeting, the ExCom approved the "Agreement with the People's Republic of China to Phase-out CTC and Process Agents (Phase I)" (UNEP/Ozl.Pro/ExCom/38/70, Annex XIII), with total funding of $65 million. The 2003 Annual Programme for the CTC/PA sector plan of China has been effectively implemented. The 2004 Annual Programme is presently under implementation.

2. Under the 2003 and 2004 Annual Programme, China has initiated various sector phaseout activities, including the establishment of policies and regulations, enterprise-level phaseout activities and technical assistance activities. As a result, all the ODS production and consumption in 2003 met the targets under the Agreement (Table 1).

3. China is hereby requesting release of the forth tranche of US$ 2 million for the implementation of the 2005 Annual Program to meet the control targets of 2005 specified in the Agreement (Table 1).

Annual Phaseout Targets and Funding Level

4. ***Phaseout obligations.*** The agreed phaseout targets and corresponding funding for this phase of the PA and CTC Production sectors is as follows:

Table 1: Allowable CTC Production, ODS Consumption in PA and Agreed funding

Year	ODP tons						US$ million
	Maximum allowable sum of production and imports of CTC (Row 1 of the Agreement)		Maximum allowable CTC consumption in PA Sector (25 applications) (Row 4 of the Agreement)		Maximum allowable CFC-113 consumption in the PA Sector (25 applications) (Row 6 of the Agreement)		Agreed funding
	Allowed	Verified	Allowed	Verified	Allowed	Verified	
Baseline /1	86,280	N/A	3,825	N/A	17.2	N/A	
2001*	64,152	N/A	4,347	N/A	17.2	N/A	
2002*	64,152	N/A	5,049	N/A	17.2	N/A	2
2003	61,514	59,860**	5,049	3,507***	17.2	17.2***	20
2004	54,857		5,049		14		16
2005	38,686		493		14		2
2006	32,044		493		10.8		16
2007	26,457		493		8.4		5
2008	23,583		493		0		3
2009	17,592		493		0		1
2010	11,990		220		0		
Total :							65

/1: For consumption, average of 1998-2000; for CTC Production, 2000 data.

* The sector plan was approved in November 2002 and the first control year is 2003.

** According to the Bank's 2003 CTC Production Verification Report as submitted to Ozone Secretariat in May 2004, total CTC production in 2003 was 56,230.87 MT, of which 1,813.08 MT was used for non-ODS feedstock applications. Therefore, the verified 2003 CTC production was 54,417.79 MT (59,859.57 ODP tonnes).

*** This is the purchased amount in 2003. The actual consumption is 3,080 ODP tons for CTC and 17.1 ODP tons for CFC-113.

Implementation Status of 2004 Annual Program

Activities and Progress in 2004

5. Phase-out targets in 2004 were as follows:

   (a) Total CTC production and imports will not exceed 54,857 ODP tons (49,870 MT). As CTC imports into China have been banned since April 1, 2000, the target will therefore be met by limiting the total CTC production in 2004 to not more than 54,857 ODP tons[1];

   (b) Total CTC consumption in the PA sector (25 applications) will not exceed 5,049 ODP tons (4,590 MT); and

   (c) Total CFC-113 consumption in the PA sector (25 applications) will not exceed 14 ODP tons (17.5 MT).

6. Policy actions in 2004 include:

   (a) CTC sales license system: The system was established in 2003 along with the CTC production and consumption quota licence system. SEPA started implementation of the system in 2004. At present, all the CTC dealers are registered and trained, and their CTC purchase and sale details are reported quarterly to SEPA.

   (b) CTC consumption license system: This system was established in 2003. In 2004, the license is extended to all CTC consumptions, including 25 PA applications, other new PA applications, non-ODS chemical feedstock applications and solvent. The consumers can buy CTC only with CTC consumption license. The CTC consumption will be reported as part of the reporting requirements established under the system.

   (c) CTC production quota license system: In 2004, quotas will be issued to all CTC producers consistent with the reulation. This will including newly-built chloromethane plants eligible for quotas under the system. If not eligible, producers will either have to buy quotas from quota holders, use the unavoidable CTC coproduction for feedstock applications only, or dispose it. Productions are required to report quarterly.

   (d) Annual verification: Annual verification of CTC production, CTC and CFC-113 consumption of 25 PA applicatgions will be conducted according to the established policies and reports from the enterprises to monitor the implementation of the annual program activities.

[1] During the meeting September 18, 2004 in Xian between the Multilateral Fund Secretariat, SEPA and the World Bank, it was confirmed and agreed that use of CTC for feedstock for non-ODS applications are not controlled by the agreement. It was also agreed that China are will verify the amount used for such applications. China will report such uses of CTC to the Ozone Secretariat according to Article 7 of the Montreal Protocol.

7. Enterprise-level activities in 2004 are comprised of three following types:

(a) CTC production target for 2004 is 54,857 ODP tons: Production quotas were issued to all 11 CTC producers, excluding the new producer that will start CTC production in 2004. The target will be realized by two ways: (1) Four dedicated CTC producers had their CTC production reduced from their 2001 levels; and (2) CTC quotas can be traded between licensed CTC producers.

(b) CTC and CFC-113 Consumption (25 PA applications): Consumption quotas of CTC and CFC-113 have been issued to 12 enterprises consumed CTC as PA and 4 PTFE producers respectively. Total of issued CTC consumption quota was 3209 ODP tons, less than the target of 5,049 ODP tons. Total of CFC-113 consumption quota issued was 14 ODP tons, same as the target.

(c) The following 18 phaseout contracts have been signed:

(1) CTC production sector: 8 contracts.

(i) **3** CTC production reduction contracts and **1** total production closure contract were signed with 4 dedicated CTC producers with total CTC production reduction of 7,740 MT (8,514 ODP tons). Chongqing Tianxuan (CTC-4) has phased out all its CTC production and dismantled its plant by the end of 2003. Chongqing Tiangsheng (CTC-5) is a CTC distilling plant and its 37 MT production quota has been reduced without compensation in accordance with the CTC production quota management policy. Thus the total CTC production reduction in 2004 will be 7,777 MT (8,555 ODP tons).

(ii) Additional 4 plant dismantling contracts were signed with 4 CTC producers. These four CTC plants had stopped production some years ago and will be fully dismantled by the end of 2004.

Table 2: CTC production contract and reduction

Sector Plan number	Enterprise	Contract type	Production reduced in 2004 (ton)	Plant status
CTC-11	Sichuan Honghe	Production reduction	3,627	Producing
CTC-8	Luzhou Xinfu	Production reduction	1,314	Producing
CTC-6	Chongqing Tianyuan	Production reduction	1,524	Its production was stopped because of chlorine leakage accident on April 16, 2004.
CTC-4	Chonqing Tianxuan	Production reduction and closed	1,275	Stopped in Dec 2003 and all CTC lines were dismantled in the end of 2003
CTC-5	Chongqing Tiangsheng	No contract	37	Producing
CTC-07	Taiyuan Chemical	Plant dismantling	0	Stopped since 1999
CTC-10	Guangzhou Hoton	Plant dismantled	0	This plant had closed in 1997 and all CTC facilities had been dismantled years ago

CTC-03	Panjiin No 3 Chemical Plant	Plant dismantling	0	Stopped since 1999
CTC-17	Jinan 3F	Plant dismantling	0	Stopped since 1994
	Total		7,777	

(2) PA sector: 10 contracts.

(i) A total of 3 emission control contracts were signed with two CR producers and one CSM producer respectively. Their per unit CTC consumption will be reduced to ensure the overall total allowed national annual CTC consumption will be lower than the limits set by the Agreement.

(ii) A total of 3 closure contracts were signed with one CP-70 producer and two endosulphan producers respectively. All CP-70 plants will be dismantled by the end of 2004. Both endosulphan producers have stopped their production and funding are only provided to cover the costs of dismantling their production lines by the end of 2004.

(iii) A total of 4 conversion contracts were signed: One contract were signed with Liaoning Fuxin, PTFE producer, which will convert CFC-113 into other non-ODS PA by the end of 2004. The other three companies have completed their conversion to non-ODS production process and the contracts will cover retroactively funding of the conversion. Among the three companies is Zhejiang Huahai, Ketotifen producer, which has converted CTC consumption into other non-ODS chemicals. The second contract is with Jiansu Meilan, PTFE producer, which has substituted its process and stopped its CFC-113 consumption before 2003. The third company is Jiangyin Fasten, CP-70 producer, which process were changed from CTC into water phase technology before December 2003.

Table 3: Contract list with PA enterprises

Sector Plan number	**Enterprise**	**Baseline (Ave. 1998-2000)**		**Nature of Contract**	**Year of Contract (Annual Program)**	
		ODS	MT		2003	2004
CR						
1	Shanghai Chlor Alkali	CTC	109	Emission control		√
2	Haotian	CTC	218	Closure	√	
3	Jiangsu Wuxi	CTC	313	Closure	√	
4	Zhejiang Xin'an	CTC	142	Closure	√	
5	Jiangyin Fasten	CTC	178	Emission control		√
6	Henan Puyang	CTC	43	Closure	√	
170	Zhejiang Shangyu Qiming	CTC	119	Closure	√	
CP-70						
4	Zhejiang Xin'an	CTC	82	Closure	√	
5	Jiangsu Jiangyin Fasten	CTC	161	Converted Retroactive Contract		√
18	Shengyang	CTC	48	Closure	√	

19	Sichuan Luzhou Hongyuan	CTC		Dismantled in 2002	Not eligible for funding	
20	Sichuan Longchang Shouchang	CTC	62	Closure	√	
21	Sichuan Longchang Shenghua	CTC	73	Closure	√	
22	Chongqing Tianyuan	CTC	45	Closure	√	
23	Zhejiang Longyou Lude	CTC	48	Closure	√	
24	Dalian Jiangxi	CTC	233	Closure	√	
25	Harbin Yibin	CTC	38	Closure	√	
45	Shangxi Fenyang	CTC	0	No longer in existence		
71	Hebei Huanghua	CTC	N/a	Closure		√
CSM						
51	Jilin	CTC	878	Emission control		√
54	Hunan Hongjiang	CTC	0	No longer in existence		
55	Jilin Jiaohe	CTC	0	No longer in existence		
Ketotifen						
59	Zhejiang Huahai	CTC	13	Conversion		√
Endo-sulphan						
	Jiangyin Anbang	CTC	24	Closure		√
	Jiansu Liyan Chemical	CTC		Closure		√
PTFE						
56	Shanghai 3F	CFC 113	11	Emission control	√	
57	Sichuan Chengguan	CFC 113	5	Emission control	√	
166	Shanghai Tianyuan	CFC 113			The plant had been merged into Shanghai 3F (56)	
167	Shandong Jinan 3F	CFC 113	4	Emission control	√	
168	Jiangsu Meilan	CFC 113	2	Converted		√
169	Liaoning Fuxin	CFC 113	1	Conversion		√

8. Technical assistance (TA) is an important part of the activities. In 2004, the TAs process is described as follows:

   (a) *Training of personnel involved in implementation of phaseout activities.* Three training workshops respectively for CTC producers, PA enterprises and CTC dealers were held

in December 2003, March and June 2004.The training workshop for auditors will be held in the 1st quarter of 2005.

(b) *Domestic Investigation and Verification of New Feedstock Applications of Carbon Tetrachloride:* This is an additional TA to 2004 AP and has been completed before May 2004 according to the approved TORs.

(c) *International Investigations on New Feedstock Applications of Carbon Tetrachloride:* This is an additional TA to 2004 AP. The TOR is approved by the World Bank in May 2004. The project is under preparation for implementation.

(d) *Study on CTC Incineration Technologies and Management:* This is an additional TA to 2004 AP. The TOR is waiting for the clearance of World Bank.

(e) *2004 International Workshop of carbon tetrachloride Conversion and Incineration Technologies:* This is an additional TA to 2004 AP and the workshop will be held during the 2004 Ozone Day celebrations.

(f) *Daily site supervision for CTC producers:* The site supervisor training workshop has been conducted in December 2003 and 20 supervisors were trained. From January 1, 2004, these site supervisors, technical professionals recruited from CTC producers by SEPA, were assigned to CTC producers to implement site supervision of CTC production.

(g) *Performance audit:* The performance audit for 2003 has been completed by 30 June 2004.

Two TA activities under 2003 Annual Program are continued to be implemented in 2004.

(h) *Extension of the Management Information System (MIS) to include ODS Phaseout in PA and CTC Production:* The TOR is cleared by the Bank in June 2004 and the contractor is under selection through bidding process. The system is planned to be established by end of 2004.

(i) *Consulting Services on Conversion of CFC-113 Substitute Technologies in PTFE Production and Emission Control in CSM Production:* Three individual consultants were recruited to provide technical services to related PTFE enterprises and review the technical proposals and estimate project funding. Consulting services to CSM producer will be conducted if necessary.

2005 ANNUAL PROGRAM

9. **The targets for the 2005 Annual Program,** according to Table 1, are as follows:

   (a) Total CTC production and imports will not exceed 38,686 ODP Tons (35,169 MT);

   (b) Total CTC consumption in the PA sector (25 applications) will not exceed 493 ODP Tons (448 MT); and

   (c) Total CFC-113 consumption in the PA sector (25 applications) will not exceed 14 ODP Tons (17.5MT).

10. Funding for the 2005 Annual program will be allocated for CTC production reduction in CTC producers, ODS phaseout in PA enterprises by closing plants or conversion to substitute technologies, CTC emission control, and for technical assistance activities, which are described in detail below. As seen from the table 4, 5 and 6, the overall costs of the 2005 AP exceed the funding available for the 2005 program. Unallocated balances from 2004 will be used to cover the balance. In addition, funding of some activities mght have to be defered to 2006.

Programmed Activities In 2005

11. ***Policy actions.*** In 2005, the following policies and measures will be implemented to ensure a successful ODS consumption and CTC production reduction targets in China**.**

   (a) Management of established CTC production and consumption quota-license system, and sales registering system: These systems established in 2004 will continue to be implemented in 2005. Under these systems, CTC production and consumption will only be permitted with a licence issued by SEPA, and only the dealers which have registered in SEPA can sell CTC. Under the series of production, consumption and sales management, CTC production and PA sector plan will be effectively implemented. These systems will be further enforced by coordinating with local EPBs and local industry administrative department.

   (b) Annual reporting and verification: All CTC production, consumption and sales data will be reported quarterly by CTC producers, consumers and dealers for monitoring, tracing and controlling. Annual verification of production, consumption and sales will be conducted consistent with the agreement. The implementation of all annual program activities and uses of CTC.[1] will be monitored and supervised by the SEPA PA/CTC working team and the DIA through the system established.

12. ***Enterprise-level activities.*** There will be four types of activities at the enterprise level: production reduction and closure for CTC producers, and emission control and technical conversion for PA enterprises. All these activities will be based on assignment of quotas and signature of contracts.

---

1 CTC consumption as the feedstock of non-ODS chemicals will also be reported quaterly by CTC producers, dealers and consumers respectively.

(a) *CTC production quota - licenses for CTC producers:* CTC production Quotas will be assigned to each CTC producer to ensure that the maximum allowable CTC production limit of 38,686 ODP Tons in 2005 is not exceeded. One dedicated producer, Chongqing Tianyuan, will be closed and completely phased out its CTC production. CTC production phaseout/reduction contracts will be signed between the govermment and 3 CTC producers.

(b) *Consumption quota licenses for PA enterprises:* Quotas will be assigned to each PA enterprises to ensure that the maximum allowable consumption limits in 25 applications are not exceeded the control targets in the Agreement.

(c) *The implementation of conversion and emission control contracts on ODS consumption phaseout:* - the two emission control contracts with CR producers (Shanghai chlor-Akali and Jianyin Fasten), and one conversion contract with PTFE enterprise (Liaoning Fuxin) will be signed in 2004. The implementation will mainly happen in 2005.

13. ***Technical assistance activities.*** TA activities are essential to the success of the phaseout objectives. 2004 TA activities will include:

(a) *Training of personnel involved in implementation of phaseout activities.* To implement the phaseout plan effectively, it is necessary to provide training to CTC producers, ODS consumers in the PA Sector, CTC dealers, and auditors. Training is also needed for enterprises to understand the closure procedures.

(b) *Daily site supervision to CTC producers.* This TA started from 2003 and is implemented successfully in 2004. It will continue in 2005 and the following years. Its purpose is to strengthen the management of CTC production. All the CTC producers (except 2 distillers) will be put under daily site supervision by technical professionals who will be selected from CTC producers and dispatched by SEPA according to the "Circular on Implementing Site Supervision to Carbon Tetrachloride Production Enterprises" promulgated on July 10, 2003. Daily production records will be made by the supervisors and monthly report will be prepared and submitted to SEPA.

(c) *Performance audit.* A performance audit is required under the CTC sector plan and PA sector plan. A TOR for the 2004 performance audit will be agreed between the World Band and SEPA by December 2004, and the audit is expected to be completed by June 30, 2005.

(d) The World Bank will independly verify CTC and CFC-113 production and consumption consistent with the ExCom agreement and the clarification agreed September 18, 2004 n Xian. The Bank verification will start after the Chinese new year and be carried out in February and March 2005.

(e) *Other activities.* Other TA activities that are identified in the course of the year will be taken up as necessary.

14. The above targets, policy initiatives, enterprise-level and technical assistance activities in 2005 are summarized in Tables 4 - 6 below.

Table 4: Targets under 2005 Annual Program

Target I: Maximum Allowable sum of production and Imports of CTC							
Indicators	**Sub-sector**	**2004** (Preceding Year)	**2005** (year of Program)	**Reduction**	**Funding**	**Key actions required**	**Key dates**
		(ODP Tons)			$ million		
Supply of CTC	Import	0	0			None; imports banned on April 1, 2000	N/A
	CTC Producers	54,857	38,686	16,171	12 *	1. Issue CTC production quota-licenses. 2. Sign CTC production reduction contracts with CTC producers	1. By March 31, 2005 2. By Dec. 31, 2004
	Subtotal	54,857	38,686	16,171	12		
Target II: Maximum Allowable CTC Consumption in the PA Sector (25 Applications)							
CTC Consump-tion	Related PA enterprises	5,049	493	4,556	0 (all contracts signed in 2004)	1. .Issue CTC consumption quota-licenses.	1. By Dec. 31, 2004
Target III: Maximum Allowable CFC-113 Consumption in the PA Sector							
CFC-113 Consump-tion	Related PTFE Manufac-turers	14	14	0	0	1. Issue CFC-113 consumption quota-licenses.	1. By Dec. 31, 2004

*: The estimated CTC reduction costs would depend of the outcome of the bidding process,but is estimated costs around US$12 million. The 2005 MLF funding is only 2 million. As this is not sufficient for the implementation of 2005 AP, the deficiency will be complemented by unallocated balances from 2003-2004 AP and/or funded retroactively in 2006/2007 when the 2006 annual funding is released from ExCom and available to China.

Table 5: Policy Actions and Enterprise activities in 2005

Initiatives	Funding (US$ Million)	Actions Required	Key Dates
1. Management of CTC Production	12*	1. Train CTC producers 2. Sign CTC production reduction/closure contracts with 3 CTC producers 3. Issue CTC production quota-licenses 4. Implement CTC production reduction contracts, including production reporting and verification	1. By Nov. 30, 2004 2. By Nov. 30, 2004 3. By March 31, 2005 4. Through 2005
2.Management of CTC and CFC-113 consumption (25 applications)		1. Train PA enterprises 2. Issue CTC and CFC-113 quota-licenses 3. Implement the contracts, including collection and verification of contracts' progress situations.	1. By Dec. 31, 2004 2. By Dec 31, 2004 3. Through 2005
3. Management of CTC sales		1. Issue CTC sales registering certification 2. Train CTC vendors 3. Collect CTC sales data and verify CTC sales situations	1. By Dec. 31, 2004 2. By Dec. 31, 2004 3. Through 2005
Subtotal	12*		

Table 6: Technical Assistance Activities in 2005

Initiatives	Funding (US$ Million)	Actions Required	Key Dates
1. Training of personnel involved in implementation of phaseout activities	0.1	1. TOR to be agreed with the World Bank 2. Training all CTC producers, PA enterprises and CTC dearlers on CTC production reduction, ODS consumption phaseout approaches in PA sector, quota-license system, supervision and verification system, project implementation manual, and funding contracts.	1. By Nov. 30, 2004 2. By Dec. 31, 2004. Specific schedules to be detailed in TORs
2. Daily site supervision to CTC producers	0.3	1. TOR to be agreed with the World Bank 2. Implementation of site supervision	1.By Nov. 30, 2004 2. Through 2005
3. Performance audit for 2004	0.1	1. TOR to be agreed with the World Bank 2. Audit implementation 3. Audit completion	1. By Jan. 31, 2005 2. By April 30, 2005 3. By June 30, 2005
4. Other activities	0.3		
Subtotal	0.8**		

** Costs to be covered within the estimated US$12 million.

Annex I
Table I-1: Production and Status of CTC producers

No.	Enterprise Name	Type of CTC production facility	Capacity in 2001* (MT/year)	CTC Production Recorded				Status
				2001	2002	2003	2004 (Jan-June)	
CTC-1	Luzhou North Chemical Industrial Co., Ltd.	Co-production	3,000	2,106	2,318	2,105	1,143	Producing
CTC-2	Zhejiang Quhua Flurochemical Co. Ltd.	Co-production	20,000 (22,250)	16,204	17,217	16,204	8,305	Producing
CTC-3	Liaoning Panjin No. 3 Chemical Plant	Dedicated	3,000	0	0	0	0	Dismantled in May 2004
CTC-4	Chongqing Tianxuan Chemical Co., Ltd.	Dedicated	4,400	2,100	3,067	870	0	Dismantled in Dec 2003
CTC-5	Chongqing Tiansheng Chemical Co. Ltd	Distilling	500	245	195	130	8	Producing
CTC-6	Chongqing Tianyuan Chemical General Plant	Dedicated	9,000	8,009	8,198	6,114	1,337	Stopped
CTC-7	Taiyuan Chemical Industrial Co., Ltd.	Dedicated	4,000	0	0	0	0	To be dismantled in 2004
CTC-8	Luzhou Xinfu Chemical Industry Co. Ltd.	Dedicated	8,000	6,903	7,754	5,203	2,048	Producing
CTC-9	Jiangsu Meilan Chemical Co., Ltd.	Co-production	3,500 (10,000)	703	2,929	3,396	1,602	Producing
CTC-10	Guangzhou Hoton Chemical (Group) Co., Ltd.	co-production	5,000	0	0	0	0	Closed and Dismantled in 1997
CTC-11	Sichuan Honghe Fine Chemical Co., Ltd.	Co-production	4000	3,451	21,018	13,763	7,750	Producing
		Dedicated	16,000 (17,750)	13,806				Producing
CTC-12	Shanghai Chlor-Alkali Chemical Co., Ltd.	Co-production	10,000	7,209	9,192	7,209	3,289	Producing

Annex I

Table I-1: CTC producution and Status of CTC producers (Continued)

No.	Enterprise Name	Type of CTC production facility	Capacity in 2001* (MT/year)	CTC Production Recorded				Status
				2001	2002	2003	2004 (Jan-June)	
CTC-13	Quzhou Jiuzhou Chemical Co., Ltd.	Distilling	1,000	596	477	594	222	Producing
CTC-14	Wuxi Greenapple Chemical Co., Ltd.	Co-production	0 (2,000)	0	0	495	558	Producing
CTC-15	Shandong Jinling Chemical Co., Ltd.	Co-production	0 (2,000)	0	0	148	831	Producing
CTC-16	Shandong Dongyue Chemical Co., Ltd.	Co-production	0 (2,500)	0	0	0	0	Will start production in September 2004
CTC-17	Jinan 3F Fluorochemical Co., Ltd.	Dedicated	4000	0	0	0	0	Dismantled in July 2004
Total (ODS tons)			95,400 (112,400)	61,332	72,365	56,231	27,085	
Total (ODP tons)				67,465	79,602	59,860**	29,794	

*: The data in parenthese is the CTC capacity in 2004.

**: There are 1,813 MT CTC to be verified as feedstock for non-ODS chemicals in 2003.

Annex II

Table II-1: ODS Consumption in 25 Applications (1997-2003)

ODS	Application No.	Products	Annual consumption of ODS, t/a							
			1997	1998	1999	2000	2001	2002	2003	
									Purchased	Consumed
CTC	C3	CR	1290	1154	1097	1118	965	933	985	920
	C4	Endosulfan			20	53	88	72	359	231
	C7	CSM	710	720	839	1074	1119	967	1338	1017
	C12	CP-70	900	818	1008	1016	899	961	694	817
	C17	Ketotifen	9	12	11	16	26	25	6	11
	Total		2909	2704	2963	3277	3097	2958	3382	2996
CFC-113	C9	PTFE	5.65	5.85	27.6	34.1	53.0	59.8	21.5	21.39

Table II-2: CTC Consumption and Production Status of PA consumers (CR enterprises)

Sub-Sector No.	No	Enterprises Name	Capacity (MT/year)	CTC Consumption (MT/year)								Production (MT/year)					
				1997	1998	1999	2000	2001	2002	2003		1999	2000	2001	2002	2003	Status
										Pur	con						
1	CR1	Shanghai Chlor-Alkali Chem. Co Ltd	450	144	115	118	95	143	178	223	205	131	119	239	329	423	
2	CR2	Haotian Chem Co Ltd.	500	281	252	199	202	174	196	200	168	181	171	141	168	190	
3	CR3	Wuxi Chem Group Co Ltd	1000	370	284	345	311	123	89	128	133	444	369	194	172	265	Dismantled in July 2004
4	CR4	Zhejiang Xin-an Chem. Group Co Ltd	500	121	162	142	123	96	129	221	221	412	352	299	360	465	
5	CR5	Jiangyin Fasten Co Ltd	1000	300	247	144	144	150	162	213	193	380	462	478	523	703	
6	CR6	He-nan Puyang oilfield CR Factory	500	29	12	19	97	135	33	0	0	23	119	167	91	0	Dismantled in Jan 2004
170	CR7	Shangyu Qimin Chemical Co., Ltd	500	45	82	130	146	144	146	0	0	402	456	427	439	0	Dismantled in Jan 2004
		Sub-total	4450	1290	1154	1097	1118	965	933	985	920	1973	2048	1945	2082	2046	

Table II-3: CTC Consumption and Production Status of PA consumers (CP-70 enterprises)

Sub-Sector No.	No	Enterprises Name	Capacity (MT/year)	CTC Consumption (MT/year)								Production (MT/year)					Status
				1997	1998	1999	2000	2001	2002	2003 Pur	2003 Con	1999	2000	2001	2002	2003	
171	CP1	Huanghua City Jinghua Chem. Co., Ltd.	3000	21	23	73	375	250	200	90	106	363	1500	1000	800	546	
4	CP2	Zhejiang Xin-an Chem. Group Co Ltd	500	61	73	85	88	94	99	Included in its CR consumption		428	440	490	544	554	
5	CP3	Jiangyin Fasten Co Ltd	800	280	243	240	Converted into water method					600	Dismantled in 2001. New one put into operation in 2003.				
18	CP4	Shenyang Chem. Co Ltd.	1500	160	89	16	38	76	56	44	60	158	441	546	569	683	
19		Luzhou Longmatanqu Hongyuan Chemical Co., Ltd.	Not eligible, and dismantled in 2002.														
20	CP5	Longchang Shouchang Chem Co Ltd	500	78	67	56	64	53	64	141	146	265	241	198	257	560	Dismantled in Feb 2004
21	CP6	Longchang Shenghua Chem Factory	1000	34	65	83	72	105	89	98	102	369	374	546	510	788	
22	CP7	Chongqing Tianyuan Chemical General Factory	500	0	0	70	64	0	0	0	0	173	166	0	0	0	Dismantled in Dec 2003
23	CP8	Longyou Lude Pesticide Chem Co Ltd	300	49	51	45	48	9	0	0	0	267	314	61	0	0	Dismantled in 2002
24	CP9	Dalian city Jiangxi Chem Ind Head Co.	3000	198	188	287	224	246	423	260	341	1647	1333	1866	2103	2149	
25	CP10	Harbin Yibin Chem Ind. Co Ltd	1000	19	19	20	43	66	30	61	62	383	409	481	803	1035	Dismantled in Jan 2004
45		Shanxi Fenyang Catalyst Factory	500	No longer in existence													Closed or dismantled?
		Sub-total	12600	900	818	1008	1016	899	961	694	817	4653	5218	5732	5586	6315	

Table II-4: CTC Consumption and Production Status of PA consumers (CSM, Ketotifen, Endo-sulphane)

Sub-sector No.	No.	Enterprise Name	Product name	Capacity (t/y)	CTC consumption (Mt/y)								Production (MT/year)					Status
					1997	1998	1999	2000	2001	2002	2003		1999	2000	2001	2002	2003	
											Pur	Con						
51	CSR1	Jilin Chem. Ind. Co Ltd	CSM	3000	710	720	839	1074	1119	967	1338	1017	2298	2628	2995	2727	2774	
54	CSR2	Hongjiang Chem Co Ltd	CSM	300	stopped													
55	CSR3	Jiaohe Organic Chem Factory	CSM	1000	stopped													
59	KET1	Zhejiang Huahai Pharm Group Co Ltd	Ketotifen	3	9	12	11	16	26	25	6	11	0.53	0.75	0.13	1.25	1.4	Converted in 2003.
	ES1	Jiangyin Anbang Electro-Chemical Co., Ltd.	Endo-sulphan	1000			20	53	88	72	165	37.4	77	100	500	411	423	
	ES2	Jiansu Liyan Chemical Factory	Endo-sulphan	1200					80	95	194	194			160	190	388	

Table II-5: CFC-113 Consumption and Production Status of PA consumers (PTFE)

Sub-sector No.	No.	Enterprise Name	Capacity (t/y)	CFC-113 consumption (Mt/y)								Production (MT/year)					Status
				1997	1998	1999	2000	2001	2002	2003 Pur	2003 Con	1999	2000	2001	2002	2003	
56	PTFE1a	Shanghai 3F New Materials Share Co Ltd (Plant No 2)	6500 (Include non-eligible capacity from No. 166,)	0.25	1.75	12	18	25.2	25.2	5.5	5.5	878	1241	1402	1436	1558	
	PTFE1b	Shanghai 3F New Materials Share Co Ltd (Fluoro Plant)								4.5	4.5					1644	
57	PTFE2	Chenguang Chem Research Institute	3000	0	0	7.9	7.9	8.0	8.1	3.5	3.39	1024	1368	1846	2239	3389	
166		Shanghai Tianyuan Group Fluor-Chem	The plant was merged into Shanghai 3F as No. 56 PTFE1b														
167	PTFE3	Jinan 3F Chemical Co Ltd	1500	4.4	3.1	4.1	4.2	6.1	6.5	5	5	831	1040	1474	1454	2270	
168	PTFE4	Jiangsu Meilan Chemical Co Ltd	3000	0	0	1	1.5	11	17	0	0	1050	820	1500	1643	2268	
169	PTFE5	Fuxin Fluor-chemical Co Ltd	2000	1	1	2.6	2.5	2.7	2.9	3	3	1200	1200	1300	2000	1498	
		Total		5.65	5.85	27.6	34.1	53.0	59.8	21.5	21.39	4983	5669	7522	8772	12627	

ANNEX III

Technical Assistance Activities (2003-2004)

Table III-1: Implementation of TA Activities in the 2003 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CTC-2003-TA-01	Extension of the MIS to include ODS Phaseout in PA and CTC Production		2004-06	2004-12-31	**Under implementation** The MIS will be integrated into PMO's MIS system and is being proceeded by IT group of FECO.
CTC-2003-TA-02	Investigation of substitute technologies for PA enterprises				**Cancelled** Because most enterprises decided just closed their production lines. Fewer enterprises investigated the substitute technologies by their own.
CTC-2003-TA-03	Investigation of Conversion of CTC to other (non-ODS) Products				**Cancelled** This was integrated with TAs in 2004.
CTC-2003-TA-04	Training of personnel involved in implementation of phaseout activities	SEPA	2003-01	2003-9-30	**Completed.** Training was organized for CTC producers, consumers, dealers and auditors.
CTC-2003-TA-05	Site supervision at CTC production enterprises in 2003	SEPA	2003-06	2003-6-30	**Completed.** Only the supervisor were selected and trained. The site supervision was cancelled in 2003 because of the late issuance of CTC production quota.
CTC-2003-TA-06	Study of Market Prospects for CTC Producing Enterprises	8 CTC producers: They are 1) Zhejiang Quhua 2) Shanghai Chlor-Alkali 3) Jiangsu Meilan 4) Luzhou Xinfu 5) Sichuan Honghe 6) Luzhou North 7) Chongqing Tianxuan 8) Chongqing Tianyuan	2003-12	2004-6-30	**Completed** All these 8 CTC producers studied the market and technology of their selected one or two products. Some producting line are under construction or to be constructed. The completed reports were submitted. It's proved to be a successful TA.
CTC-2003-TA-07	Consulting Services on CFC-113 and CTC Emission control	Three individual consultants	2003-10	2004-3-31	**Under implementation** The related PTFE enterprises prepared the technical proposals on CFC-113 consumption reduction. The consultants reviewed these proposals and commented the technology feasibility and costs estimation. The project will be commissioned by September 2004.

Table III-2: Implementation of TA Activities in the 2004 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CTC-2004-TA-01	Training of personnel involved in implementation of phaseout activities	SEPA	2004-01	2004-12-31	**Under implementing** Training for CTC producers, consumers, dealers are finished, for auditors will be executed in the beginning of 2005.
CTC-2004-TA-02	Domestic Investigation and verification of new feedstock applications of CTC	4 individual consultants were recruited	2004-8[1]	2004-6-30	**Completed** The report was submitted and the CTC applications and amount as the feedstock of non-ODS chemicals were collected.
CTC-2004-TA-03	International Investigation on new feedstock applications of CTC	To be selected through bidding process	2004-6	2005-10-31	**Under implementation**
CTC-2004-TA-04	Study on CTC incineration technologies and management	To be selected through bidding process		2005-10-31	**TOR is under the clearance**
CTC-2004-TA-05	2004 International workshop of CTC conversion and incineration technologies	SEPA	2004-9-01	2004-9-31	**Completed**
CTC-2004-TA-06	Daily Site supervision for CTC producers	SEPA	2004-01	2004-12-31	**Under implementation**

[1] The contracts with consultants were signed after the project has been completed due to time limited before the survey started.

THE CFC PRODUCTION SECTOR

CHINA

2005 ANNUAL PROGRAM

October 7, 2004

Data Sheet

Country	People's Republic of China
Project title:	Sector Plan for CFC production phase-out in China
Year of plan	2005
# of years completed	6
# of years remaining under the plan	5
Ceiling for 2004 CFC production (in ODP tons), 2004 Annual Plan	25,300 ODP tonnes
Ceiling for 2005 CFC Production (in ODP tons), 2005 Annual Plan	18,750 ODP tonnes
Total funding approved in principle for the CFC sector plan	$150 million
Total MLF funding released to the Bank by September 2004	$85 million
Total funding disbursed from the World Bank to China by September 2004 (excluding supporting fee)	$65.5 million
Level of funding requested for 2005 Annual Plan	$13 million

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

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Introduction

1. According to the Executive Committee's approval of the "Agreement for the China Production Sector" (UNEP/Ozl.Pro/ExCom/27/48, Decision 27/82 and Annex IV), in order to implement the 2005 Annual Program, China is hereby requesting release of the seventh tranche of US$13 million. With this funding, China's CFC production will be reduced to a maximum of 18,750 ODP tons by the end of 2005. The production quotas issued will also ensure that the ceiling on overall national CFC-11 consumption of 10,400 MT for 2005 required in the "Agreement for CFC Phase-out in the Polyurethane Foam Sector in China" (UNEP/OzL.Pro/ExCom/35/19, Annex VIII) is met. Details of the 2005 annual program are provided in Section B.

2. Following the approval of the China CFC Production Sector Plan at the 27th Meeting of the ExCom in March 1999, China has been implementing the phaseout project according to the agreed phaseout plan. Through this period, China has also developed supporting policies and regulations. There were 37 CFC production plants in China in 1999, and the number has been reduced to 6 producers in 2004. CFC production has correspondingly been reduced from 50,351 ODP tons in 1997 to 29,986 ODP tons in 2003, and will not exceed 25,300 ODP tons in 2004.

3. In accordance with the phaseout schedule in Montreal Protocol about CFC-13, an ODS in Group I Annex B. The control baseline of CFC-13 production is 26.7 ODP tons (average of 1998-2000). China had reduced its production from 27 ODP tons to 21.3 ODP tons in 2003.

4. ***China's CFC phaseout obligations.*** Within the Sector Plan, China agreed to the following phaseout schedule for CFCs in Group I Annex A and Group I Annex B. The phaseout of CFC-13 in Group I Annex B will go consistent with the requirements of the Montreal Protocol, that is, its production will be reduced 20 percent in 2003, 85 percent in 2007 and 100 percent in 2010 compared to the baseline production of 26.7 ODP tons. CFC-113 consumption is also partially regulated through the CTC/PA and solvents agreements.

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

Year	Annual Grant Funding	Agreed maximum production	Maximum allowed production (based on quotas issued to producers)	Actual Production (confirmed by World Bank verification team)
	(ExCom Decision 27/82, Annex IV)			
	US$ (million)	(ODP tons)		
1999	20	44,931	44,853	44,793
2000	13	40,000	39,998	39,991
2001	13	36,200	36,198	36,196
2002	13	32,900	32,898	32,896
2003	13	30,000	29,998	29,986
2004	13	25,300	25,298	
2005	13	18,750		
2006	13	13,500		
2007	13	9,600		
2008	13	7,400		
2009	13	3,200		
2010	0[2/]	0		

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

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

5. As can be seen from Table A.1, CFC production was below the annual targets in each of the years of the program. The annual production of CFCs is shown in the table A.2 below.

Table A. 2: CFC Production broken down by CFC (ODP tons)

Annual Program	**CFC-11**	**CFC-12**	**CFC-113**	**CFC-114**	**CFC-115**	**CFC-13**
1999	22,684	18,521	3,379	0	163	46
2000	16,113	20,411	3,300	7	132	27
2001	14,099	19,257	2,700	7	106	27
2002	15,771	14,755	2,200	29	114	27
2003	13,828	14,249	1,700	0	187	21.28
2004 (Jan-June, reported)	7,237	7,264	1,374	0	224	15.22

6. 39 technical assistance activities have been planned, including activities to strengthen the implementation capacity and conversion capacity of closure enterprises, preparation of standards to ensure quality and reliability of CFC substitutes, and CFC production monitoring, etc.

7. Three other activities have been taken up. Under the first, Government is supporting the construction of a facility to produce HFC-134a. The second, the screening of alternatives to

Methyl Bromide in soil fumigation was taken up to screen out effective alternatives for tested crops, and to provide references for policy-makers. The third is China Country Compliance Center Activities.

8. The detailed implementation status of the 1999 – 2004 Annual Programs is provided in Part A.

PART A

IMPLEMENTATION STATUS OF PREVIOUS YEARS' ANNUAL PROGRAMS

As of June 2004

Phaseout Target

1. Starting with a baseline production of 50,351 ODP tons in 1997, China has issued production quotas each year that have enabled its producers to successfully meet the annual production targets specified in the agreement between China and the ExCom. The annual production in each year has been confirmed by both a national audit of the annual program (conducted by the China National Audit Office) and an international verification of production commissioned by the World Bank. The annual phaseout targets, production quotas issued to meet those targets, and the verified actual production for the first five years' annual programs are summarized in Table 1 above. In the year 2004, there are six remaining CFC producers, and quotas for production of 25,298 ODP tons have been issued to them to meet the production reduction target of 25,300 ODP tons.

Enterprise Phaseout Activities

2. Details regarding the enterprise phaseout and production activities in the 1999-2004 Annual Programs are summarized in Annex 1. Starting with 37 identified enterprises in 1999 (36 covered under the technical audit commissioned by the ExCom and one additional enterprise identified later), 31 enterprises have completely closed and dismantled their facilities of CFC-11, 12 and 113 under the Sector Plan, accounting for closure of capacity for production of 79,430 MT of CFCs. All reduction in 1999 was through closure of enterprises. Starting in 2000, the required reduction in production has been achieved through a combination of closures and reduction of quotas given to enterprise through quota buy-back. A total of 6 CFC producers remain in operation in 2004. Three enterprises are producing CFC-11 and/or CFC-12, one enterprise is producing CFC-11, CFC-12, CFC-113 and CFC-115, one enterprise is the only producer of CFC-13 in China and the last producer is producing CFC-114 and CFC-115.

3. The 1999 Annual Program comprised three sets of closures. *Firstly,* under the production sector agreement, China committed to close and dismantle production facilities at 14 enterprises (listed in the agreement between China and the ExCom) that had not been in production in 1997 (though one of these lines did produce some CFCs in the early part of 1999, prior to the agreement). SEPA signed closure contracts with these 14 enterprises, resulting in a reduction of production capacity of 22,630 MT (Annex 1, Table 1.1). *Secondly,* contracts were also signed with 3 other enterprises for closing down production lines that had no production in 1997, resulting in a further reduction of production capacity of 4,000 MT (Annex 1, Table 1.2). *Finally,* after the quota regulation and bidding for 1999 quotas, contracts were signed with 7 enterprises to phase out additional production capacity of 23,800 MT (Annex 1, Table 1.3). Through above activities, the 1999 phaseout target has been achieved with 44,793 ODP tons actual production which was within the 44,853 ODP tons quotas issued.

4. Under the 2000 Annual Program, closure contracts were signed with 5 enterprises so as to enable a phase out of production capacity totaling 15,500 MT in 2000 (Annex 1, Table 1.4) and one enterprise accepted a reduction in quota. Through this approach, 4,931 ODP tons phaseout target in 2000 was realized.

5. Under the 2001 Annual Program, the actual production of CFCs must at least be reduced from 40,000 ODP tons to 36,200 ODP tons. In order to achieve this target, three producers were closed, and contracts for complete closure were signed in November 2000 with these three enterprises, enabling a total reduction in production capacity of 7,500 MT (Annex 1, Table 1.5).

6. Under the 2002 Annual Program, the phaseout target of CFC production was 3,300 ODP tons. The production of CFCs needed to be reduced from 36,200 ODP tons to 32,900 ODP tons. As no CFC producers bid to close their production lines, CFC production quotas were reduced by administrative measures, and quota reduction contracts were signed with 6 of the 7 CFC producers, with one enterprise's quota being retained at the previous level. The actual production in 2002 was 32,896 ODP tons, which was verified by World Bank verification team in January 2003 (Annex 1, Table 1.6).

7. Under the 2003 Annual Program, the production target of CFCs was reduced from 32,900 ODP tons to 30,000 ODP tons. Two kinds of contracts were signed in Dec.2002. Two producers signed closure contracts with SEPA (including one who closed down two CFC-12 production lines; the enterprise continuing operation of its CFC-13 production line with an adjusted production quota consistent with the CFC-13 phaseout requirements), enabling a total reduction in production capacity of 6,000 MT (Annex1, Table 1.7). Four producers except one being retained at the previous level signed quota reduction contracts (Annex1, Table 1.8). Six producers remaining in production in 2003.

8. Under the 2004 Annual Program, the phaseout target of CFCs in China is 4,700 ODP tons from 30,000 to 25,300 ODP tons. Because there was no producer willing to close production line, the target was realized by administrative measure, that is, the six remaining producers reduce their quotas with equivalent proportion in the light of the "Circular on Implementing the Quota System for CFC Production" issued by SEPA and the former State Administration of Petroleum and Chemical Industry (SAPCI) (Annex1, Table 1.9).

9. As indicated above, the implementation of annual programs has been audited every year by the China National Audit Office.

10. All the closed production lines for all the years (1999 to 2004) have also been visited by a World Bank verification team as part of the verification of the annual programs, confirming that they are no longer capable of producing CFCs and their key production equipment has been fully dismantled and destroyed. The World Bank verification team has also analyzed and verified the production data recorded at each enterprise. The verification team has confirmed that the production in 2003 was within the ceiling established under the Agreement.

11. It is planned that the World Bank verification of the 2004 CFC production under the 2004 annual Program (plant visit) will be conducted in the second half of January of 2005 immediately before the Chinese new year festival (starting February 8, 2005) to enable a report to the first ExCom meeting in 2005.

Implementation of Policy Instruments

12. *Key instruments.* The key policy instrument of the program is the regulation promulgated for the introduction and implementation of an annual tradable quota system, entitled "Circular on Implementing the Quota System for CFC Production", by the State Environmental Protection Administration (SEPA) and SAPCI on May 31, 1999. A bidding system, where the government would buy back production quotas at lowest costs, was also introduced together with the promulgation of the tradable production quota system and auction system in which the exceeding quotas reduced by closing plant will be auctioned to remaining producers and this part quotas should by phased out at first in the next annual year. Under this regulation, some CFC producers were awarded grants through bidding in 1999 and 2000 to close their production, while a national CFC production quota within the annual target was issued to the remaining CFC producers in order to ensure that the demand for CFC was met and the national production for the year did not exceed the agreed target. Administrative measures have been used to meet the agreed target in 2002 and 2003. CFC production quotas with the remaining 7 producers were reduced in 2002. In 2003, CFC production quotas totaling 29,998 ODP tons were provided to 6 CFC producers, while two CFC producers dismantled their CFC-12 production lines, one of this two being closed completely, the other remaining one CFC-13 line. Under the 2004 annual program, 25,298 ODP tons CFC production quotas were issued to enterprises on Feb. 26, 2004, the phaseout target of 4,700 ODP tons realized by administrative measure.

13. Due to the remaining demand for CFC in China and the potential risk of illegal production, China introduced site supervision arrangements on December 17, 2001 through a "Regulation on Implementing Site Supervision to CFCs Production Enterprises" with the aim of strengthen the monitoring of CFC production. From January 1, 2002, the four remaining CFC-11 and CFC-12 producers have been placed under year-round site supervision by supervisors designated by SEPA. These supervisors are technical professionals located on site at production plants, and are from other CFC-11 and CFC-12 producing plants. This effectively enables the CFCs industry to help to monitor itself. The experience so far proves that it is an effective method to strictly control that CFC-11 and CFC-12 production does not exceed the CFC production quotas issued by SEPA. In 2003, there are 8 supervisors designated to the 4 CFC-11 and CFC-12 producers. No supervisors are designated to the other two producers, of which one is the only producer of CFC-13 in China and the other produces only CFC-114 and CFC-115. In 2004, this system is adopted permanently with the aim to continue implementing it in the following years. Most of supervisors are those who have been engaged in this work for the past two years.

14. *Other instruments related to trade in CFCs*. A study on options for export/import management for Halons and CFCs, which would help China to monitor and control export/import in CFCs and prevent illegal CFC trade, was completed in July 1999. A "Circular on Control Mechanism of Import and Export of ODS" and a "Circular on Strengthening Management of ODS Import and Export" were promulgated on December 3, 1999 and in April 2000. The mechanism is implemented by the Management Office of ODS Import-Export Control jointly administered by SEPA, the General Administration of Customs (GAC), and, Ministry of Commerce of the PRC (MOC) and helps China to monitor trade in ODS and eliminate illegal ODS trade. Two batches of *Export/Import Control List of ODS in China* have been promulgated in January 2000 and January 2001 respectively. Imports of Carbon Tetrachloride, a key feedstock for CFC production and also a controlled substance under the Protocol, were banned on April 1, 2000, imports and exports CFC-

113 used as solvent were banned on Feb.1, 2001, and imports and exports of other CFCs are regulated by a permit system administered by MOC (Ministry of Commerce).On July 8, 2003, in order to control the consumption of CFC-113, SEPA issued "Circular on issuing consumption license of CFC-113、TCA and CTC".

Technical Assistance Activities

15. Technical assistance activities are essential for successful implementation of the CFC production phase-out. Thirty-nine technical assistance activities have so far been planned under the annual programs, of which thirty were taken up for implementation. Twenty-two TAs have been completed, and eight are still under implementation. Four TAs, (one in each annual program), for the recruitment of international consultants were not activated. Eight TAs were cancelled as they were found to duplicate other activities, or were not considered feasible at that point of time. Details are provided in Annex 3.

16. The status of the 2004 technical assistance activities is as follows:

(a) Training of Personnel Involved in Implementation of Phaseout Activities. In order to implement the phaseout plan effectively, it is necessary to train staff in CFC production enterprises and audit agencies. The TOR was prepared and sent to the World Bank for Bank's Clearance on June 9, 2004 and the Bank gave its clearance on June 19, 2004.

(b) Site Supervision for CFCs Production Enterprises. Since the implementation of the Site Supervision in 2002 proved that it is effective, this activity is continually carried out this year for the purpose of strengthening the supervision of CFC production. From Jan. 1, 2004, main 4 of the 6 remaining CFCs producers have been placed under year-round site supervision by supervisors designated by SEPA. The TOR was submitted to the World Bank for clearance and was cleared by Bank on June 19, 2004.

(c) Performance Audit for 2003. As required in Schedule 3, Section A, Paragraph 6 (b) of the ODS IV Grant Agreement between China and the World Bank, an audit has been undertaken in April 2004 to audit the implementation status of 2003 Annual Program under the CFC production Sector. Total funding available in year 2003 was US$13 million. The audit aimed to verify all Annual Program activities, with particular emphasis on the actual CFC production in China for the year 2003. The auditors have visited all CFC plants that were in production in 2003, regardless of their production volume, all plants that were closed in 2003 under the Annual program and all Consultants who carried out the TA projects in 2003 and previous years annual programs under which the contracts have been signed.

(d) 2004 International Symposium of ODS substitute technologies. The symposium were held in connection with the Ozone Day 2004 celebration in Xian on September 17, 2004; reinforcing the communication of ODS substitute technology between China and the world and sharing the experience with ODS substitute technologies development and applications in developed countries.

Other activities (former Special initiatives)

17. Under the provisions of maximum flexibility in section (d) of the Agreement for the China Production Sector, China has undertaken the following other activities (See Annex 4).

18. ***Establishment of HFC-134a Production facility.*** As the phaseout of ODS production proceeds, the demand for substitutes in the consumption sector has increased rapidly. The impact of the first three years of implementation of the CFC sector plan equals a phaseout of more than 14,155 ODP tons of CFCs. The phaseout of CFC-11, which is the major foaming agent, has had an impact in the foam sector, and there is an urgent need to move into production of substitutes such as Cyclopentane and HCFC-141b. The use of CFC-12 as refrigerant in air-conditioners installed in all newly produced cars has been banned from January 1, 2002. It is estimated that the demand for HFC-134a, presently the only substitute of CFC-12 in the MAC sector in China, will exceed 7,500 tons in 2005 in this sector alone, and could reach 19,000 tons by 2010. China therefore envisages an urgent need to initiate other activities to produce such substitutes to ensure that there is no shortfall in their supply. Xi'an Jinzhu Jindai Chemical Industry Co., Ltd. was selected as the beneficiary for this project in December 2000. A two phase approach was selected with a final annual capacity of 10,000 Tons and a first stage capacity of 5,000 tpa.

19. The first stage of the project has physically been completed by the end of 2003 and total 1,800 MT of HFC-134a were produced from Jan. to August 2004. On Jun. 5, 2004, SEPA organized an expert group, including relevant officials from state administrative departments and experts from industry associations, to review the implementation of the project and commission it. Based on the analysis on the status of domestic HFC-134a production and the market demands, SEPA decided to finance the second phase increasing the production capacity from 5,000 tpa to 10,000 tpa of HFC-134a using the funds of CFC Production Sector Plan. The second phase construction contract with Xi'an Jinzhu is under preparation.

20. ***Screening of alternatives to Methyl Bromide in soil fumigation in China.*** The Institute of Plant Protection, Chinese Academy of Agricultural Sciences, was selected as the beneficiary for this project in April 2002. The purpose of this project is to screen out one or two economical, effective and simple alternatives for each crop tested, to confirm their acceptance by Chinese farmers and to provide references for policy-makers. Five sites were defined for testing of tobacco, strawberry, tomato, cucumber and hot pepper. This project has been completed, the final report has been submitted to WB during it's April mission in 2004.

21. ***China Country Compliance Center Activities.*** A new program is being introduced by China in 2003 with implementation to begin as soon as the legal arrangements can be made operational. As China approaches the second major obligation milestone under the Montreal Protocol in 2005, it is foreseen that the drastic required reductions in production and consumption of ODS will require rigorous compliance and enforcement measures, especially to prevent illegal activity in this regard. China therefore proposes to establish the Country Compliance Center (CCC) in 2003. The CCC will be the central management unit for the ODS program when it is established, and will be responsible for all management and enforcement activities under the Program. The CCC will be located in a new building which will be procured for the purpose and will house the CCC. The CCC, including purchase of the building, will be partially supported with MLF funding available from the CFC Production Sector Plan, by using of some of the unallocated balances from previous years' annual programs and also partially supported by bilateral

contributions to China. Based on the Executive Committee approval of the 2004 annual program, **p**rocedure was agreed between WB and SEPA in February 2004.

Plants producing HCFC-22 in China

23. As required by the agreement on the production sector, China has provided an updated list of the plants producing HCFC-22 in China, attached in Annex 2, and assures that no one produces CFCs on which China has obligation in the agreement.

PART B

2005 ANNUAL PROGRAM

1. *Phaseout Objectives* The phaseout objective of the 2005 Annual Program is to ensure that CFC production in the year does not exceed 18,750 ODP tons. China is requesting the release of the **seventh annual tranche** of **US$13 million** as agreed in the overall CFC Production Sector Phaseout Plan to achieve this objective. It is envisaged that the US$13 million will be allocated for closing CFC production lines and/or reducing production levels in some CFC enterprises that received production quota in 2004, for Technical Assistance activities, and for other activities.

Program Activities during the Year

2. *Policy actions.* In 2005, the following policies and measures will continue to be implemented by the Government. These policies are considered necessary for the success of total CFC production phaseout in China.

(a) Tradable production quota system – The regulation has been under implementation since 1999, and will continue. Five years implementation experience of this system verified that it is the most important measure to effectively and successfully realize annual phaseout target.

(b) Export and import control mechanism – The Management Regulation on Export/Import Control of ODS, promulgated in December 1999 by SEPA in collaboration with Ministry of Foreign Trade and Economic Cooperation (MFTEC) (now Ministry of Commerce of the PRC---MOC) and General Administration of Customs (GAC), covers all ODS as well as related equipment and facilities that produce or consume ODS. ODS Export/Import quota and permit systems have been adopted, and all enterprises wishing to export or import ODS must hold both a quota issued by SEPA and MOC, as well as specific export/import permits. GAC supervises exports and imports of ODS. China has also promulgated the Export/Import Control List of ODS in China, the First Group in January 2000, and the Second Group in January 2001. Under this regulation, China has banned imports of CTC, import and export of CFC-113 used as solvent and introduced quota and permit requirements exports and imports of CFC-11, CFC-12, CFC-113 (not used as solvent), CFC-114, CFC-115 and CFC-13. During a World Bank workshop on implementation of national phase-out plans in the region, a mechanism for export/import cooperation helping the countries controlling import was agreed.

(c) Sales permit system – In order to prevent illegal transaction of CFCs, the Management Regulation on Sales Control of CFC-113 has been implemented for 2 years. Under this system, all producers and sellers of CFC-113 must hold CFC-113 selling permit license. Those violating the regulation will be given certain punishment.

3. *Enterprise activities*. Through a combination of bidding, allocation of production quota and administrative measures, plant would be granted funds for full or partial closure. All CFC reduction or closure contracts are expected to be signed by the end of November, but in any case will be signed no later than the end of 2004. Closure projects are expected to take effect from January 1, 2005 and are to be completed by the end of June 2005. Key equipment should be dismantled and

destroyed by the end of January 2005. And reduction contracts will be performed from Jan. 1, 2005 to Dec. 31, 2005 by carrying out production quota system.

4. *Technical assistance* (TA) activities. The following TA activities are proposed for 2005:

(a) *Training of personnel involved in implementation of phaseout activities.* To implement the phaseout plan effectively, it is necessary to train staff in CFC production enterprises and audit agencies. Training is also needed for enterprises to understand the closure regulations. Training in 2005 will consist of two workshops: one for CFC production enterprises and the other one for auditors.

(b) *Daily Site Supervision to CFCs Production Enterprises.* This TA will continue in 2005 and the following years. This activity was added to the program in 2002 for the purpose of strengthening the supervision of CFC production. From January 1, 2002 up to now mainly remaining CFCs producers had been placed under year-round site supervision by supervisors designated by SEPA. These supervisors were technical professionals located on site at production plants, and were from other CFCs producing plants; this effectively enabled the CFCs industry to help to monitor itself.

(c) *Performance Audit.* A performance audit is required under the CFC sector plan. A TOR for the 2004 performance audit will be agreed between the Bank and SEPA for this purpose by November 2004, and the audit is expected to be completed by June 30, 2005.

(d) In connection with the 2004 Annual Programme, the Secretariat of the MLF requested China to provide information on CFC-113a uses. China informed that CFC-113a is only used as for feedstock for CFC-114/115 and pesticide production. As per agreement between China and the MLF Secretariat, China will verify feedstock applications and report the feedstock uses to the Ozone Secretariat consistent with the Montreal Protocol Art. 7 reporting requirement and CFC-113a will not be included in the World Bank annual verification.

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

Table B.1: 2005 Annual Program

CFC production phaseout targets						
	Funding (US$ mill.)	2004 Production Limit[1]	Phaseout in 2005	Allowed Production in 2005[2]	Performance Indicators	Key Dates
CFC (ODP tons)	13	25,300	6,550	18,750	1. Closures of some current producers and reduction in production in remaining producers 2. Implementation of TA activities to help phaseout. 3. Production level not to exceed 18,750 MT	1. Dec. 2004-June 2005 2. Jan. 2005-Dec. 2005 3. Dec.31, 2005
Policy Initiatives						
Initiatives	Funding	Performance Indicators				Key Dates
1. Administrative measures	Incl .in TA n.a. incl. in TA	1. Training remaining enterprises for closing in 2005 and sign closure or partial closure contracts with CFC production enterprises 2. Implement closure or partial closure contracts 3. Train enterprises for closing preparation for 2006 reduction target				1. Dec. 2004 2. Dec. 2004-June 2005 3. Sep. 2005
2.To issue tradable Production quota to CFC producers	n.a.	1. Establish 2005 annual CFC production quota 2. Issue annual production quota to CFC producers for 2005				1. Dec. 2004 2. Mar. 2005
3. Import/export trade management	n.a.	1. Implement the import/export trade management mechanism.				1. January 2005-December 2005
Enterprise activities						
	Funding (US$ million)	Existing enterprises	Enterprises at end of 2005	Performance Indicators		Key Dates
Closure of CFC11/12 production lines	13.00	6	t.b.d.	1. Training enterprises, selecting closing plants (if any) and signing contracts. 2. Facilities dismantled completed		1. Sept. – Dec. 2004 1. No later than June 2005

[1] Per Agreement

[2] Maximum production quota that can be allocated for calendar 2005.

Table B.1: 2005 Annual Program (continued)

(Amount in US$ million)

Technical assistance activities			
Activities	Funding [1/] (US$ Million)	Performance Indicators	Key Dates
1. Training of personnel involved in implementation of phaseout activities.	t.b.d	1. TOR to be agreed with the Bank 2. Training on supervision and evaluation of CFC production, management of CFC production quota system, and CFC Project Implementation Manual	2. June, 2005 3. Start in December 2005. Specific schedules to be detailed in TORs
2. Implementing Site Supervision to CFCs Production Enterprise	t.b.d	1. TOR to be agreed with World Bank 2. Implementation.	1. November, 2004 2. January 1-December 31, 2005.
3. 2004 Performance audit	t.b.d	1. TOR to be agreed with the Bank 2. Audit implementation. 3. Audit is completed.	1. November, 2004 2. April, 2005 3. By June 30, 2005
4. Others to be identified	t.b.d		
Subtotal	Funded by the previous year		
TOTAL for phaseout activities	**13.00**		

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

Annex 1
Status of Plants Producing CFC in the 1999-2004 Annual Programs

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

Sl.	SRI No.	Enterprise Name	Capacity (MT/year)	CFC type	CFC Production (ODP tons)	Status
					1999	
1	A3	Shangdong Dongyue Chemical Co. Ltd.	5,000	CFC-12	1042	Closure verified August 1999
2	C2	Hunan Yiyang Chlor-Alkali Chemical Co. Ltd.	1,000	CFC-12	0	Closure verified August 1999
3	C5	Inner Mongolia Baotou Chemical Plant #1.	700	CFC-12	0	Closure verified August 1999
4	C1	Jiansu Jianhu Phosphate Fertilizer Plant	500	CFC-12	0	Closure verified August 1999
5	B4	Sichuan Zigong Fujiang Chemical Plant	1,500	CFC-11	0	Closure verified August 1999
			1,000	CFC-12	0	
6	B9	Zhejiang Linhai Jianxin Chemical Plant	800	CFC-12	0	Closure verified August 1999
7	A14	Guangdong Huiyang Chemical Plant	1,000	CFC-11	0	Closure verified August 1999
			3,000	CFC-12	0	
8	A1	Henan Hebi Chemical Plant #1	1,500	CFC-12	0	Closure verified August 1999
9	C3	Hebei Longwei Fluorochemical Plant #1	1,080	CFC-12	0	Closure verified August 1999
10	C4	Guizhou Wuling Chemical Plant	1,500	CFC-12	0	Closure verified August 1999
			50	CFC-13	19	
11	A15	Guangdong Zhaoqing Chemical Plant	500	CFC-12	0	Closure verified August 1999
12	C6	Shanxi Shangzhou Chemical Plant	2,000	CFC-12	0	Closure verified August 1999
13	B10	Zhejiang Linhai Shuiyang Chemical Plant	500	CFC-12	0	Closure verified August 1999
14	A12	Shanghai Shuguang Chem. Plant	1,000	CFC-113	0	Closure verified August 1999
Subtotal			22,630		1061	

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

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)	Status
					1999	
15*	A2	Shangdong Jinan 3F Chemical Co. Ltd.	1,500	CFC-11	0	Closure verified August 1999
16	No SRI audit	Liaohe Chemical Group Chlor-Alkali Plant	1,000	CFC-12	0	Closure verified March 2000
17**	B15	Fujian Shaowu Floro-chem. Plant	1,500	CFC-11	0	Closure verified March 2000
Subtotal			4,000		0	

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

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)		Status
					1999	2000	
18	B2	Chongqing Tianyuan Chemical Plant.	500	CFC11/ 12	14	0	Closure verified January 2000
19	B5	Hubei Wuhan Changjiang Chemical Plant	1,500	CFC-11	0	0	Closure verified January 2000
			4,500	CFC-12	0	0	
20	A5	Jiangsu Wuxian Juxing Chemical Plant	2,000	CFC-11	0	0	Closure verified January 2000
21	A6	Jiangsu Wuxian Union (City Link) Chemical Plant	1,800	CFC-11	0	0	Closure verified January 2000
22	B1	Jiangxi De'an Refrigeration Plant	3,000	CFC-12	0	0	Closure verified January 2000
15*	A2	Shangdong Jinan 3F Chemical Co. Ltd.	3,500	CFC-12	0	0	Closure verified January 2000
23	B6	Shanghai Chlor-Alkali Chemical Plant Co. Ltd.	7,000	CFC-12	687	0	Closure verified January 2000
Subtotal			23,800		701	0	

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

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)		Status
					1999	2000	
24	A9	Jiangsu Wuxi Hushan Refrigeration Plant	4,000	CFC-11	560	0	Closure verified September 2000
25	B3	Sichuan Zigong Refrigerant Plant	1,500	CFC-11	198	0	Closure verified September 2000
			1,500	CFC-12		0	
26	B13	Zhejiang Lanxi Refrigeration Plant	2,500	CFC-11	785	0	Closure verified September 2000
27	B7	Zhejiang Rui'an Haitian Chem. Co. Ltd.	5,000	CFC-11	617	0	Closure verified September 2000
28	A4	Shandong Xuecheng Xinxing Chemical Plant	1,000	CFC-12	0	0	Closure verified September 2000
Subtotal			15,500		2160	0	

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

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)			Status
					1999	2000	2001	
17**	B15	Fujian Shaowu Floro-chem. Plant	3,500	CFC-12	979	1,159	0	Closure verified June 2001
29	A7	Suzhou Xinye Chemical Co. Ltd.	3,000	CFC-11	7408	2,532	0	Closure verified June 2001
30	A11	Jiangsu Changsu Yudong Chem. Plant	1,000	CFC-113	545	545	0	Closure verified June 2001
Subtotal			7,500		8932	4236	0	

Table 1.6: CFC plants reducing production as part of 2002 Annual Program – contracts of December 2001

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)				Status
					1999	2000	2001	2002	
31	A8	Jiangsu Meilan Electric Chem. Plant	3,000	CFC-11	1766	1,050	1,050	1,050	Data verified in February 2003
			3,000	CFC-12	1866	1,793	1,793	1,315	
32	B14	Zhejiang Juhua Florochem. Com. Ltd.	4,000	CFC-11	3376	4,339	4,827	4,489	Data verified in February 2003
			8,000	CFC-12	6325	7,759	7,706	7,157	
33	A10	Jiangsu Changsu Refrig. Plant (Changsu 3F)	10,000	CFC-11	7960	8,192	8,222	10,232	Data verified in February 2003
			5,000	CFC-12	2780	5,019	5,075	3,035	
			4,000	CFC-113	2834	2,756	2,700	2,200	
			400	CFC-115	90	60	30	60	
34***	B8	Zhejiang Linhai Limin Chem. Plant	50	CFC-13	27	27	27	27	Data verified in February 2003
35	B12	Zhejiang Dongyang Chem. Plant	5,000	CFC-12	2053	2,219	2,219	1,741	Data verified in February 2003
36	A13	Guangdong Xiangsheng Chem. Co. Ltd.	3,000	CFC-12	1,601	1,098	1,099	621	Data verified in February 2003
Subtotal			45,450		30678	34312	34748	31927	

Table 1.7: CFC plants closed as part of 2003 Annual Program – contracts of December 2002

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)					Status
					1999	2000	2001	2002	2003	
34	B8	Zhejiang Linhai Limin Chem. Plant	3,000	CFC-12	1,188	1,365	1,365	887	0	Closure verified January 2003
36	A13	Guangdong Xiangsheng Chem. Co. Ltd.	3,000	CFC-12	1,601	1,098	1,099	621	0	Closure verified January 2003
Subtotal			6,000		2789	2463	2464	1508	0	

Table 1.8: CFC plants reducing production as part of 2003 Annual Program – contracts of December 2002

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)					Status
					1999	2000	2001	2002	2003	
31	A8	Jiangsu Meilan Electric Chem. Plant	3,000	CFC-11	1766	1,050	1,050	1,050	997	Data verified in February 2004
			3,000	CFC-12	1866	1,793	1,793	1,315	1,066	
32	B14	Zhejiang Juhua Florochem. Com. Ltd.	4,000	CFC-11	3376	4,339	4,827	4,489	3947	Data verified in February 2004
			8,000	CFC-12	6325	7,759	7,706	7,157	7,406	
33	A10	Jiangsu Changsu Refrig. Plant (Changsu 3F)	10,000	CFC-11	7960	8,192	8,222	10,232	8884	Data verified in February 2004
			5,000	CFC-12	2780	5,019	5,075	3,035	4335	
			4,000	CFC-113	2834	2,756	2,700	2,200	1700	
			400	CFC-115	90	60	30	60	108	
35	B12	Zhejiang Dongyang Chem. Plant	5,000	CFC-12	2053	2,219	2,219	1,741	1,442	Data verified in February 2004
Subtotal			42,400		29050	33187	33622	31279	29885	

Table 1.9: Remaining CFC producers by January 2004 (Contracts of December 2003)

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production (ODP tons)						Status
					1999	2000	2001	2002	2003	2004	
31	A8	Jiangsu Meilan Electric Chem. Plant	3,000	CFC-11	1,766	1,050	1,050	1,050	997	338	Data not verified for 2004 (first half year

			3,000	CFC-12	1,866	1,793	1,793	1,315	1,066	467	reported)
32	B14	Zhejiang Juhua Florochem. Com. Ltd.	4,000	CFC-11	3,376	4,339	4,827	4,489	3947	1,966	Data not verified for 2004 (first half year reported)
			8,000	CFC-12	6,325	7,759	7,706	7,157	7,406	3,437	
33	A10	Jiangsu Changsu Refrig. Plant (Changsu 3F)	10,000	CFC-11	7,960	8,192	8,222	10,232	8884	4,749	Data not verified for 2004 (first half year reported)
			5,000	CFC-12	2,780	5,019	5,075	3,035	4335	3,250	
			4,000	CFC-113	2,834	2,756	2,700	2,200	1700	1,099	
			400	CFC-115	90	60	30	60	108	55	
34**	B8	Zhejiang Linhai Limin Chem. Plant	50	CFC-13	27	27	27	27	21	15	Data not verified for 2004 (first half year reported)
35	B12	Zhejiang Dongyang Chem. Plant	5,000	CFC-12	2,053	2,219	2,219	1,741	1,442	597	Data not verified for 2004 (first half year reported)
37	B11	Zhejiang Chemical Research Institute	100	CFC-114	0	7	7	29	0	0	Data not verified for 2004 (first half year reported)
			100	CFC-115	72	72	76	54	79	64	
Subtotal			**42, 650**		**44,793**	**39,991**	**36,196**	**32,896**	**29,986**	**16,039**	

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

Annex 2

Updated List of HCFC-22 producing plants in China

Sl.	Name of Company
1.	Hunan Zhuzhou Chemical Corporation (Group) (Hunan Zhuzhou Chemical Group Co., Ltd.)
2.	Zhonghao New Chemical Materials Co., Ltd.
3.	ATOFINA (China) Investment CO., Ltd. [Jiangsu Changshu Elf Atochem 3F Co., Ltd. (ATOFINA-3F Fluoro-Chemical Changshu Co, Ltd.)]
4.	Jiangsu Meilan Electric Chemical Plant (Jiangsu Meilan Chemical Co., Ltd.)
5.	Liaoning Fuxin Fluoro-chemical Plant (Fuxin Fluoro-Chemical Co., Ltd.)
7.	Sichuan Chenguang Chemical Research Institute Plant No.2 (Zhonghao Chenguang Research Institute of Chemical Industry)
8.	Shandong Jinan 3F Chemical Co., Ltd. (Jinan 3F Fluoro-Chemical Co., Ltd.)
9.	Shandong Dongyue Chemical Co., Ltd.
10.	Sichuan Zigong Fujiang Chemical Plant
11.	Zhejiang Juhua Fluoro-chemical Co., Ltd.
12.	Zhejiang Dongyang Chemical Plant (Zhejiang Fluorescence Chemical Co., Ltd.)
13.	Zhejiang Linhai Limin Chemical Plant (Zhejiang Linghai Limin Chemical Co., Ltd.)
14.	Zhejiang Yingpeng Chemical Co., Ltd. (Yingpeng Chemical Co., Ltd.)
15.	Wuhan Changjiang Chemical Plant
16.	Zhejiang San Mei Chemical Co., Ltd.

Notes:

1. The enterprise names in the brackets are the current name of the enterprise (as established by CFC-01-TA-06, the 2001 TA on Verification of HCFC-22 Producers).
2. Three HCFC-22 plants have been deleted from the 2003 Annual Program list. The production line of Guangdong Huiyang Chemical Plant (Sl. No.1) has closed down and the falicities had been dismantled on June 16th, 2003; Shandong Fire Extinguishing Agent Plant Shouguang Division (The Fire Extinguishing Agent Factory Under Shandong Haihua Group Co., Ltd.) (Sl. No.12) completely dismantled its production line on Nov. 30, 2002, and (Sl. No.8) Sichuan Zigong Refrigeration Plant has closed down and had dismantled its production facilities in February 2003.
3. In 2004, the above table has three changes: (a) SI 3, name changed; (b) SI 6, Shanghai Chlor-Alkali Chemical Co. Ltd., its HCFC-22 production unit has been closed and dismantled. So, SI 6 was deleted from the table; (c) SI 16 is added into the table, a new HCFC-22 production facility has been built and has begin operation in June, 2004.

Annex 3

Technical Assistance Activities, 1999-2004

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

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CFC-99-TA-01	Production of an ODS Phaseout Video	Promulgation and Education Center for Environmental Protection	July 12, 1999	December 1999.	**Completed.** An ODS Phaseout video was prepared and broadcast for public information during the 11th meeting of the Parties in Beijing in November 1999. The video, as well as six TV advertisements prepared under the activity, were broadcast on national TV to raise awareness of the general public and authorities in China concerning the necessity for ODS phaseout and the urgency of phaseout activities.
CFC-99-TA-02	Development of a Management Information System	Haitong Chuangye Company and Beifang Silu Information Tech. Company of Tsinghua University	September 13, 1999	December 1, 2000	**Completed.** An MIS was established to monitor and generate final production data and program progress reports
CFC-99-TA-03	Development of Substitute Strategy	Center of Environmental Science, Peking University and Zhejiang Chemical Research Institute	June 26, 2000	June 30, 2002	**Completed.** A report was finalized by the end of June 2002. The strategy provides very useful guidelines for developing and investing in ODS substitutes Copies of the strategy document will be distributed to relevant administrations and associations for reference and guidance.
CFC-99-TA-04	Formulation of Standards for Cyclopentane, HCFC 141b, and HFC 134a	Shanghai Institute of Organic Fluorine Materials	April 28, 2000	March 23, 2001	**Completed.** After preliminary sampling of HCFC-141b and HFC-134a, the preliminary content and standards parameters were confirmed with the Government's administrative unit for standards. The draft standards report was completed in June, 2001..The standards were issued by the Standardization Committee of the State Bureau of Quality Supervision, Quarantine and Inspection on Sep. 6, 2002 and have gone into force on Apr.1, 2003.
CFC-99-TA-05	Training of Personnel involved in	SEPA		May 16, 2000	**Completed.** Training was organized for local officials, CFC producers

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

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

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CFC-00-TA-01	Formulation of Standards for HFC-152a, and Isobutane	Zhejiang Chemical Research Institute	June 15, 2001	July 2002	**Completed.** The project completion report, summary report and the final standards report were submitted in April 2003. The acceptance meeting was held on July 10, 2003. The standers report was submitted to the Standardization Committee of the State Bureau of Quality Supervision, Quarantine and Inspection in January 2003 waiting for approval.
CFC-00-TA-02	Studies of Market Prospects for Closure Enterprises	SEPA	March 3, 2001	December 31, 2001	**Completed.** Six enterprises were supported to find production alternatives under this program.
CFC-00-TA-03	Training of Personnel Involved in Implementation of Phaseout Activities	SEPA	N/A	March 11, 2001	**Completed.** Training was organized for Audit staff, CFC producers and auditors.
CFC-00-TA-04	Performance Audit for 1999	China National Accounts Office	May 10, 2000	June 30, 2000	**Completed.**
CFC-00-TA-05	Verification of HCFC-22 Producers	Chinese Industrial Association of Organo-Fluorine Silicone Materials	June 4, 2002	September 20, 2002	**Completed.** This project was commenced in 2001 AP, The final report has been submitted to SEPA in March, 2003. In Nov. 2003, the consultant submitted the revised final report to SEPA.
CFC-00-TA-06	Recruitment of international technical consultants				**Cancelled.** No technical consultants were recruited internationally for TA activities in the year.

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

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CFC-01-TA-01	Feasibility study of industrialized technology for CTC conversion to chloro-hydrocarbons other than CTC				**Canceled:** The CFC team concluded after field visits and a workshop that the technology was still under development.

CFC-01-TA-02	Training of Personnel involved in Phaseout Impl. Activities	SEPA	N/A	March 19, 2002	**Completed.** Training was organized for Customs staff, CFC producers and auditors.
CFC-01-TA-03	Assessment and Risk Analysis of Implementing Montreal in china	Institute of Environmental Economics Renmin University of China	August 15, 2001	October 15, 2002	**Under implementation:** The report consists of 6 sub-reports and a general report. The final report is expected to be ready by August, 2004.
CFC-01-TA-04	Studies of Market Prospects for Closure Enterprises				**Canceled.** As two of the three enterprises being closed in the year had already been covered under the 2000 Annual program, the third enterprise reduced its production quota only and did therefore not require any support. None of the remaining plants were to close in 2002.
CFC-01-TA-05	Recruitment of international technical consultants				**Cancelled**. No technical consultants were recruited internationally for TA activities in the year.
CFC-01-TA-06	Significant New Alternative Processes (SNAP)				**Cancelled.** As it was found that more preparatory work was necessary, including identification of key experts, before taking it up. It will be brought up in a later annual program.

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

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CFC-02-TA-01	Training of Personnel involved in Phaseout Impl. Activities	SEPA	N/A	March 19, 2002	**Completed.** Training was organized for Customs staff, CFC producers and auditors.
CFC-02-TA-02	Performance Audit for 2001	China National Accounts Office	March 2002	June 30, 2002	**Completed.**
CFC-02-TA-03	Study Tour on Methods of Controlling Smuggling of ODS	SEPA			**Under Prepation**
CFC-02-TA-04	Integration of ODS MIS into electric monitoring system at the border	SEPA	April 20,2004	May 31, 2005	**Ongoing.** Through biding procedure, the consultant has been selected in April 2004. It is under implementation now.

CFC-02-TA-05	Recruitment of international technical consultants				**Cancelled**. No technical consultants were recruited internationally for TA activities in the year.
CFC-02-TA-06	Site supervision for ODS Producing Enterprises	SEPA	Nov. 5, 2002	December 31, 2002	**Completed.** Submitted production data from Jan. to Dec. 2002 of enterprises. The communication meeting was held on Nov. 11 to 12, 2002.
CFC-02-TA-07	Investigation of CTC/TCA production status in China	SEPA	Sept.15, 2002	October 15, 2002	**Completed.** Submitted Report on CTC/TCA Production Survey.
CFC-02-TA-08	Study Tour of Performance Audit	The China National Accounting Office			**Completed.** The overseas training has been finished on July 24, 2003. The study report was submitted to SEPA at the end of October 2003.

Table 3.5: Implementation of Technical Assistance Activities in the 2003 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CFC-03-TA-01	Training of Personnel involved in Phaseout Implementation Activities	SEPA			**Completed**. The Enterprises Workshop has been held in Dec. 2003 and the Auditors Workshop in April 2004.
CFC-03-TA-02	Site supervision for ODS Producing Enterprises	SEPA	Oct. 24, 2003	Dec. 31, 2003	**Completed.** Supervisors **s**ubmitted CFCs production data of enterprises from Jan. to Dec. 2003. The workshop was held in Sep. 2003..
CFC-03-TA-03	Policy training managed by UNEP.	UNEP		Early in 2006	**Ongoing.** 3 of the 15 workshop planned under the CFC sector was carried out in 2003, additional 4 will be carried out in 2004 and the rest in 2005.
CFC-03-TA-04	China Country Compliance Plan (CCCP)	SEPA			**Ongoing.**
CFC-03-TA-05	Performance Audit for 2002	China National Audit Office	March 2003	June 30, 2003	**Completed.**

Table 3.6: Implementation of Technical Assistance Activities in the 2004 Annual Program

Ref. No.	Name of TA Project	Implementing Agency	Contract Date	Completion Date Planed	Implementation status/Remarks
CFC-04-TA-01	Training of Personnel involved in Phaseout Implementation Activities	SEPA		March 31, 2005	TOR was cleared by the Bank on June 19, 2004. One workshop will be held in November 2004, and the other will be in March 2005.
CFC-04-TA-02	Site supervision for ODS Producing Enterprises	SEPA	August, 2004	Dec. 31, 2004	TOR was cleared by the Bank on June 19, 2004. Contracts have been signed in August 2004.
CFC-04-TA-03	Performance Audit for 2003	China National Accounts Office		June 30, 2004	**Completed.** The audit report has been submitted to World Bank in July 2004 reviewed and accepted by the Bank.
CFC-04-TA-04	2004 International Symposium of ODS substitute technologies	SEPA		September, 2004	**Completed**

Annex 4

Other Activities, 1999-2004

Other Activities	Name of the manufacturer	Project starting date	Implementation status	Planed completion date	Remarks
Establishment of HFC-134a Production facility	Xi'an Jinzhu Jindai Chemical Industry Co., Ltd.	January 2001	The first phase of the project was commissioned by SEPA on Jun. 5, 2004.	July 2003	First phase completed. The second phase is under preparation.
Screening of alternatives to Methyl Bromide in soil fumigation in China	Chinese Academy of Agricultural Sciences	April 2002	Commissioned in November 2003.	July 2003	Completed.
China Country Compliance Center Activities (CCC)					Under preparation.

Annex 5
Status of CFC producing plants under the CFC Sector Plan as of June 2004

SI	SRI	Name of enterprise	Status
8	A1	Henan Hebei Chemical Plant #1. 1 CFC-12 production line.	Closed and dismantled
15	A2	Shangdong Jinan 3F Chemical Co. Ltd. 1 CFC-11 production line and 1 CFC-12 production line	Closed and dismantled
1	A3	Shangdong Dongyue Chemical Co. Ltd. 1 CFC-12 line	Closed and dismantled
28	A4	Shandong Xuecheng Xinxing Chemical Plant 1 CFC-12 production line	Closed and dismantled
20	A5	Jiangsu Wuxian Juxing Chemical Plant 1 CFC-11 production line	Closed and dismantled
21	A6	Jiangsu Wuxian Union (City Link) Chemical Plant. 1 CFC-11 production line	Closed and dismantled
29	A7	Suzhou Xinye Chemical Co. Ltd. 2 CFC-11 production lines	Closed and dismantled
31	A8	Jiangsu Meilan Electric Chem. Plant 1 CFC-11 line and 1 CFC-12 line	**In production**
24	A9	Jiangsu Wuxi Hushan Refrigeration Plant 1 CFC-11 production line	Closed and dismantled
33	A10	Jiangsu Changshu Ref. Plant (Changshu 3F) 1 CFC-11 production line, 1 CFC-12 production line, 1 CFC-113 production line and 1 CFC-115 production line	**In production**
30	A11	Jiangsu Changsu Yudong Chem. Plant 2 CFC-113 production lines	Closed and dismantled
14	A12	Shanghai Shuguang Chem. Plant 2 CFC-113 production lines.	Closed and dismantled
26	A13	Guangdong Xiangsheng Chem. Co. Ltd. 1 CFC-12 production line	Closed and dismantled
7	A14	Guangdong Huiyang Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line.	Closed and dismantled
11	A15	Guangdong Zhaoqing Chemical Plant. 1 CFC-12 production line.	Closed and dismantled
22	B1	Jiangxi De'an Refrigeration Plant 1 CFC-12 production line	Closed and dismantled
18	B2	Chongqing Tianyuan Chemical Plant. 1 CFC-11 production line, 1 CFC-12 production line	Closed and dismantled
25	B3	Sichuan Zigong Refrigerant Plant 1 CFC-11 production line, 1 CFC-12 production line	Closed and dismantled
5	B4	Sichuan Zigong Fujiang Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line.	Closed and dismantled
19	B5	Hubei Wuhan Changjiang Chemical Plant 1 CFC-11 production line,1 CFC-12 production line	Closed and dismantled
23	B6	Shanghai Chlor-Alkali Chemical Plant Co. Ltd. 1 CFC-12 production line	Closed and dismantled

27	B7	Zhejiang Rui'an Haitian Chem. Co. Ltd. 1 CFC-11 production line	Closed and dismantled
34	B8	Zhejiang Linhai Limin Chem. Plant 1 CFC-13 production line	**In production**
		Zhejiang Linhai Limin Chem Plant 2 CFC-12 production lines	Closed and dismantled
6	B9	Zhejiang Linhai Jianxin Chemical Plant 1 CFC-12 production line.	Closed and dismantled
13	B10	Zhejiang Linhai Shuiyang Chemical Plant 1 CFC-12 production line.	Closed and dismantled
37	B11	Zhejiang Chemical Research Institute 1 production line to produce CFC-114 and CFC-115	**In production**
35	B12	Zhejiang Dongyang Chem. Plant 1 CFC-12 production line	**In production**
26	B13	Zhejiang Lanxi Refrigeration Plant 1 CFC-11 production line	Closed and dismantled
32	B14	Zhejiang Juhua Florochem. Com. Ltd. Produce CFC-11 and CFC-12 in 1 production line	**In production**
17	B15	Fujian Shaowu Flouro-Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line	Closed and dismantled
4	C1	Jiansu Jianhu Phosphate Fertilizer Plant 1 CFC-12 production line.	Closed and dismantled
2	C2	Hunan Yiyang Chlor-Alkali Chemical Co. Ltd. 1 CFC 12 production line.	Closed and dismantled
9	C3	Hebei Longwei Fluorochemical Plant #1 2 CFC-12 production lines.	Closed and dismantled
10	C4	Guizhou Wuling Chemical Plant. 1 CFC-12 production line and 1 CFC-13 production line.	Closed and dismantled
3	C5	Inner Mongolia Baotou Chemical Plant #1. 1 CFC-12 production line.	Closed and dismantled
12	C6	Shanxi Shangzhou Chemical Plant 1 CFC-12 production line	Closed and dismantled
16	Not SRI	Liaohe Chemical Group Chlor-Alkali Plant. 1 CFC-12 production line.	Closed and dismantled.

THE HALON SECTOR

2005 ANNUAL PROGRAM

August 2004

Data Sheet

Country	China
Year of Plan	2005
# of years completed	7
# of years remaining under the plan	5
Ceiling of Halon 1211 and halon 1301 consumption of the 2004 Annual Program	Halon 1211: 1,890MT Halon 1301: 150MT
Ceiling of Halon 1211 and Halon 1301 consumption of 2005 Annual Program	Halon 1211: 1,890 MT Halon 1301: 150 MT
Ceiling of halon 1211 and halon 1301 production of 2004 Annual Program	Halon 1211: 1,990 MT Halon 1301: 600 MT
Ceiling of halon 1211 and halon 1301 Production of 2005 Annual Program	Halon 1211: 1,990 MT Halon 1301: 600 MT
Total MLF funding approved in principle (November 1998)	US$ 62 million
Total MLF funding released to the Bank by September 2004	$ 48 million
Funding requested for the 2005 Annual program	$ 1.8 million

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

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The Halon Sector
2005 Annual Program

BACKGROUND

1. In accordance with the Executive Committee's approval of the Sector Plan for Halon Phaseout in China (UNEP/Ozl.Pro/ExCom/23/68), China is hereby requesting release of the eighth tranche of US$1.8 million for implementation of the year 2005 Annual Program. With this funding, China's halon 1211 production will be reduced to a maximum of 1,990 MT and its consumption to a maximum of 1,890 MT in 2005. The halon 1301 production will remain within the agreed maximum of 600 MT and, consumption will remain within the agreed maximum of 150 MT in 2005. Details of the annual program are in Part B.

2. After the approval of the China Halon Sector Strategy at the 23rd meeting of the ExCom and release of funds for the first (1998) Annual Program, China began implementation of the Halon Sector Strategy. Since the start of the program, China has developed supporting policies and regulations. From the initial number of 14 Halon plants, 12 halon 1211 production plants have been closed and dismantled completely, and production and capacity has been reduced at the 2 remaining halon 1211 production plants. Out of a total of 72 halon fire fighting extinguisher manufacturers originally identified as potential beneficiaries, 14 enterprises have signed contracts to close their extinguisher production, and 44 enterprises have signed contracts to convert their manufacturing lines for fire extinguishers from halon to non-ODS extinguishers. 52 of the 58 enterprises have completed their closure/conversions projects, and the rest are presently implementing their closure/conversions. Four additional equipment manufacturers were located and were found to be operating without valid licenses, and were shut down in 2001 by administrative measure without any funding. Out of a total of 22 originally identified halon fire fighting systems manufacturers, 13 enterprises have signed contracts to convert their manufacturing of halon fire extinguishing systems from halon to non-ODS extinguishing systems; 4 of these have been completed, and the rest are presently implementing their conversions. There are currently 14 remaining fire extinguisher manufacturing enterprises and 9 fire extinguishing system enterprises who have not been addressed by the program yet. A total of 45 technical assistance activities have been taken up, including activities for strengthening implementation capacity, and preparation of standards to ensure quality and reliability of halon substitute fire extinguishers and fire extinguishing systems. 28 out of these projects have been completed.

3. The national production level of halon 1211 allowed for 2004 is 1,990 MT. Compared to the actual production level of 11,644 MT in 1997(the baseline year), the total production reduction of halon 1211 by the end of 2003 will be at least 9,654 MT. The ceiling for halon 1301 production for 2004 is 600 MT, a reduction of 18 MT from 1997 levels. There was no halon 1301 production in 2003. Some of the existing stock of halon 1301 was used to cover international and domestic demand for halon 1301. A detailed implementation status is provided in Part A.

4. Despite the significantly higher costs of halon 1301 substitutes, the significant

reduction in demand for halon 1301 can be assigned to the availability of new substitutes now available in China. Some of the chemical producers have invested in the development of HFC-227ea production facilities and has now starting production and sale of HFC-227ea. The introduction of new, but more costly substitutes are supported by a number of TA activities.

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

6. 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.

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

8. The production and consumption of halons in China since the start of the halon sector plan is described in Table 1 below. Consumption in this table was determined in accordance with the ExCom approval conditions as total annual production plus imports, minus exports. As indicated above, China has reported that no other halons were produced in China, including halon 1202 and halon 2402. All production and consumption data (including 2003 production) has been verified by an annual international audit commissioned by the World Bank.

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

	Halon 1211				Halon 1301			
	Production		Consumption		Production		Consumption	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
1997 (baseline year)	9,950	11,644	NA	10,849	618	618	NA	NA
1998	7,960	7,842	7,160	7218	618	450	300	-152 [1/]
1999	5,970	5,965	5,370	5280	618	484	300	304
2000	3,980	3,978	3,580	3650 [2/]	618	428	300	377 [2/]
2001	3,317	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	1,735	600	0	150	-26
2004	1,990		1,890		600		150	
2005	1,990		1,890		600		150	
2006	0	0	0		150		100	
2007	0	0	0		150		100	
2008	0	0	0		150		100	
2009	0	0	0		150		100	
2010	0	0	0		0			

[1/] The negative consumption of Halon 1301 in 1998 (–152 MT) reflects the export of 602 MT, which included part of the stock (328MT) from the previous year's production. Therefore, the total consumption in 1998 (Consumption=Production +Import - Export) is negative. Similar, the negative consumption in 2002 and 2003 reflect export of stocks at the producer produced before 2002.

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

Part A

Implementation Status Of Previous Annual Programs

1998-2003 Annual Programs

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

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

2. The consumption data for 2001, 2002 and 2003 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 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 who 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.

Other enterprise-level phaseout activities

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

7. ***Closure and conversion of halon fire extinguisher and fixed fire extinguishing system manufacturers.*** Likewise, contracts were signed under each annual program with extinguisher and system manufacturers for reducing halon 1211 consumption to match the declining supply of halons. Some extinguisher manufacturers selected closure and the other selected conversion. 52 of 58 closure and conversion activities have been completed on schedule and were commissioned by SEPA and MPS. The rest are presently implementing their closure/conversions. Details are provided in Annex III and IV.

Technical assistance (TA) aactivities

8. All activities under TA projects of 1998 and 1999 have been completed. Most of the TA activities in the following years have been completed and the rest are under implementation. Details of all these activities are in Annex V (A-F).

Special Initiatives

9. Another main objective of the Halon Sector Plan is to ensure that the level of fire protection capability in China is not compromised as a result of halon phaseout activities, and that adequate quantities of suitable quality substitutes are available. Special initiatives have been taken up under various annual programs to address this requirement. The special initiatives undertaken so far are summarized in Annex V and described below. In addition, fire equipment companies and chemical producers has at own costs introduced new halon alternatives and substitutes for both halon 1211 and halon 1301 which are now available in China.

10. ***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 and 3013.9 MT in 2003.

11. ***Light weight high pressure CO_2 cylinders.*** Weifang Dongming Fire-fighting Equipment Co., Ltd was selected as the beneficiary for manufacture of light weight CO_2 cylinders with the capacity of 600,000 units per year. The contract was signed in November

2000. All the purchased equipment arrived the site by the end of 2003. All production equipment and trial production has been completed. Commercial production of CO2 cylinders started beginning of 2004.. The project will be commissioned by SEPA in October 2004.

12. ***Halon banking***. The Panyu Shengjie Fire-fighting Equipment Co., Ltd. was selected as the beneficiary to set up a halon bank in Guangdong with an annual recycling capacity as 500 MT. The grant contract was signed in August 2000. The equipment was delivered to the beneficiary in December 2001. The beneficiary finished equipment installation and commission in April 2003. The project has been completed & commissioned by SEPA in July 2004.

13. ***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.
14.

15. ***Plant-protein based foam.*** Foam has been found to be an important substitute for halon 1211 manly in the oil industry and similar risks. Hence, halon 1211 replacements in this area at this stage is critical. With the environmental issues on AFFF, plant-protein based foam constitute an attractive alternative. The Honsen Fire-fighting Hi-tech company was selected as the beneficiary to establish a test laboratory for plant-protein-based foam. The contract was signed in August 31, 2000. The project has been completed in October 2002.

16. ***Development of 3,600 MT plant-protein foam fire fighting agent production line*** Langfang Yida Technology Co., Ltd. was selected as the beneficiary to set up the production line of 3,600 MT Honsen L119 plant-protein based foam in Langfang. The contract was signed in October 2003. While the overall designed plant capacity is larger (10,000 MT/year), the special initiative will only support this capacity within this limit 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 tonnes; for Halon 1301, 1000 tonnes; and for halon fire extinguisher production capacity of 7.71 million units." The company will cco-finnacing the project accordingly. The bids evaluation report for equipment procurement have been approved by SEPA in May 2004.

17. ***Operation of Guangdong Halon Recycling Center*** Guangdong halon recycling center located at Panyu in Guangdong province, has been established as a demonstration halon recycling center to collect, recycle and reclaim project. The project has been completed & commissioned in July 2004. A new contract will be signed between SEPA and Panyu Shengjie to start-up operation. The TOR for this new project is under preparation.

18. ***CO_2 and other clean agent extinguisher manufacturers survey*** A new special initiative project was added into the 2003 annual program conduction a survey on CO2

extinguisher, clean fire extinguishing agents and foams presently used in China and internationally as replacement for halon 1211.

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

2004 Annual Program

19. ***Phaseout targets and objectives.*** The phaseout target is (see Annex I) to reduce halon 1211 production to a maximum of 1,990 MT; to reduce halon 1211 consumption to a maximum of 1,890 MT; to maintain halon 1301 production to a maximum of 600 MT; and halon 1301 consumption to a maximum of 150 MT. Production quotas have been issued consistent with these ceilings.

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

Enterprise-level phaseout activities

21. ***Closure of halon production.*** The national targets for halon production level in 2004 are the same as that in 2003. As there was no additional production reductions in 2004, quotas were issued at the same level as in 2003 and no new contract was signed with the remaining two halon 1211 producers the one 1301 producer.

22. ***Closure & conversion of halon fire extinguisher manufacturers.*** China has conducted an assessment of the number of contracts that have already been signed in the first three years for closure and conversion of equipment manufacturers to review whether the pace of conversion is appropriate, given the projected availability of halon 1211 in the next three years. This assessment has now been concluded. There are total of up to 14 enterprises remaining in halon sector, of which some might hav closed down, merged or change locations and or names. MPS is presently investigation to ensure that all remaining extinguisher producers are addressed. It is expected that the investigation will be finished allowing contracts to be signed with all remaining manufacturers by the end of 2004.

23. ***Closure & conversion of halon fire fixed halon fire extinguisher system manufacturers.*** China has conducted a survey on the halon consumption amount of all the remaining 18 fire system manufacturers. There are total up to 9 enterprises remaining. All the remaining contracts will be signed by the end of 2004.

Special initiatives

24. ***Establishment of a national trade standard of hexafluorapane extinguishing agent and its testing methodology.*** This project aims to establish a national standard of the HFC-236fa extinguishing agents and establish testing method of HFC-236fa extinguishing agents. The TOR of the project has been agreed by the World Bank. Now the bidding procedure is ongoing to select the consultant who will carry out the implementation of the project.

25. ***Development of Hexafluoropropane Fire Extingushers*** As production of new halon 1211 fire extinguisher will be phaseout soon, new clean gas fire extinguishers

demand are increasing and national standards for China is needed. Hexafluoropropane 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 parameter of the extinguisher which are necessary in the process of converting technology to products, 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.

26. ***Use of clean agent fire extinguishers.*** As halon 1211 production is no nearing its final stage, strengthening of enforcement of halon 1211 phaseout policies and alternatives for non-essential uses and supporting activities might be considered. The initiative might include additional support to producers of clean agents producers and extinguisher manufacturers to ensure availability of products and correct application and use.

The implementation status of 2004 special initiative projects is summarized in Annex VI.

Technical assistance activities

Two TA projects were identified for the 2004 annual program, including training and auditing, and are at various stages of implementation. Another two TA projects, which were originally proposed in Halon 2000 annual program, are covered under the 2004 annual program. The funding support for these two additional TA projects are still come from the 2000 annual program. Details are in Annex IV(G).

PART B
2005 ANNUAL PROGRAM

Objectives

1. The phaseout target for the 2005 annual program is to (a) maintain halon 1211 production at a maximum of 1,990 MT and consumption to a maximum of 1,890 MT and, (b) to maintain halon 1301 production at a maximum of 600 MT, with consumption being maintained at a maximum of 150 MT. The 2005 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$ 1.8 million for the 2005 annual program as agreed in the overall Halon Sector Phaseout Plan. To achieve these goals, the following activity is envisioned:

a. US$ 1.8 million to be used for technical assistance activities in order to support the halon phaseout program and ensure that existing fire protection requirements can be met.

Policy instruments during the Year

3. ***Policies to be continued.*** In 2005, the following policies and measures will continue to be implemented by the Government. These policies are considered necessary for the success of a total halon phaseout in China.

a. Bidding -- The bidding system will continue to be improved based on the experiences gained from the 1998, to 2004 annual programs.
b. Tradable production quota – The regulation will continue to be implemented.
c. The ban on new installations of halon extinguishers for non-essential uses and a gradual tightening of the definition of essential uses will continue.

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

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

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

Enterprise-level activities

6. Through a combination of production quotas, bidding systems and administrative measures, enterprises will be granted funds for closure and conversion activities.

Technical assistance (TA) activities

7. ***Verification of the actual production of CO2 and clean agent extinguisher as per the agreement between The Executive Committee of the multilateral fund and China.*** Since the production of CO_2 extinguishers and other clean agent fire extinguishers under the program is one of the performance indicators for the implementation of the Halon Sector Plan. China will start preparation of the survey for of CO_2 extinguisher in 2005 consistent with the requirement. The work is planned to be completed in the first half of 2006 to be submitted together with the 2007 annual program in August 2006.

8. ***Research on Assessing Halons' Essential usages*** There are fire/explosion risk scenarios for which current fire protection technology cannot provide adequate protection without the use of halon, in such case, halon is essential. Although the use of halon is desirable in a wide range of facilities, the importance of protecting the ozone layer is critical. It is necessary to establish a proper approval procedure and certain criteria in assessing an essential use for the purpose of control halon application.

9. ***Establishment the Monitoring & Management Mechanism of Guangdong Halon Recycling Center.*** Guangdong Halon Recycling Center has been established and will start to operate soon. To work out the monitoring & management mechanism for halon recycling is crucial for ensuring halon recycling center proper running. Some of the issues would be supply of halon extinguishers cylinders and other components while manufacturing of halon fire extinguisher production is phaseout. Monitoring of sale of extinguishers with recycled halon to essential users is another issue to be addressed under this activity.

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

11. ***Survey on producers of Halon 1301 extinguishing system*** Since halon 1301 system will to be phased out after 2005, to make a survey on the halon 1301 consumption data of each system enterprise.

12. ***Performance Audit for 2004 Annual Program enterprises.*** As in previous years, CNAO will conduct a performance audit for sector plan activities in 2004 to ensure the effective implementation of the annual program.

Table BI. 2005 Annual Program

Halon phaseout targets & policy instruments				
	Start of program (MT)	End of program (MT)	Key Actions Required	Key Dates
Halon 1211 Production ceiling	1,990	1,990	1.Production quotas and TA activities to support introduction of substitutes and alternatives to help phaseout	1. Jan-Dec. 2005
O/w export		100		
Consumption ceiling	1,890	1,890	1. Financial support for introduction of substitutes and alternatives 2. TA activities	1. Jan-Dec. 2005
Halon 1301 Production ceiling	600	600	1.Production quota and TA activities to support introduction of substitutes.	1. Jan-Dec. 2005
O/w export	450	450		
Consumption ceiling	150	150	1. Policy controls, 2.Financial assistance to fire system manufacturers and TA activities to support introduction of alternatives.	1. Jan-Dec. 2005

Continuation of policy instruments		
Policy Instruments	Actions Required	Key Dates
1. Bidding system for TA projects	1. To select the consultant through a bidding system.	Based on the timeschedule and progress of each TA
2. Tradable production quota for halon producers	1. Establish 2005 halon production quota ; 2. Issue 2005 production quota to halon producers	1. Dec. 2004 2. Early of 2005
3. The ban on halon extinguisher uses in non-essential areas	1. Promotional campaign on the ban, through various channels; 2. Joint supervision of ban by local Fire Fighting Bureaus and Envir. Protection Bureaus.	1. Through 2005 2. Through 2005

Table BI: 2005 Annual Program (Contd.)

Enterprise-level Activities						
	Funding Requested (US$ mill)	Existing Enterprises	# of enterprise targeted	# of enterprises at end of 2005	Key Actions Required	Key Dates
1. Reduction of halon 1211 production	0	2	0	2	Issue the production quota to these two enterprises.	1. At beginning of 2005
2. Closure & conversion	0	0	0	0		

of halon extinguisher manufacturer						
3. Conversion of halon 1211 fire extinguishing system manufacturers	0	0	0	0		
Subtotal	**0**					

Table BII: 2005 Annual Program-Technical Assistance Activities

TECHNICAL ASSISTANCE ACTIVITIES				
Activities		MLF funding requested (US$ million)	Actions Required	Key Dates
HAL-05-TA-01	CO2 and Clean agent Extinguisher under the halon sector plan	t.b.d	Selection of qualified institutions	1. Contract to be signed no later than the end of 2005. 2. Completed the project before April 1, 2006
HAL-05-TA-02	Research on Assessing Halons' Essential usages	t.b.d	Selection of qualified institutions	1. Contract signed no later than the end of 2005. 2.Finish work within 24 months after signing contract
HAL-05-TA-03	Research on the Management Mechanism of Guangdong Halon Recycling Center	t.b.d	Selection of qualified institutions	1. Contract signed no later than the end of 2005. 2.Finish work within 24 months after signing contract
HAL-05-TA-04	Survey on producers of Halon 1301 extinguishing system.	t.b.d	SEPA	Survey will be carried out through the 2005
HAL-05-TA-05	Audit for 2004 Halon Sector Perforrmance	t.b.d	CNAO	1.Contract signed by March 2005. 2.Complete by end of June 2005
HAL-05-TA-06	Training	t.b.d	Training workshops will be carried out	Training will be carried out through the 2005.
Subtotal				
TOTAL for phaseout activities		**1.80**		

Table BIII: 2005 Annual Program - Proposed Performance Indicators

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

Continuation of Policy Instruments	
Initiatives	Performance Indicators
Bidding system for TA projects	• All the contracts will be signed by end of 2005.
Tradable production quota for halon producers	• Annual production quota to halon producers for 2005 issued by March 30, 2005 • Production reports from enterprises received on quarterly basis
The ban on halon extinguisher uses in non-essential areas	• One raining workshops conducted throughout the year in key provinces

Enterprise-level activities				
Activities	Funding requested (US$ mill)	Existing Enterprises	# of enterprises at end of 2005	Performance Indicators
Reduced Halon 1211 production	0	2	2	
Closure & conversion of halon extinguisher manufacturer	0	0	0	
Conversion of halon 1211 fire extinguishing system manufacturers	0	0	0	
Subtotal	0			

Table BIII: 2005 Annual Program - Proposed Performance Indicators (Contd.)

Technical assistance activities		
Activities	Amount in US$ million	Performance Indicators
1. Verification of the Actual Production of CO2 Extinguisher of 2005	t.b.d	Complete by the end of 1st Quarter of 2006
2 *Research on Assessing Halons' Essential usages*	t.b.d	Invitation issued before Oct., 2005.
3.Research on the Management Mechanism of Guangdong Halon Recycling Center	t.b.d	Invitation issued before Oct., 2005.
5. Survey on producers of Halon 1301 extinguishing system	t.b.d	Completed by end of 2005
5. Audit for 2004 Halon Sector Performance	t.b.d	Complete by end of June 2005
6. Training	t.b.d	Training for auditors will be conducted in the first quarter of 2005
Subtotal		
TOTAL for Phaseout Activities	**$1.8million**	

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

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

ANNEX II
Closures of halon production facilities and lines

A. 1998 Annual Program

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

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

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

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

B. 1999 Annual Program

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

C. 2000 Annual Program

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

D. 2001 Annual Program

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

E. 2002 Annual Program

Name of the plant	Halon phaseout (MT)	Closure date	Implementation status	Remarks
1. Foshan electro-chem general plant	780 (halon 1211)	January 1, 2002	Project completed and equipment dismantled completely	Plant closure.
2.Zhejiang chemical research institute	18 (halon 1301)	January 1, 2002	Production based on the reduced halon 1301 production quota.	Partial closure.
Total	798			

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.	Partial closure.
2.Shandong Haihua Group Shouguang Fire-fighting Chemical Plant	240	January 1, 2003	Production based on the reduced production quota.	Partial closure.
Total	480			

ANNEX III
List of beneficiary fire extinguisher manufacturers

A. 1998 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date#	Remarks
1.Zhejiang Xiangshan No.1 Fire-fighting Equipment Plant	1998.03.14	223.0	Project completed and commissioned Equipment dismantled.	1999.12.21	Plant closure
2.Zhejiang Yiwu Fire-fighting Extinguisher Plant	1998.03.14	162.2	Project completed and commissioned. Equipment dismantled.	1999.06.24	Plant 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. Equipment dismantled.	1999.12.24	Plant closure
2.Shanghai Global Fire-fighting Extinguisher Plant	1999.03.16	32.66	Project complete and commissioned. Equipment dismantled.	1999.12.22	Plant closure

3.Helongjiang Fire-fighting Equipment Plant	1999.03.16	23.4	Project completed and commissioned.	2001.03.23	Conversion
4.Guangzhou Fire-fighting Equipment Plant	1999.03.16	83.431	Project completed and commissioned.	2001.04.18	Conversion
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. Equipment dismantled..	2000.12.23	Plant closure
2.Zhejiang Linhai Fire-fighting Equipment Plant	2000.02.24	57.5	Project complete and commissioned. Equipment dismantled.	2000.12.09	Plant closure
3.Anhui Bengbu Fire-fighting Equipment Plant	2000.02.24	142.124	Project complete and commissioned. Equipment dismantled.	2000.12.06	Plant 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	Ongoing	2005.05.04	Conversion
2. Jizhou City Wulu Fire Equipment Manufacturer	2003.11.04	5.43	Ongoing	2005.05.04	Conversion
3. Leqing City Donghai Fire Equipment Manufacturer	2003.11.04	1.36	Ongoing	2004.11.04	Closure
4. Kunming City Fire Equipment Manufacturer	2003.11.04	38.87	Ongoing	2005.05.04	Conversion
5. Zhejiang Jindun Fire Equipment Co'; Ltd.	2003.11.04	48.674	Ongoing	2005.05.04	Conversion
6. Hongzhou Fire Equipment Manufacturer	2003.11.04	313.2	Ongoing	2005.05.04	Conversion
Total (Average halon 1211 consumption 1995 to1997):		**413.604**			

ANNEX IV
List of beneficiary fire fix 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	Ongoing	2005.04.30	Conversion
2.Tianjin Shengda Sercurity Science Industry Company	2003.10.30	9.23	Ongoing	2005.04.30	Conversion
3.Foshan City Yuan Fire Equipment Plant	2003.10.30	11.821	Ongoing	2005.04.30	Conversion
4. Guangzhou City Yuanhua Electrical Appliance General Plant	2003.10.30	46.026	Ongoing	2005.04.30	Conversion
5. Tianjin Fire Equipment General Plant	2003.10.30	16.06	Ongoing	2005.04.30	Conversion
6. Tianjin Minan Fire Co., Ltd.	2003.10.30	18	Ongoing	2005.04.30	Conversion

7. Nanjing Fire Equipment Co., Ltd.	2003.10.30	77.48	Ongoing	2005.04.30	Conversion
8. Xi'an Nucleus Equipment Co., Ltd. Weishi Fire Company	2003.10.30	27.503	Ongoing	2005.04.30	Conversion
9. Baoji Fire Equipment General Plant	2003.10.30	1.12	Ongoing	2005.04.30	Conversion
Total (Average halon 1211 consumption 1995 to1997):		**223.153**			

ANNEX V

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

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1.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	Completed
4.HAL-98-TA-4 Standards for ComponentsComponents 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.HAL-98-TA-11 Training	SEPA		Four training workshops have been conducted	1998.12.10	Completed

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

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Completion Date	Remarks
1. 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. HAL-TA-10 Trianing	SEPA		Four training workshops have been conducted activities completed	1999.31.12	Completed

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

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned /Actual Completion Date	Remarks
1. 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			Defer to 2004.		Prepare for TOR
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			Defer to 2004.		Prepare for TOR
5. HAL-00-TA-5 Tests equipment for light weight CO2 Cylinders	Shanghai Fire Research Institute	Oct. 2001	Contract signed in 2001and project started. The project was behind the schedule one year because of an imported equipment delivery delayed	2003.12.31	PCR is under preparation.
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. HAL-00-TA-10 Training	DIA		Four training workshops were carried out	Within 2000	Completed

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

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned /Actual Completion Date	Remarks
1. 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 Studies of Market Prospect for Closure Enterprises	Seven enterprises were chosen to carry out the project	2001.4.10	Completed.	December 2002	Completed
5. HAL-01-TA-5 Training	DIA		Four training programs were carried out	2001.12.31	Completed

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

Name of TA Projects	Implementing Agencies	Contract Date	Implementation Status	Planned Completion Date	Remarks
1.HAL-02-TA-1 Study on Evaluation Method of Engineering Application of Inert Gases Fire-fighting System	Tianjin Fire Research Institute	2003.09	Making out the work plan and conduct for investigation	2005.09	ongoing
2. HAL-02-TA-2 Evaluation Method of Engineering Application of Heptfluoride Propane Fire-fighting System	Tianjin Fire Research Institute	2003-09	Making out the work plan and conduct for investigation	2005.11	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	Completed and submitted PCR Prepare for commission.	2004.06	ongoing
4. HAL-02-TA-4 Study on the Testing Equipment and Technology of Aerosol Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Established the test equipment and carried out tests. Prepare for test report	2004.12	ongoing
3. HAL-02-TA-5 Standard Formulation for Aerosol Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Completed and submitted PCR Prepare for commission.	2004.06	ongoing
4. HAL-02-TA-6 Study on Testing Equipment and Technology of Heptfluorid Propane Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Established the test equipment and test method. Prepare for the PCR.	2004.08	ongoing
5. HAL-02-TA-7 National Standards Formulation for Inert Gas Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Completed and submitted PCR Prepare for commission.	2004.06	ongoing
6. HAL-02-TA-8 Study on the Testing Equipment and Technology of Inert Gas Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Established the test equipment and test method. Prepare for the PCR.	2004.08	ongoing
7. HAL-02-TA-9 Liaoning Halon Management Plan	Liaoning Fire Bureau	2002.09	Completed and submitted PCR Prepare for commission.	2004.04	ongoing
11. HAL-02-TA-10 Training	DIA		three training workshops were carried out	2002.12.31	Completed
12. HAL-02-TA-11 Performance Audit	CNAO		Performance audit was conducted from April-June, 2002	2002.10,31	Completed

F. Implementation of Technical Assistance Activities in the 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"	Selected bidder	2003.12	Make out work plan and collecting technical information for the standard.	2005.06	ongoing
2.HAL-02-TA-2 Testing Equipment and Technology for Aerosol Fire Extinguishing Equipment	Selected bidder	2003.12	Make out work plan and collecting technical information	2005.12	ongoing
3.HAL-03-TA-3 Performance Audit of 2002	CNAO	2003.03	Performance audit was conducted from March-June, 2003	2003.09	completed
4.HAL-03-TA-4 Training	DIA		Two training workshops have been carried out in the second half of 2003	2003.12.31	completed

G. Implementation of Technical Assistance Activities in the 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	Selected bidder	In the second half of 2004	TOR under preparation	18 months after contract signing	
2.. HAL-04-TA-2 Design Code for Dry Powder Fire Extinguishing Systems	Selected bidder	In the second half of 2004	TOR under preparation.	24 months after contract signing	
3. HAL-04-TA-3 Performance Audit of 2003	CNAO	2004.03	Performance audit was conducted from March-June, 2004, audit report has been submitted to World Bank.in July 2004.	2004.04	completed
4.HAL-04-TA-4 Training	DIA		One training workshop has been hold in April 2004 for auditors. One will carried out in the second half of 2004.	End of 2004.	ongoing

ANNEX VI

Special Initiatives

Special initiative	Name of the manufacturer	Project starting date	Implementation Status	Planned completion date	Remarks
HAL-99-SI-01 ABC Dry Powder Production Line	Foshan Electro-Chem General Plant	1999.05.12	Project completed and commissioned.	2001. 10.12	Completed
HAL-00-SI-01 National Halon Phaseout Conference	SEPA	2000.08.01	The conference was held on Nov. 22, 2000. Activity completed	2000.12.31.	Completed
HAL-00-SI-02 Halon Bank Guangdong Branch	Panyu Shengjie Fire Fighting Equipment Plant	2000.08.05	Project completed and commissioned.	2004.07.21	Completed
HAL-00-SI-03 Light Weight CO_2 Cylinders	Weifang Dongming Fire-fighting Equipment Co., Ltd.	2000.11.18	. Project completed and ready for commission.	2003.11.18	Prepare for PCR.
HAL-00-SI-04 Plant Protein Foam test laboratory Project	Honsen Fire-fighting Hi-tech Co., Ltd.	2000.08.31	Project Completed and commissioned.	2002.10.29	Completed
HAL-02-SI-01 Development of a 3,600 MT Production Line of Honsen L119 Vegetable -protein Foam Extinguishing Agent	Dalian Honsen Hi-tech Fire-fighting Co., Ltd.	2003.10.09	The contracts for key equipment procurement have been signed on June 2004.	2005.10.09	Ongoing
HAL-03-SI-01 Survey for CO_2 Extinguisher Production	Shanghai Fire Research Institute	2003.06	The initial survey and ready for SEPA's commission. Final verification to be done beginning 2006 as per the agreement	2006.06.30	Ongoing
HAL-03-SI-02 Operation of Halon banking	Panyu Shengjie Fire Fighting Equipment Plant		TOR under preparation.		
HAL-04-SI-01 Hexafluorapane Agent Standard and Testing Technology			Selecting the consultant.		
HAL-04-SI-02 Research on Hexafluorapane$_2$ extinguisher			Selecting the consultant.		
HAL-04-SI-03 Expand the production of CO_2 extinguisher			Carrying out the assessment of CO_2 extinguisher producers .		