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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Forty-first Meeting
Montreal, 17-19 December 2003

PROJECT PROPOSALS: CHINA

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

Foam

- Sector plan for phase-out of CFC-11 in the foam sector: 2004 annual programme — World Bank

Fumigant

- National phase-out of methyl bromide (first tranche) — UNIDO

Halon

- Sector plan for halon phase-out: 2004 annual programme — World Bank

Solvent

- ODS phase-out in solvent sector: 2004 annual implementation programme — UNDP

Process agent

- Sector plan for phase-out of CTC and process agents (phase I): 2004 annual programme — World Bank

Production

- Sector plan for CFC production phase-out: 2004 annual programme — World Bank

Refrigeration

- Sector plan CFC final phase-out: domestic refrigeration and domestic refrigeration compressors (second tranche) — UNIDO

PROJECT EVALUATION SHEET
CHINA

SECTOR:	Foam	ODS use in sector (2002):	15,348 ODP tonnes
Sub-sector cost-effectiveness thresholds:		Flexible slabstock	US $6.23/kg
		Integral skin	US $16.86/kg
		Rigid	US $7.83/kg

Project Titles:

(a) Sector plan for phase-out of CFC-11 in the China foam sector: 2004 annual programme

Project Data	**Multiple**
	Annual Programme
Enterprise consumption (ODP tonnes)	10,651
Project impact (ODP tonnes)	2,500
Project duration (months)	12
Initial amount requested (US $)	10,903,000
Final project cost (US $):	
Incremental capital cost (a)	
Contingency cost (b)	
Incremental operating cost (c)	
Total project cost (a+b+c)	10,903,000
Local ownership (%)	
Export component (%)	
Amount requested (US $)	10,903,000
Cost effectiveness (US $/kg.)	4.36
Counterpart funding confirmed?	
National coordinating agency	State Environmental Protection Administration (SEPA)
Implementing agency	UNDP

Secretariat's Recommendations	
Amount recommended (US $)	10,903,000
Project impact (ODP tonnes)	2,500
Cost effectiveness (US $/kg)	4.36
Implementing agency support cost (US $)	961,270
Total cost to Multilateral Fund (US $)	11,864,270

PROJECT DESCRIPTION

Status Report on Implementation of the 2003 Annual Programme and 2004 Annual Implementation Programme of the China Polyurethane Foam Sector Phase-out Plan

1. The World Bank submitted the 2004 annual implementation programme for consideration by the Executive Committee at the 41st Meeting. The document is in two parts:

- Status of implementation of the 2003 annual programme (Part A).
- 2004 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 equivalent funding from 2002-2009. The first implementation programme for the period December 2001 - December 2002 (first tranche) was approved at the 35th Meeting, while the second implementation programme covering the period January – December 2003 (second tranche) was approved at the 38th Meeting in November 2002. A total amount of US $24,511,900 including support cost of US $2,001,900 to the World Bank has so far been released in the two tranches to phase out 4,500 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 polyurethane foam sector in China (ODP tonnes) and equivalent funding (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. 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 is required;

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

5. Payment in 2003 for the implementation of the 2004 implementation programme will be conditional on satisfactory verification that China had, as a minimum, met all phase-out targets and consumption limits for 2002 and signed phase-out contracts for 50% of the 2003 phase out contract targets and 100% of the 2002 phase out contract targets as specified in Table 1 and as provided in detail in the 2002 and 2003 implementation programmes.

Status of Implementation of the 2003 Annual Programme

6. The report describes the phase-out targets achieved during the 2003 implementation period as well as the non-investment and investment activities planned and undertaken and the results achieved in the context of the agreement on the China Polyurethane Foam Sector Plan.

Phase-out targets

7. The report states that, consistent with the agreement, by the end of 2003, national CFC-11 consumption target will be limited to 15,500 ODP tonnes through the control of CFC-11 production in the CFC production sector being implemented, and the control of net import. At the same time, CFC-11 consumption in the polyurethane foam sector will not exceed 13,830 ODP tonnes through the completion of individual investment projects that were approved by the Executive Committee and funded by the Multilateral Fund in the past four to five years. All contracts for the required 2,500 ODP tonnes of CFC-11 to be phased out will be signed in 2003, 50% of which will be phased out by the end of 2005 and another 50% by the end of 2006. It is envisaged that the US $10,903 million will be allocated to polyurethane foam enterprises to convert from CFC-11 foam production to non-CFC foam production and for technical assistance activities.

8. Highlights of the phase-out activities:

- Contracts for all six group projects in the 2002 annual programme were signed by January 2003. The contracts will result in a phase-out of a total of 5,075 ODP tonnes;
- The 2002 programme accounts for 2,553 ODP tonnes of CFC-11 for three restructured groups of enterprises to be phased out by 2005;
- The 2003 programme accounts for 2,721 tonnes of CFC-11 for additional three groups to be phased out by 2006;

9. The list of group projects and required CFC phase-out as well as the dates contracts were signed are shown in the table below.

Project	**CFC-11 consumption in the plan (average 1997-1999)**	**Current CFC consumption 2002**	**Date of contract signing**
2002 programme			
Xinxiang Xinyuan (8)	636.70	196.00	2 September 2002
Chengdu Jinjian (6)	552.00	481.00	20 August 2002
Zhejiang Chunhui (31)	1,164.98	852.04	27 December 2002
Sub-total	2,353.68	1,529.04	
2003 Programme			
Nantong Xinyuan	648.11	492.00	9 January 2003
Shaoxing Weike	997.75	612.50	9 January 2003
Lanzhou Huanyu	1,075.45	1,039.30	9 January 2003
Sub-total	2,721.31	2,143.80	
Total	**5,074.99**	**3,672.84**	

10. As indicated in the verification report, there is a downward trend in the use of CFC-11 especially in the flexible slabstock foam production as companies switch to cheaper blowing agents such as methylene chloride to reduce production costs.

Policy and Government measures

11. The World Bank indicates that the Government made greater efforts to effectively enforce existing regulations and laws and take further measures to step up the campaign against the illegal production, trade, and consumption of ODS. These actions include raising public awareness through the sino-polyurethane website, quota and license system, substitute development and capacity building through workshops.

Technical assistance

12. Fifteen technical assistance activities are reported to have been planned under the 2002 and 2003 annual programmes, of which seven have been completed and eight are under implementation. Nine out of the fifteen technical assistance activities which were under the 2002 annual programme were expected to be completed by the end of 2003.

Verification Report of the 2003 Annual Programme

13. The World Bank fielded a verification mission in August 2003 which visited 11 flexible slabstock foam producing enterprises which would be converted to liquid carbon dioxide (LCD) technology. The total CFC-11 consumption of the 11 enterprises was 778.5 ODP tonnes in 1999 and 524.4 ODP tonnes in 2001.

14. The verification mission reported that all the 11 enterprises were established before July 1995 and had their foam machines installed before that date. They were also using significant amounts of CFC-11 before 2001 but are now using methylene chloride for economic reasons, the price of CFC-11 being about 250% that of methylene chloride. The enterprises reported buying methylene chloride at about US $0.73/kg as against the price of CFC-11 of US $1.81/kg. At the time the plan was approved, the price of CFC-11 was reported to be US $1.10/kg - US $1.30/kg while methylene chloride was reported to be US $0.50/kg - US $0.60/kg. The report also indicated that methylene chloride was used in unsatisfactory occupational safety conditions.

15. The mission report showed that two of the eleven enterprises use boxfoam machines while the rest use continuous and/or vertifoam machines. A summary of the verification report is provided in the table below. As a condition for participating in the foam sector phase-out plan, the companies have been requested to dispose of their baseline equipment. Three companies have disposed of their continuous foam machines while two have disposed of their boxfoam machines and are buying foam blocks from Nantong Xinyuan (the coordinating company) to process. Two of the companies have switched to other businesses while one was virtually idle with little inventory of raw materials or foam product.

16. The World Bank has not provided verification of the amount of CFC-11 phased out at enterprise level in 2002 or the consumption of CFC-11 in that year.

Summary of 2003 Verification of Enterprises

Enterprise	2001 CFC consumption (ODP tonnes)	2001 Foam output (ODP tonnes)	Baseline equipment	Date of installation	Remarks
Tongzhou Xinan Polyurethane	31.0	946	210 kg/min Chinese-made horizontal continuous foaming machine	December 1994	Disposed of foam machine has as a condition for participating in phase-out project
Tongzhou Polyurethane	72.5	1,473	280 kg/min Maxfoam 40 kg/min Vertifoam	May 1993	Disposal of the Maxfoam machine and plans to dispose of the Vertifoam machine to participate in the phase-out project
Nantong Haoli	45.0	1,357	Boxfoam machine	August 1992	Disposal of the boxfoam machine in order to participate in the phase-out project
Tongzhou Nanxing	39.5	1,150	Boxfoam machine	August 1992	Disposal of the boxfoam machine in order to participate in the phase-out project
Rugao Jinru	80.0	1,250	Vertifoam machine	June 1995	Company currently uses only methylene chloride. Stopped use of CFC-11 due to high price
Rugao Jixing	72.3	1,239	70 kg/min Vertifoam	September 1993	Uses only methylene chloride as auxiliary blowing agent for economic reasons. Produces foam to laminate textiles, export demand increase still in foam production
Xuzhou Tongshan	66.0	1,257	Chinese-made horizontal (continuous) foaming machine	July 1995	Disposal of foam machine in order to participate in the phase-out project. Laid off its workers, will rent workshop to local light bulb plant. The company will not stay in foam business but move to real estate business.
Fengxian Pengya	32.0	850	150 kg/min Chinese horizontal (continuous) foam mahchine	July 1995	Foam production and foam cutting workshops are in such a state that they cannot be operated without significant repairs. The company has recently converted its business to light steel structure and construction
Pizhou Kesheng	34.0	1,000	Chinese 230 kg/min horizontal continuous foam machine	October 1994	Foam machine was not in good shape though could maintain the foam production. Plant is virtually idle.
Dafeng Zhongyi	19.8	351	Chinese 60 kg/min Vertifoam machine	October 1994	Uses methylene chloride mainly as auxiliary blowing agent and CFC only for special orders.
Jiangyan Harbor	32.3	500	Chinese 220 kg/min horizontal continous foam machine	March 1994	Produces foam with methylene chloride. Low inventory of raw materials and foam produced.
Total	254.4				

2004 Annual Implementation Programme

17. Under the 2004 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 13,100 ODP tonnes of CFC-11, with a polyurethane foam sector consumption limit of 11,666 ODP tonnes and a phase-out target of 2,500 ODP tonnes.

18. The programme activities of the 2004 annual programme includes policy and government actions, enterprise activities and technical assistance. The policy and government actions will focus on seven main activities which are considered necessary for the success of total phase-out of CFC-11 in China. 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 even more effective. These include:

- Ban on new construction of CFC-11 foam production facilities in force since 1997;
- Production control of CFC-11, a regulation on tradable production quota in force since 1999;
- Export and import control of ODS established in 1999 which ensures cooperative actions from SEPA, Ministry of Foreign Trade and Economic Cooperation and General Administration of Customs;

19. Other policy measures foreseen in the 2004 annual programme include:

- Substitute development, under which government has provided its support for development of substitutes and research on non-CFC chemicals for foam production;
- Quota license system for trade and consumption control of ODS. The system which is to be established is supposed to be an effective way of controlling trade and consumption and is expected to provide a helpful tool for collecting data and for preventing converted enterprises from switching back to the use of ODS.

20. 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 three or four large regional projects. A minimum of 50% of the CFC-11 reduction contracts is expected to be signed by mid-2004 and another 50% not later than by the end of 2004. Specific actions to be undertaken throughout the year are:

- Training workshops to be held to invite participation of prospective enterprises for 2004 and 2005 annual programmes;
- Project proposals prepared and evaluated;
- Determine grant funds after project evaluation;
- Selection of enterprises to be included in the annual programme;
- 50% of the 2004 annual programme reduction contracts signed;
- Implementation of signed projects.

21. Six technical assistance activities are foreseen including the 2003 performance audit, training of personnel involved in the implementation of phase-out activities, and phase II standard formulation and revision. Terms of reference of the activities are expected to be agreed with the World Bank by the end of the first quarter of 2004. The technical assistance activities include the 2003 performance audit under which training of auditors is planned for the second quarter of 2004 after the terms of reference are agreed in the first quarter.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

22. China reported 2002 CFC-11 consumption of 17,187 tonnes to the Fund Secretariat, of which 14,100 ODP tonnes was consumed in the foam sector. These consumption figures are within the 2002 national and foam sector consumption limits of 17,200 ODP tonnes and 14,143 ODP tonnes that China agreed to under the Agreement. However, since there has been no verification of this CFC phase-out and/or the CFC consumption limit as required under the agreement the reported data cannot be substantiated. Given the complexity of the CFC production and consumption sectors which include foam, refrigeration as well as tobacco sectors it is essential that a system for tracking progress in phase-out be put in place to assure the government and the Executive Committee that measures put in place and investments are working to assist China eliminate the use of CFC. In this regard, the training of auditors in the 2004 annual programme should be accorded high priority.

23. The World Bank has submitted a verification report on enterprises funded under the 2003 implementation programme which meets the requirements of the agreement. The CFC consumption of the enterprises verified constitutes 26% of the 2,500 ODP tonnes to be phased out while the number of contracts constitutes 33% of the contracts signed. In both cases the 15% requirement was exceeded. The verification report showed a downward trend in the consumption of CFC-11 in the flexible slabstock foam sub-sector as CFC-11 lost its competitive advantage against non-ozone depleting methylene chloride as an auxiliary blowing agent.

24. The 2004 Annual Implementation programme of the China Polyurethane Foam Sector and the Status of Implementation of the 2003 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 2004 annual programme are consistent with the Agreement.

RECOMMENDATION

25. The Executive Committee may wish to consider the request for funding for the 2004 annual implementation programme in light of the Secretariat's comments above, and if approved, request the World Bank to ensure, as a matter of priority, that as indicated in the 2004 annual programme, a system is put in place that would provide satisfactory verification of CFC phased out in on-going and new projects in the polyurethane foam sector as well as the annual CFC consumption in the sector in 2003 and subsequent years.

PROJECT EVALUATION SHEET
CHINA

SECTOR: Fumigant ODS use in sector (2002): Production 2,135.4 ODP tonnes
Consumption 1,087.8 ODP tonnes (excluding QPS)

Sub-sector cost-effectiveness thresholds: n/a

Project Title:

(a) National phase-out of methyl bromide (first tranche)

Project Data	**Phase-out plan of Methyl Bromide**
Enterprise consumption (ODP tonnes)	
Project impact (ODP tonnes)	*1,087.8
Project duration (months)	30
Initial amount requested (US $)	17,235,749
Final project cost (US $):	
Incremental capital cost (a)	59,903,994
Contingency cost (b)	5,990,399
Incremental operating savings (c)	(25,761,742)
Total project cost (a+b+c)	40,132,651
Local ownership (%)	100%
Export component (%)	0%
Amount requested for first tranche (US $)	17,235,749
Cost effectiveness (US $/kg.)	**36.89
Counterpart funding confirmed?	
National coordinating agency	SEPA
Implementing agency	UNIDO

Secretariat's Recommendations	
Amount recommended (US $) Project impact (ODP tonnes) Cost effectiveness (US $/kg) Implementing agency support cost (US $)	
Total cost to Multilateral Fund (US $)	

* The total impact of the plan is 1,087.8 ODP tonnes (consumption). The impact of the first tranche is 389 ODP tonnes.

** Cost effectiveness of the national phase-out.

PROJECT DESCRIPTION

26. The Government of China is submitting a national methyl bromide (MB) phase out plan for consideration by the Executive Committee at its 41st Meeting.

27. The Government of China ratified the Copenhagen amendment to the Montreal Protocol on 22 April 2003, which entered into force on 21 July 2003. China is both a MB producer and a MB consumer. The MB baselines for production and consumption are 776.3 ODP tonnes and 1,101.6 ODP tonnes, respectively.

28. The Government of China is requesting assistance to reduce its MB production by 45.4 ODP tonnes and its MB consumption by 389.0 ODP tonnes.

MB production and consumption

29. The survey conducted during the preparation of the MB phase out plan gave the following results:

	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

30. MB is produced in China by three companies, namely: Lianyugang Seawater Chemical Plant, Zhejiang Linhai Jianxin Chemical Corporation and Shandong Changyi Chemical Plant. 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.

31. The 2002 MB installed production capacity is 5,040 ODP, with the following distribution among the three production plants:

Production plant	**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

32. MB was initially used only for QPS applications in China. However, in recent years the agricultural sector in the country has expanded with new crops being introduced, resulting in an increased use of MB. Currently, MB is used in the fumigation of soil for the production of strawberry, cucumber, tomato, eggplant, hot pepper, 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)**
Strawberry	1,297	312
Cucumber	99	24
Tomato	400	96
Eggplant	148	36
Hot pepper	149	36
Flowers	149	30
Tobacco	250,994	427.8
Commodities		126
Total	**253,236**	**1,087.80**

Demonstration projects

33. So far, the Executive Committee has approved the following MB projects and activities for China:

(a) Survey of production and consumption of methyl bromide in China (UNDP), to gather and analyse basic information on production and consumption of MB to facilitate planning of a future phase-out programme, (approved at the 12th Meeting, at a total cost of US $96,314);

(b) Demonstration project on alternatives to the use of MB in soil fumigation (UNIDO), to demonstrate the feasibility of alternative technologies to MB applied to cucumber, tomatoes, tobacco, strawberry and medicinal herbs, taking into account the economic aspects and reliability of alternatives (approved at the 22nd Meeting, at a total cost of US $484,405);

(c) MB replacement demonstration programme (Canada), to demonstrate how an integrated pest management plan approach can be an alternative to MB in grain storage through use of diatomaceous soil and a synthetic chemical insecticide (approved at the 22nd Meeting, at a total cost of US $145,000);

(d) Sectoral policy plan for MB phase-out in China (UNEP), to conduct a further survey of the area of potential growth of MB; investigate the potential application structure; survey of MB supply including production; identify and select alternative technologies and evaluate both economic and social benefits of these; identify the influence on phase out due to manufacturers plans; identify and assist in establishing a policy framework; specify training needs; and propose a national policy plan for phase out (approved at the 24th Meeting at a total cost of

US $169,500);

(e) Techno-economic evaluation of MB alternatives (UNEP), to conduct a cost-benefit analysis of MB alternatives and its impact on Chinese agriculture; to ensure that the results of such an analysis will contribute to facilitate adoption of alternatives in China, leading to the MB phase out, and to convince farmers that alternatives are economically and technically feasible and will not have negative impacts on their production, (approved at the 35th Meeting, at a total cost of US $90,400);

(f) Awareness raising workshops to support ratification of the Copenhagen Amendment (UNEP), and to encourage MB users to lobby for the ratification of the Copenhagen Amendment, (approved at the 35th Meeting, at a total cost of US $113,000).

Phase out strategy

34. By 2005, China has to reduce its MB baseline production by 10 per cent (taking into account the 10 per cent allowance for the basic domestic needs of Article 5 countries and its MB consumption baseline by 20 per cent (table below):

	ODP tonnes	
	Production	**Consumption**
Baseline	776.3	1,101.6
10 per cent reduction allowance for A5 countries	77.6	
Maximum allowable level	698.6	881.3
Current level (2002)	2,135.4	1,087.8
Exports, and QPS and feedstock applications	(1,396.0)	
Production subject to phase out	744.0	
Amount to be phased-out by 2005	45.4	206.5
Remaining level (after 2005)	698.6	881.3

35. Based on the phase out requirements of the Montreal Protocol, after 2005 China would have to import more than 180 ODP tonnes of MB to satisfy its local consumption needs. Under this situation, the Government of China decided to phase out a larger amount of MB in the consumption than the amount required by the Protocol, in order to match the same level of MB production.

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

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

(b) Issue licenses for QPS applications for controlling QPS consumption;

(c) Control MB consumption in the tobacco sub-sector under support of STMA and

in the fumigation of commodities under support of 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 growers levels;

(f) Give priority to the following crops/applications for which alternative technologies are already in use: tobacco seedbeds (floating technology is already in use by 50,000 growers); commodities fumigation (more than 4,000 tonnes of phosphine are already used); cucumbers and eggplants (where farmers have developed simple grafting techniques in use by more than 5,000 growers).

37. Based on the above principles, the Government of China is proposing to phase out by 2005, 389 ODP tonnes of MB in tobacco (213.9 ODP tonnes), eggplants (36.0 ODP tonnes) and cucumbers (12.9 ODP tonnes) and in the fumigation of commodities (126.0 ODP tonnes).

Replacement technologies and costs

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

Crop/application	**Alternative MB technologies**
Strawberry	• Metam sodium injected into the soil
Cucumber	• Grafting
Tomato	• Metam sodium injected into the soil
Eggplant	• Floating tray system in micro-tunnels
Hot pepper	• Metam sodium injected into the soil
Tobacco	• Floating tray system
Flowers	• Sterilization
Commodities	• Phosphine (tablets or pellets)

39. The phase out plan also includes training programmes.

40. The total cost of the national MB phase out plan is US $40,130,691 and the amount requested for the implementation of Phase 1 is US $17,235,750, with the following distribution:

Crop / application	**Total project costs (US$)**			**Total costs for Phase 1(US$)**		
	Capital	**Operating**	**Total**	**Capital**	**Operating**	**Total**
Strawberry	1,806,724	757,531	2,564,255	-	-	-
Cucumber	39,446	(96,484)	(57,038)	21,203	(51,860)	(30,658)
Tomato	595,625	429,993	1,025,618	-	-	-
Eggplant	48,430	(142,603)	(94,173)	48,430	(142,603)	(94,173)
Hot pepper	219,250	84,058	303,308	-	-	-
Flowers	2,157,100	213,279	2,370,379	-	-	-
Tobacco	53,822,641	(27,034,396)	26,788,245	26,911,321	(13,517,198)	13,394,123
Commodities	2,636,425	26,880	2,663,305	2,636,425	26,880	2,663,305
Training	4,566,793		4,566,793	1,303,154		1,303,154
Total	65,892,433	(25,761,742)	40,130,691	30,920,531	(13,684,781)	17,235,750

41. The estimated time for the implementation of the first phase of the project is 2.5 years.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

42. The Secretariat provided comments to UNIDO on the project proposal on 22 October 2003. However, at the time of finalization of this document for its submission to the Executive Committee, UNIDO was unable to response to the Secretariat's comments and observations. The responses from UNIDO will be communicated to the Executive Committee prior to the 41st Meeting.

The MB production sector

43. According to the phase out plan, MB has been produced in China since 1995 by three companies, namely Lianyugang Seawater Chemical Plant, Zhejiang Linhai Jianxin Chemical Corporation and Shandong Changyi Chemical Plant. The Secretariat pointed out, however, that according to the Strategic framework for control of MB in China: Action Plan (January 2000), in 1995 MB was only produced by two enterprises: Lianyugang (with a projected capacity of 3,000 metric tonnes) and Changyi (with a projected capacity of 300 metric tonnes). Furthermore, China's reported production in 1995 was only 171 ODP tonnes. It appears that the production line at Zhejiang Linhai Jianxin Chemical Corporation was installed after 1995.

44. Based on the data reported by the Government of China under Article 7, in 2005 China must reduce its 2002 controlled production of MB by 40.5 ODP tonnes. The Secretariat noted that only 24.6 ODP tonnes of this amount would be eligible for funding since the remaining 15.9 ODP tonnes are associated with the foreign ownership of the Lianyugang plant (60 per cent) and the production at Zhejiang Linhai Jianxin Chemical Corporation (established after 1995).

Long-term sustainability

45. Based on information provided in the project proposal, the Secretariat prepared the table below providing the incremental cost and the cost effectiveness associated with the phase out of MB by crop and application:

Crop/application	ODP	$capital	$operating	$training	$contingency	$total	US$/kg
Strawberries	312.0	1,643,950	757,531	118,912	176,286	2,696,679	8.64
Cucumber	24.0	35,740	(96,484)	2,585	3,833	(54,326)	(2.26)
Tomato	96.0	542,900	429,993	39,270	58,217	1,070,380	11.15
Eggplant	36.0	44,100	(142,603)	3,190	4,729	(90,584)	(2.52)
Hot pepper	36.0	198,250	84,058	14,340	21,259	317,907	8.83
Flowers	30.0	1,961,000	213,279	141,845	210,285	2,526,409	84.21
Tobacco	427.8	48,929,674	(27,034,396)	3,539,238	5,246,891	30,681,407	71.72
Commodities	126.0	2,396,750	26,880	292,250	268,900	2,984,780	23.69
Total	1,087.8	55,752,364	(25,761,742)	4,151,630	5,990,399	40,132,651	36.89

46. Based on the information in the table above, the Secretariat made the following observations to UNIDO:

(a) The current production of cucumber and eggplant using 50 ODP tonnes of MB as a soil fumigant is more expensive and less sustainable than the proposed alternative technology (i.e. operating savings offset the costs associated with the equipment and the training required). Therefore, the complete phase out of MB in these two crops should be a priority;

(b) China can achieve the proposed reduction of 389.2 ODP tonnes of MB by phasing out (partially or totally) its use in cucumbers, eggplants, strawberries and/or hot peppers where the most cost-effective and, therefore, sustainable technologies are available, and this can be achieved at no cost to the Fund since operating savings exceed the associated capital costs;

(c) The least cost-effective technologies proposed are for flowers (US $84.21/kg), tobacco (US $71.72/kg) and commodities (US $23.69/kg) applications. On this basis, it would appear advisable to postpone MB phase out activities in these applications until more cost-effective and, thus, sustainable technologies are made available in China

MB application rates

47. The Secretariat noted that average MB application rates in various crops and commodities are very high compared with dosage rates used for the same crops in other countries (the Secretariat is aware that the dosage rate for any given fumigant depends on a number of factors, such as type of pest, soil characteristics and climatic conditions). In this regard, by only reducing the application MB dosage rates through introduction of integrated pest management practices, substantial reductions in MB consumption would be achieved.

Specific comments

48. In addition to the above issues, the Secretariat also raised specific issues related to the different MB alternative technologies proposed. Specifically for soil fumigation, the registration of 1-3 dichloro propene and chloropicrin (which are among the most widely used fumigants in the world) in China; the high cost of metam sodium considering that it can be produced in China; the high cost of locally-made injection machines for application of metam sodium; and the long-term sustainability of steam as the technology proposed for flowers. For storage fumigation, the issues raised were related to the use of phosphine in tablets which is the preferred method of treatment worldwide (e.g., cost very similar to MB applications).

49. Regarding the phase out of MB in the tobacco sector (representing over 76 per cent of the total project cost), the Secretariat raised the following issues:

(a) The unitary cost of trays (US $0.82/unit) are much higher that the costs of trays in similar projects that have been approved by the Executive Committee, in spite of the large number of foam enterprises in the country (almost US $124 million has been granted to China for the conversion of foam manufacturing enterprises);

(b) The project proposes the establishment of micro-tunnels for seedlings growing in

a small surface area at a total cost of US $25.25 million, and greenhouses for seedlings grown in a larger area (30 ha) at a cost of US $23.68 million. The Secretariat noted that the cost of the proposed greenhouses was extremely high; furthermore, in the case of Brazil, with a similar surface area planted with tobacco using MB (240,218 ha), the phase-out was based solely on the use of micro-tunnels at a much lower cost;

(c) The Secretariat also noted that the proposed prices of polyethylene sheets were more expensive than in the project for Brazil. If the price quoted in Brazil were to be used, the capital cost of the project would be reduced by about US $450,000. Also, galvanized steel arches were proposed (at a total cost of US $4.3 million) for the construction of the micro-tunnels; in this regard, the Secretariat sought an advice on the feasibility of using locally available material in China (e.g., bamboo) at a lower cost;

(d) Trays with 240 cells were proposed. However, trays with larger number of cells can be used with no difference in quality and development of the seedlings (there are economic advantages for farmers to use trays with larger number of cells). For example, trays with 264 cells and even 288 cells were proposed in approved phase out projects. In this regard, the size of the micro-tunnels could be reduced by almost 20 per cent if 288 cells were to be used (with the corresponding savings in materials and farm inputs);

(e) In the calculation of the operating costs, the number of seeds needed for both the traditional system and the floating tray system was the same, and differences in price between the regular seeds and the pelletized seeds were very high (a much larger number of seeds in the traditional system are required, while in the floating tray system a smaller number of pelletized seeds are required).

RECOMMENDATION

50. Pending.

SECTOR PLAN FOR HALON PHASE-OUT IN CHINA: 2004 ANNUAL PROGRAMME

PROJECT DESCRIPTION

51. 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 seventh tranche of US$1.2 million for the implementation of the year 2004 Annual Programme. With this funding, China 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 from the Fund Secretariat's web site (www.unmfs.org). The 2004 Annual Programme includes the following activities:

(a) US $0.28 million to be used for closing and converting 5 fire extinguisher manufacturers;

(b) US $0.8 million to be used for converting 8-10 halon 1211 fire extinguishing system manufacturers; and

(c) US $0.12 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.

52. 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 six 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 the sale of halons.

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

54. Technical assistance activities planned for the year 2004 include: establishment of national standard for performance requirements and test methods for components for water mist fire extinguishing systems; formulation of design code for dry powder fire extinguishing systems; and training of personnel involved in phase-out activities and performance audits for annual programme enterprises.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Consumption and production targets

55. The audit report confirmed the accomplishment of the consumption and production targets for 2002. It also noted that the methodology of limiting production quotas to the allowed level of consumption and approving export quotas retroactively appears to be working, as well as a ban on the sale of halon and/or halon consuming products from companies that have received funds from the project.

56. There was no halon 1301 production in China in 2002 due to lack of demand. Under the agreement, China could have produced 6000 ODP tonnes.

ABC powder plant

57. The ABC powder plant purchased with resources from the agreement, the Foshan Electro-chemical General plant, produced 2400 tonnes from January to October 2003 after having been commissioned in December 2002 with an annual capacity of 3000 tonnes. The Bank indicated that the company was able to penetrate the market due to the quality of its ABC powder, the aggressive phase-out of halon use in Guangdong Provide, and possibly the absence of other local ABC dry powder suppliers in the province.

CO2 light weight cylinder manufacturer

58. All imported production equipment has arrived for the CO2 light weight cylinders manufacturer. It is currently under installation completion and supplier commissioning based on trial runs scheduled for end January 2004. In accordance with the present plans, the official commissioning will take place by July 2004. Production has not yet started. Commercial production will start immediately after commissioning by China. Under the terms of the contact with China, the enterprise is required to produce cylinders exclusively for the domestic market, and exports will only take place after domestic demand is met.

Halon banking

59. Decision 23/11 paragraphs G indicates that in light of the fact that this project [agreement] is expected to fund an extensive recycling capability, and that related funds for such capability are being provided solely to allow China to meet its reduction obligations, China would endeavour to prevent export to developed countries of recovered/reclaimed halon. Since the Guangdong halon bank was installed in Guangdong, the Fund Secretariat asked what measures had been taken to ensure that any reclaimed halon from the Guangdong halon bank was not exported. The World Bank indicated that due to the significant availability of European recycled halon in international markets, there are no requests for export of [reclaimed] halon from China. Export of any ODS (recycled or virgin) requires a special permit from SEPA through its Export-Import Management Office, administered jointly with the General

Administration of Customs and the State Development Reform Committee. There are no limitations on export or import of recycled halon under the agreement. The Bank also indicated that any subsequent recycling centre would receive capital costs for establishing the halon bank but would not receive operating costs or subsidies.

Vegetable foam technology

60. The World Bank indicated that after the tests on the plant-protein foam agent developed by a private company in China were successful, the Government signed a contract to set up a 3,000 MT capacity plant with resources from the China Halon Sector Plan to address the foam component of halon 1211 alternatives pursuant to paragraph E of Decision 23/11.

CO2 fire-extinguisher production survey

61. 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, funding should be refunded, based on a rate of US $3.08 per unit shortfall of CO2 or equivalent fire extinguishers.

62. The Bank indicated that there had been a delay of three months in the survey because of SARs, but 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. The Bank indicated that its understanding of the agreement 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.

RECOMMENDATIONS

63. The Executive Committee may wish to approve the 2004 work programme of the China Halon Plan at the agreed level of US $1,200,000 with agency fees amounting to US $90,000.

ODS PHASE-OUT IN SOLVENT SECTOR: 2004 ANNUAL IMPLEMENTATION PROGRAMME

PROJECT DESCRIPTION

Background

64. On behalf of the Government of China, UNDP has submitted for the consideration of the Executive Committee at its 41st Meeting, the 2003 Annual Progress Report and Implementation Programme for 2004, in conformity with the Agreement for the Solvent Sector Plan for ODS Phase-out in China (the Plan). The documents are presented in full in Annex I.

65. The Agreement was approved in principle at the 30th Meeting of the Executive Committee in March 2000 at a total cost of US $52 million. Funding tranches of US $6.75 million, US $6.955 million and US $6.33 million, plus 10 percent support costs, were approved between the 30th and 36th Meeting for annual implementation programmes up to and including 2002.

66. Disbursement of approved funds for 2002 was not agreed until the 38th Meeting (Decision 38/61) when China and UNDP had fulfilled the condition in the Agreement to report the quantities of CTC purchased by specific plants for exempted feedstock and process agent use in 2000.

67. In Decision 38/61 the Executive Committee also agreed to consider the 2003 annual implementation programme at its 39th Meeting. However the project was only submitted to 40th Meeting because China had not at that time been able to fulfil the CTC reporting condition in relation to 2001 consumption.

68. At its 40th Meeting, the Executive Committee considered the 2003 Annual Implementation Programme and approved the funding requested for its implementation; agreed to the retention of UNDP as implementing agency for the remaining duration of the project, with support costs of 7.5 per cent; and requested the Government of China to return the funding of US $2 million reallocated pursuant to Decision 33/46 for uses as originally approved in the solvent sector plan (Decision 40/46).

The 2003 Report on Progress

69. The progress report indicates that in 2003 the Government of China and UNDP continued to implement enterprise level phase-out activities through ODS Reduction Contracts initiated in 2000, 2001 and 2002. Specifically:

(a) For the 2000 ODS Reduction Contracts: Project activities in 13 of the 16 enterprises selected were completed by December 2002; one enterprise went bankrupt. In 2003, implementation was completed (October 2003) for the two remaining enterprises, with an associated phase out of 38.4 ODP tonnes of CFC-113 and 0.4 ODP tonnes of TCA. As a result of travel restriction imposed due to

SARS situation in China, the destruction of baseline equipment was postponed to November 2003;

(b) For the 2001 ODS Reduction Contracts: Equipment associated with 21 ODS Reduction Contracts signed in 2001, was delivered and installed during 2003; technical review and performance audit has been planned for November 2003 and project commissioning and equipment destruction for December 2003 or early 2004. As a result, 541.58 ODP tonnes of CFC-113 and 10.6 ODP tonnes of TCA will be phased out upon completion of these 21 contracts by the end of 2003.

(c) For the 2002 ODS Reduction Contracts: The bidding for the equipment for the phase out of ODSs in the 32 enterprises who signed ODS Reduction Contracts in 2002 was completed. Purchase order will be issued in November and December 2003, and equipment will be delivered in March 2004. Completion of these 32 ODS Reduction Contracts is proposed for June 2004 with a total phase out of 535.82 ODP tonnes of CFC-113, 43.2 ODP tonnes of TCA and 17.94 ODP tonnes of CTC.

70. According to the progress report, the situation of SARS in China caused major delays in the initiation and implementation of the proposed activities for 2003. After the WHO travel advisory for China was lifted, 12 enterprises were identified and ODS Reduction Contracts will be finalized by November 2003. The contracts are expected to phase-out 223 ODP tonnes of CFC-113 and 1.5 ODP tonnes of TCA. Also, activities will be conducted in 78 SMEs identified through the voucher system, with an additional phase out of 170.04 ODP tonnes of CFC-113 and 11.50 ODP tonnes of TCA in 2004.

71. In addition to the voucher system, the Government of China had entered into direct agreements with 143 enterprises that will gradually phase-out ODS consumption, through a quota system (establishing the amount of ODSs to be reduced annually). Through the agreements signed so far, 109.9 ODP tonnes of CFC-113 and 28.2 ODP tonnes of TCA will be phased out in 2004.

72. To achieve the 2004 phase out targets, an additional phase out of 38.1 ODP tonnes of CFC-113 and 17.9 ODP tonnes of TCA would be required. In this regard, the Government of China proposed to identified those enterprises that had phased-out ODS solvents by themselves, and reimburse them for costs incurred for the phase-out. The ban on CTC used as a solvent took effect as of June 2003.

73. The summary of the 2000-2003 solvent sector phase out plan is presented in the table below:

		ODP tonnes			No. of enterprises	US$
		CFC-113	TCA	CTC		
2000 Bidding	Planned	372.8	10.0	0.0	10 – 20	5,000,000
	Executed	378.4	10.1	8.4	16	4,132,000
2001 Bidding	Planned	524.0	10.0	0.0	10 – 20	5,505,000
	Executed	541.6	10.6	0.0	21	4,361,000
2002 Bidding	Planned	500.0	25.0	55.0	20 – 40	5,830,000
	Executed	535.8	43.2	17.9	32	4,004,000
2003	Planned	600.0	78.0	55.0	120-140	5,255,000
	Executed	502.9	41.2	0.0	233	5,100,000
From ongoing projects	2000	7.4			1	5,255,000
	2001	54.1			4	5,100,000
	2002	283.9	49.1		3	
Total	Planned	1,996.8	123.0	110.0		21,590,000
	Required	2,200.0	119.0	110.0		
	Executed	2,304.1	154.2	26.3		17,597,000

Relevant policies

74. Since the approval of the Plan, the Government of China has implemented several policy actions. Specifically,

(a) Notice of Issuing Execution Methods on Issuing Usage Certificate on Selling ODS Products (20 June 2002) to control the production quota and sales of CFC-113, TCA and CTC for solvent use;

(b) ODS Usage Certificates to ODS producers and consumers for the period of August to December 2003, issued by the Cleaning Engineering Technique Cooperation Association (Usage Certificates for 2004 will be issued in December 2003); and

(c) Ban the use of CTC as cleaning solvent as of 1 June 2003. Enterprises, environmental protection and other related units who violate the rules and regulations will be subject to harsh penalties.

Technical assistance activities

75. The following technical assistance activities were implemented in 2003:

(a) Training for national experts, intermediate execution agents and candidate enterprises to participate in the 2003 phase out activities, either through ODS Reduction Contracts or the Voucher System;

(b) Awareness activities for the promotion of the Plan through publications and articles in trade journals, publications, newspaper, news media, radio and television;

(c) The institutional capacity of national institutes and experts participating in the

Alternative Technology Support System were significantly strengthened; and

(d) Experiments on alternative technologies and production-scale tests will be carried out and standards on non-ODS cleaning application will be complied or developed.

Verification of 2002 ODS phase out targets

76. The progress report contained information on 2002 ODS phase out targets and consumption control limits. According to official data and statistics on China chemical production, import and export obtained by SEPA, the total national consumption of CFC-113 and TCA in 2002 was below the phase-out targets specified in the Agreement (CFC-113 was not used as exempted feedstock).

77. CFC production figures are identical to the audited data reported in the CFC Production Sector Plan submitted to the Executive Committee by the World Bank. Confirmation by an independent auditing firm will verify CTC consumption as cleaning solvent in 2002 (based on last years verification, it was concluded that CTC use as solvent will not increase).

78. The 2002 national consumption of ODS solvents in China is presented in the table below:

	ODP tonnes		
	CFC-113	**TCA**	**CTC**
Consumption target	2,200.0	605.0	110.0
Production	2,200.0	120.5	
Import	0.3	261.7	
Export	8.0	1.6	
Raw Material Usage	-	-	
Solvent Consumption	2,192.3	380.6	<100.0

79. As required under the Agreement, the names of all enterprises using CTC as a feedstock process agent and other applications not yet approved as ODS process agent and the quantities used by each in 2002 was included in the progress report. The total quantity was 50,582 ODP tonnes which is within the specified limit of 71,500 ODP tonnes. UNDP reported that in 2002 no CFC-113 was used as feedstock (limit 10 ODP tonnes).

Performance audit

80. Due to project implementation delays associated with the SARS situation in China, the audit for the 2002 programme has not yet been conducted. It is reported that the Government of China and UNDP were finalizing contractual agreement with an independent accounting firm to audit the performance of the 21 recipient enterprises under the 2001 Annual Implementation Programme and the technical assistance activities undertaken, and verify the national ODS consumption limits (e.g., TCA production; imported/exported quantities of TCA and CFC-113; CTC consumption in 34 enterprises originally identified in the Plan).

81. UNDP has reported that the performance audit will be conducted prior to the 41st Meeting of the Executive Committee. Results will be advised and funding for the 2004 annual implementation programme will be requested.

Independent technical audit by UNDP

82. It is also proposed that UNDP's solvent experts will carried out a technical audit in early December 2003 on the 21 enterprises under the 2001 ODS Reduction Contract. The technical audit will review the ODS cleaning applications; ODS consumption; alternative solvents used and the new non-ODS based equipment installed and commissioned; and the fate of the baseline equipment.

The 2004 Annual Implementation Programme

83. The Government of China has also submitted to the 41st Meeting of the Executive Committee the 2004 Annual Implementation Programme. It is proposed to phase out 550 ODP tonnes of CFC-113 and 78 ODP tonnes of TCA, contributing to the 2005 consumption control limits.

84. ODS solvents phase-out will be achieved through a combination of ODS Reduction Contracts, the Voucher System for SMEs, agreement for enterprises undertaking direct phase-out and a reimbursement mechanism for enterprises who have initiated and achieved phase-out by themselves. Technical assistance, legislative measures, monitoring and enforcement activities supporting the proposed phase out target are included in the 2004 programme. A summary of the 2004 proposed activities is presented in the following table:

Activities	**ODP tonnes**			
	CFC-113	**TCA**	**CTC**	**No. of enterprises**
Completion of 2002 ODS Reduction Contracts - Delivery of equipment by March 2004; - Installation and commissioning and destruction of baseline equipment at 32 enterprises by June 2004	535.8	43.2	17.94	32
Implementation and partial completion of 2003 ODS Reduction Contracts (12), Voucher System (78 SMEs), Self Gradual Phase-out (143) and Reimbursement Mechanism - Initiate equipment procurement, delivery, installation, commissioning and destruction of baseline equipment at 12 enterprises under 2003 ODS Reduction Contract; - Phase-out activities completed at 78 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	258.4	40.4	-	233

Activities	ODP tonnes			
	CFC-113	TCA	CTC	No. of enterprises
Initiate 2004 phase-out activities - Identify all large and medium size consumers for CFC-113 and TCA phase-out, through ODS Reduction Contracts, Voucher System or Retroactive Reimbursement mechanism; - Continue to identify enterprises for gradual self phase-out and finalize agreement	-	-	-	-
Total phase-out to be achieved in 2004	**794.2**	**83.6**	**17.94**	
Phase-out targets in 2004	**550.0**	**78.0**	**0.0**	

2004 budget

85. The total amount requested for the 2004 programme is US $5,555,000 plus US $416,625 as support costs for UNDP, with the following breakdown, which will be requested at the 42nd Meeting of the Executive Committee:

Activity	Cost (US $)
Enterprise-level phase-out activities - ODS Reduction Contracts ($1,000,000) - Voucher System ($2,000,000) - Reimbursement and Gradual Self Phase-out ($1,000,000)	4,000,000
Technical Assistance - National Training Centre ($500,000) - Strengthening of ATSS ($50,000) - 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) - Study substitute technology for medical equipment ($150,000) - Standards and Technical Specifications ($100,000) - Training and Audit on CTC consumption and performance audit ($80,000) - International and national technical experts ($100,000)	1,555,000
TOTAL	**5,555,000**

Performance indicators

86. The performance indicators for the 2004 annual programme are presented in the following table:

Solvent sub-sector	Start of programme (ODP tonnes)	Reduction target (ODP tonnes)	End of programme (ODP tonnes)	Indicators to be reported on in semi-annual progress reports. Verified in annual performance audits
Phase-out achieved: CFC-113 TCA CTC		 794.2 83.6 17.94		From completion of 2002 and 2003 ODS Reduction Contracts; Retroactive Reimbursement and Gradual Self Phase-out mechanisms in 2004
Phase-out targets: CFC-113 TCA CTC		 550 78 0		Reduction achieved through completion of 2002 and 2003 ODS Reduction Contracts and vouchers, as well as retroactive reimbursement and gradual self phase-out mechanism in 2004.
2004 phase-out activities: - ODS Reduction Contracts, - Voucher System - Retroactive reimbursement - Gradual self phase-out		 CFC-113: 550 TCA: 85		Enterprises identified and selected for phase-out activities to achieve phase-out by 1/1/2006
Policy and TA Initiatives				
Initiatives	**Indicators to be reported on in semi-annual progress reports**			
1. Identification of enterprises through direct contact and negotiation	- Enterprises identified and selected for phase-out activities - ODS Reduction Contracts signed, vouchers issued and reimbursement processed			
2. Strengthen ATSS	National institutes and experts trained to provide appropriate technical assistance to enterprises participate in phase-out activities			
3. Public Awareness	- Promote Solvent Sector Plan and phase-out schedule in newspapers. - Invite ODS solvent users and promote the enterprises to participate in the phase-out activities.			
4. Support usage of alternative solvents	Provide personal training courses to ODS users, EPBs and local line ministries			
5. Study on essential use	Contract signed and draft report prepared for review			
6. Programme against illegal production, import and consumption	Contract signed, activities initiated for the first of the 3-year programme, local authorities trained			
7. Study on substitute for medical equipment	Contract signed, draft report prepared for review			
8. Establishment of standards and technical specifications	Draft standards for different components reviewed, discussed and revised			

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

ODS phase out targets

87. The Secretariat noted that that the progress report as submitted, appeared to indicated a shortfall of 38.1 ODP tonnes of CFC-113 and 17.9 ODP tonnes of TCA with respect to the total phase-out required to meet the cumulative reductions specified in the period 2000-2004, consistent with the 2004 consumption limits. UNDP informed the Secretariat that the table provided with the progress report and programme for 2004 did not include the phase-out achieved through completion of projects approved prior to the sector plan (345.4 ODP tonnes of CFC-113 and 49.1 ODP tonnes of TCA). When these were added the actual phase-out exceeded that required.

88. In relation to consumption of CTC in the solvent sector in 2002, indicated as being "less than" 110 ODP tonnes, UNDP advised that through a 2002 audit undertaken by the independent auditing firm, Zhong Tian Hua Zheng Certified Public Accountants Co. Ltd., it was verified that in 2000-2001, 13 of the 34 enterprises identified in the survey undertaken for the preparation of the Plan, had stopped the of use CTC as cleaning solvents. For the remaining 21 enterprises, an additional independent audit was carried out in October 2003 by the same auditing firm. The audit confirmed that the consumption of CTC as cleaning solvent in 2002 at these 21 enterprises was verified at 10.5 ODP tonnes. As the 34 identified enterprises consumed 38.3 per cent of the total consumption of CTC, the national consumption of CTC in 2002 was estimated at 27.4 ODP tonnes, which is significantly below the control target of 110 ODP tonnes.

89. For each of the ODS solvents, UNDP provided the following data comparing the annual phase-out targets required in the Agreement and the actual consumption level reported by China:

Year		ODP tonnes		
		CFC-113	TCA	CTC
2000	Control target	3,300.0	621.0	110.0
	Actual level	3,246.0	577.0	110.0
2001	Control target	2,700.0	613.0	110.0
	Actual level	2,674.4	457.5	110.0
2002	Control target	2,200.0	605.0	110.0
	Actual level	2,192.3	380.6	<110.0

Use of CFC-113 as feedstock

90. UNDP reported that the consumption of CFC-113 for exempted feedstock uses was nil. Noting that in its 2002 progress report UNDP had reported a substantial consumption of CFC-113 for use in production of CFC-114 and CFC-115, the Secretariat sought clarification about consumption for this purpose in 2002. UNDP advised that China had consumed 211 ODP tonnes of CFC-113 in 2002 "for chemical conversion" in production of CFC-114 and 115. The limit in the agreement for use of CFC-113 as a feedstock is 10 ODP tonnes. In its 2002 progress report

UNDP advised the Secretariat that "in future years China will limit production of CFC-113 to the maximum level just sufficient to cover the limits in the agreement for solvent feedstock and process agent uses". The Secretariat also notes that in 2001 and 2002 the Executive Committee approved relevant tranches of the solvent sector plan even though China was reporting CFC-113 use above 10 ODP tonnes for production of CFC-114 and 115.

New implementation modalities

91. The Secretariat sought additional explanation of the new implementation modalities, including the modality for the 143 enterprises that will take part in a gradual phase-out programme through a quota system and for which an agreement has been already signed, and the modality for retroactive re-imbursement of additional enterprises that will phase out at their own initiative. UNDP advised that in the latter case, retroactive reimbursement will be provided to those enterprises that would phase out the use of ODS solvents at their own costs. In the other case, an agreement will be signed with enterprises who commit to a gradual reduction in ODS consumption over a number of years enterprises. These enterprises will be reimbursed upon completion of annual activities on the basis of the aggregate reduction achieved each year.

Performance indicators and budget breakdown

92. Subsequent to submission of the original progress report, and following discussions with the Secretariat, UNDP provided an achievement report against the performance indicators for the 2003 programme (showing satisfactory performance), and tables showing performance indicators for the 2004 programme and a breakdown of the proposed 2004 budget. The 2004 tables were included in the project description above. The table on performance in 2003 appears below.

2003 Implementation Programme - Performance Indicators

Solvent Phase out Targets					
Solvent Sub-sector	**Start of programme (ODP MT)**	**Reduction Target (ODP MT)**	**End of programme (ODP MT)**	**Indicators to be reported on in Semi-Annual Progress Reports. Verified in Annual Performance Audits**	**Achievement**
CFC-113 Imports / Exports	0	0	0	Ban on exports and imports effective January 1, 2001	Promulgated 18 January 2001, effective 1 February 2001
Phase-out achieved: CFC-113 TCA CTC		 541.6 + 536 10.6 + 43.2 17.6 + 6.6		From completion of 2001 and 2002 ODS Reduction Contracts	- 38.4 ODP MT of CFC-113 from 2000 contracts and 541.6 ODP MT of CFC-113 from 2001 contracts phased out. - 0.4 ODP MT of TCA from 2000 contract and 10.6 ODP MT of TCA from 2001 contracts phased out Due to SARS, phase out of 535.82 ODP MT of CFC-113, 43.2 ODP MT of TCA and 17.94 ODP MT of CTC under the 2002 ODS Reduction Contracts will be delayed to June 2004. - 2002 consumption and phase out targets on CFC-113, TCA and CTC met - ODS Reduction Contracts signed, vouchers issued and agreements on gradual phase out signed to meet 2004 phase out targets
Phase-out targets: CFC-113 TCA CTC		 600 78 55			
Number of ODS Reduction Contracts Voucher Redeem		L/M 20-40 SMEs 100		Number of contract signed Number of voucher redeemed	- 12 ODS Reduction Contracts identified to phase out 223 ODP MT of CFC-113, 1.5 ODP MT of TCA - Voucher for 78 SMEs to phase out 170.04 ODP MT of CFC-113, 11.5 ODP MT of TCA - Agreement signed for gradual phase-out. Reduction in consumption in 2004 is 109.9 ODP MT of CFC-113 and 28.2 ODP MT of TCA

Policy and TA Initiatives		
Initiatives	Indicators to be reported on in semi-annual progress reports	Achievements
1. Bidding System and Direct Negotiation	- Enterprises trained for bid preparation for 2003 bidding - Bidding procedures completed - Winning enterprises for 2003 ODS Reduction Contracts selected - Vouchers issued to SMEs	- Training conducted June 2003 for national experts, intermediate execution agents (IEAs) and candidate enterprises - 12 enterprises to sign ODS Reduction Contracts to phase out 223 ODP MT CFC-113, 1.5 ODP MT TCA. - 78 SMEs identified to participate in Voucher System to phase-out 170.04 ODP MT CFC-113, 11.5 ODP MT TCA - Agreements signed for gradual phase-out, to reduce 109.9 ODP MT CFC-113, 28.2 ODP MT TCA by 2004 - Performance and financial audits carried out in Aug. 2002
2. Public Awareness	- Introduce Solvent Sector Plan and phase-out schedule in newspapers. - Invite ODS solvent users to take part in the bidding and promote the enterprises to participate in the phase-out actions.	- Mass media promotions carried out in August 2000. Periodic articles published in electronic sector's regular publications and countrywide newspapers and magazines. - Website under design to promote OD solvent phase-out. - An 2003 International Cleaning –Tech Forum and Exhibit was organized 20-22 November 2003 that with participation of 30 national and 50 international experts, 70 domestic and international equipment manufacturers and chemical distributors at the Forum and Exhibition.
3. Training	Provide personal training courses to ODS users, EPBs and local line ministries	Trainings and seminars on ODS phase out conducted during the year.
4. Final Notice on banning use of CTC as cleaning solvent	Promotional campaigns on the ban; Local Electronic Bureaus and EPBs engaged in overseeing ban enforcement.	Circular issued to ban the use of CTC as cleaning solvent that took effect 1 June 2003.
5. Strengthen ATSS	Contracts issued, technical capacity improved, progress report prepared	ATSS strengthened through training programme, professional exchanges.
6. Establishment of standards and technical norms	Contract issued, progress reports prepared, draft standards finalized	- Seminars held to exchange knowledge and experience amongst technical experts - draft standards for some applications prepared for review, with drafting of other components underway

Audit requirements

93. The Secretariat noted that the audit of performance of the 2002 annual programme and of 2002 consumption limits had not yet been undertaken. In this regard, the 2003 progress report cannot be considered as final and approval of the 2004 annual implementation programme is therefore not recommended at this stage.

RECOMMENDATION

94. On the basis of the information provided above, the Executive Committee may wish to consider requesting UNDP to complete the performance auditing requirements of the Agreement and resubmit the 2003 report of progress and the 2004 annual implementation programme to the 42nd Meeting.

SECTOR PLAN FOR PHASE-OUT OF CTC AND PROCESS AGENTS IN THE PEOPLE'S REPUBLIC OF CHINA (PHASE I): 2004 ANNUAL PROGRAMME

Background

95. 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 (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 Meeting in March 2003 the Executive Committee approved the 2003 annual programme at a funding level of US $20 million.

96. The World Bank is now submitting the 2004 annual programme on behalf of the Government of China, noting that approval of the 3rd tranche of funding of US$16 million as well as US $1.2 million in support cost will be sought at the 42nd Meeting. The targets, impact and other key data of the annual programme are presented below together with those of the 2003 annual programme.

Targets and Impact of the 2004 Annual Programme

Consumption	
CTC for 25 PA application	
2003	5,049 ODP tonnes
2004	5,049 ODP tonnes
Impact	0
CFC-113 for solvents	
2003	17.2 ODP tonnes
2004	14 ODP tonnes
Impact	3.2 ODP tonnes
Production	
CTC	
2003	61,514 ODP tonnes
2004	54,857 ODP tonnes
Impact	6,657 ODP tonnes
CFC-113	
2003	17.2 ODP tonnes
2004	14 ODP tonnes
Impact	3.2 ODP tonnes
Total MLF funding approved in principle	US $65 million
Total funding released by Oct. 2003	US $22 million
Level of funding requested	US $16 million

97. The submission of the World Bank starts with a progress report on the implementation of the 2003 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 indicated that it will introduce four policies in 2003 to assist the implementation of the sector plan. A "Circular on Implementing Carbon Tetrachloride (CTC) Production Quota-License System" was to be issued in October 2003; a "Circular on CTC Consumption Quota-License System", issued in May 2003, will control CTC production and consumption with a licensing system and require producing and consuming enterprises to submit quarterly reports to SEPA. The Government issued in April 2003 the "Circular on Control of New Construction or Capacity Expansion of CTC Production Lines" to require new plants co-producing CTC to commit to not using it as ODS or in feedstock applications, and to design and construct CTC disposal facilities or conversion systems. In July the Government issued the "Circular on Management Procedures for Site Supervision of CTC Production Enterprises" to introduce the same peer monitoring system used in the CFC production phase out plan. The monitoring system also includes the CTC co-producers until they have established functioning CTC disposal or conversion facilities. After that these co-producers will only receive random inspections.

98. SEPA signed contracts with four dedicated CTC producers and one distiller to reduce production by 5,951 ODP tonnes in 2003 from their production level of 2001. On the consumption side, SEPA has signed 13 contracts with 12 enterprises to close and dismantle their production using CTC as CR and CP-70 in 2003 and 2004. For the process agent applications of CSM and Ketotifen, SEPA will evaluate technologies for emission control and substitute technologies in 2003 to prepare for implementation in 2005. In response to queries from the Secretariat, the World Bank informed that all PTFE producers will initiate plant modifications to improve CFC-113 recycling in 2003 for completion in 2004. At the same time HCFC-225 and HCFC blends will be tested to replace CFC-113.

99. Under the technical assistance programme, the World Bank submission reports progress on six activities, extension of the management information system to include CTC; training CTC producers and auditors; training of personnel involved in site supervision; study to assist CTC producers to explore new market opportunities. Among the planned activities, two items for exploring substitute technologies for enterprises using CTC process agents were postponed.

100. The 2004 annual programme covers the planned targets and the activities proposed to be undertaken to achieve these targets. On the policy level, the Government plans to introduce a CTC Sales License System in an effort to control illegal consumption. Under the system CTC producers and vendors will be required to report quarterly the names of the CTC end-users, and the quantity and usage of each trade. At the enterprise level, quota will be assigned to producers to the limit of the target set in the Agreement. All those enterprises which opted for closure will complete closure and dismantling in 2004 and those which will convert to substitute technologies will start implementation in 2004 for completion in 2005. Contracts for emission control for CSM manufacturers will be signed and executed by end of 2004. Training is planned for CTC producers, consumers, dealers, and auditors. Daily site supervision of CTC producers will continue and a performance audit by state auditing authority will be conducted in 2004, in addition to the independent verification managed by the World Bank.

101. Table 2 provides targets for the 2004 annual programme and includes data on production, consumption, a comparison of 2003 and 2004 data, the reduction to be realized, the level of funding for each category of activity, monitoring indicators by key actions and dates. Table 3 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 4 gives details on the technical assistance programme in 2004, with funding, action and dates of completion. In summary, of the US $16 million funding for 2004 annual programme, China plans to allocate US $15.2 million to policy and enterprise activities and US $0.8 million to technical assistance. Annex I provides the status of all the CTC producers in China, with the level of production in 2002. Annex II provides a list of CTC consuming enterprises with data on CTC applications, products, annual consumption from 1997-2002.

System for monitoring implementation of the Agreement

102. In Decision 39/46 (c), the Executive Committee requested the Secretariat and the World Bank, together with the Government of China to propose to the 40th Meeting of the Executive Committee a system for monitoring the implementation of the agreement. The World Bank could not complete the action for the 40th Meeting due to the SARS situation in China but has now submitted the proposed system together with the 2004 work programme. The proposal covers monitoring procedure for CTC production, CTC consumption as feedstock for CFC production, CTC consumption as process agents, CFC-113 as process agents, reporting requirements under Article 7 of the Montreal Protocol and country programme implementation. Each procedure consists of two parts, the first part lists the action, the initiator of the action, and the date of completion of the action and part two provides the verification procedure, the actor for the verification, and the date of completion of the procedure. For instance, the action of establishing site supervision arrangement is initiated by SEPA and to be completed by 31 January of each year; and the verification procedure is the review of the terms of reference and is to be undertaken by the World Bank and completed by the end of the preceding year.

103. The system involves multiple partners including SEPA, World Bank, China National Audit Office, enterprises, and the Fund Secretariat.

Comments of the Secretariat

104. The terms of the Agreement between the Executive Committee and the Government of China on the CTC sector plan require the approval of funding at the first Meeting of the Executive Committee in the year of the plan and the independent verification of the achievement of the targets set in the plan for the preceding year. Therefore, the request for funding should be submitted to the 42nd Meeting together with the report on the verification of the 2003 work programme.

105. The Government of China has initiated a series of actions to implement the 2003 annual work programme. On the CTC production side, China intends to use the experience gained in implementing the CFC production phase out plan to control CTC production through production quotas and on-site supervision. However the increasing number of CTC co-producers presents a

challenge and the high production level of CTC in 2002 is a source of concern although 2002 is not a year under control by the Agreement. On the consumption side, it is more difficult to achieve the reductions by a combination of emission control, plant closures and conversions. The test of the effectiveness of the planned actions will come when the World Bank submits the verification of the performance of the 2003 work programme at the 42nd meeting.

106. The 2004 work programme will be a crucial one since its successful implementation will enable China to achieve the compliance requirement under the Montreal Protocol for CTC in 2005. Therefore the 2004 programme should provide adequate detail about the actions to be taken, including the number of CTC producers to be closed, the number of CTC consuming enterprises to be closed, converted to substitute technologies and subjected to emission control, as well as a break-down of the CTC reduction associated to each category. This information is currently not included.

107. The proposed monitoring system should provide indicators for verification of achievement of the prescribed targets. For example, CTC production could be checked from production inputs (material balance) and validated from distribution to end-users, like feedstock and others. For CTC consumption, indicators will have to be developed for closure, conversion and emission reduction. These are not currently available.

Recommendations

108. The Secretariat recommends that the Executive Committee may wish to request the World Bank:

(a) To submit to the 42nd Meeting a revised 2004 work programme together with the verification report of the 2003 annual work programme. The revised 2004 work programme should address specifically:

(i) Information on fund disbursement; and

(ii) Greater details on the 2004 work programme, such as the number of CTC producers to be closed, the number of CTC consuming enterprises to be closed, converted to substitute technologies and subjected to emission control, as well as a break-down of the CTC reduction associated to each category.

(b) To submit to the 42nd Meeting a revised monitoring system for implementing the CTC sector plan to include indicators for verification the achievement of targets for CTC production and consumption in the proposed monitoring system. The World Bank should coordinate the methodology with the similar request for the CTC sector plan in India, taking into account the differences in technologies applied in the industries in the two countries.

SECTOR PLAN FOR CFC PRODUCTION SECTOR PHASE-OUT: 2004 ANNUAL PROGRAMME

Project Description

109. 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 year 2004 annual programme for the implementation of the Agreement (attached), with the understanding that approval of funding for the 2004 programme will be requested at the first meeting in that year based on satisfactory performance of the programme in 2003, as per the Agreement. The table below sums up the key data of the China CFC production sector plan and those of the 2003 and 2004 work programmes.

Country	Peoples Republic of China
Project title:	Sector Plan for CFC production phase-out in China
Year of plan	2004
# of years completed	4
# of years remaining under the plan	6
Ceiling for 2003 CFC production (in ODP tons), 2003 Annual Plan	30,000 ODP tonnes
Ceiling for 2004 CFC Production (in ODP tons), 2004 Annual Plan	25,300 ODP tonnes
Total funding approved in principle for the CFC sector plan	$150 million
Total funding released as of Oct. 2003	$65 million
Total funding disbursed from World Bank to China (as of Oct. 2003)	$56.6 million
Level of funding requested for 2004 Annual Plan	$13 million

110. 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 2003 annual programme as of June 2003. The following are the most salient features of the summary report:

(i) Implementation of the China Production Sector Phase-Out Agreement between 1999 to 2003 has reduced the number of CFC-producing plants from 37 in 1999 to 6 in 2003, and the CFC production from 50,351 ODP tonnes in 1999 to 30,000 ODP tonnes in 2003. The first six months of CFC production in 2003 was reported at 16,162 ODP tonnes, or 54 percent of the allowable quota issued by the Government. As distinct from the previous annual programmes, the current year programme has attempted to establish linkages with other related sector plans under implementation in China. The Government will issue production quotas to ensure that the ceiling on overall national CFC-11 consumption for 2003 and 2004 set in the Agreement for CFC Phase out in Polyurethane Foam Sector in China will be met. China will also reduce the production of CFC-13 in 2003 from the baseline of 26.7 ODP tonnes by 20% to 21 ODP tonnes 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. Implementation of the 2003 annual programme continues to rely on a combination of administrative measures and the tradable production quotas. The reduced number of producers and the continued demand in the market provide less of an incentive to the remaining producing plants to close production. Annex 1 includes 7 tables which provides a brief history of the results of each of the 5 annual programmes implemented to date, with names, CFC product, capacity and the status of the plant (closed or producing) in 2003. The result of implementing the 2003 programme will be verified by the World Bank and reported to the first meeting of the Executive Committee in 2004.

(ii) The progress report on the 2003 annual programme continues to list the policy controls that have been enacted by the Government of China, such as 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, Circular on Strengthening Management of ODS Import and Export issued in April 2000, and Circular on Control Mechanism of Import and Export of ODS" promulgated in December 1999. In 2003 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 27 activities were initiated out of 35 planned. Apart from the traditional activities such as training of custom officers, and personnel to conduct performance audit, the submission reports on the start-up work on formulating the China Country Compliance Plan in order to meet the challenges in the years ahead.

(b) Part II of the World Bank's submission is a description of the components of the 2004 programme, which includes policy actions, production reduction to be achieved by producing enterprises, and technical assistance activities. The key component, the production reduction would require a phase out of 4,700 ODP tonnes in 2004 to meet the Agreement target that the national CFC production should be reduced from 30,000 ODP tonnes in 2003 to 25,300 ODP tonnes in 2004. China will continue to implement the reductions through a combination of bidding, allocation of production quota and administrative measures. The Government will issue in 2004 Management Regulations on Sales Control of CFCs to request all CFC producers and sellers to apply and obtain selling permit. It is intended to control illegal trade of CFCs. Table 1 provides in tabular form the targets, performance indicators and key dates of completion for the actions planned.

111. The submission of the World Bank includes an updated list of 15 HCFC producing enterprises in China as per the Agreement. Three of the enterprises from the list in the 2003 annual programme, namely Guangdong Haying Chemical Plant, Shandong Fire Extinguishing Agent Plant Shogun Division and Sichuan Zinging Refrigeration Plant closed their production and dismantled the equipment.

112. US $13 million for implementation of the year 2004 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

113. Implementation of the 2003 annual work programme as of June of the year was proceeding as planned and CFC production at the middle of the year was reported at 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 2003 work programme would be available when an independent verification of the programme is submitted to the 42nd Meeting in 2004.

114. The Government of China and the World Bank started to establish linkages between the various sector phase-out plans under implementation in China in the 2003 annual work programme. This would enable China to comply with the control schedule of the Montreal Protocol for CFC-13 and meet the relevant targets set in the polyurethane foam sector plan and the CTC sector plan. The Secretariat wishes to commend China and the World Bank for this effort.

115. The targets for the 2004 work programme were consistent with the Agreement and the activities were well planned and completion dates were reasonable. The sales permit system to be introduced by the Government in 2004 will be an important measure to control illegal trade of CFCs as the CFC closure project has reduced the CFC supply on the market and could potentially give rise to illegal transactions.

RECOMMENDATIONS

116. The Secretariat recommends that the Executive Committee approve the 2004 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 42nd Meeting together with a verification report on the implementation of the 2003 annual programme.

PROJECT EVALUATION SHEET
CHINA

SECTOR: Refrigeration ODS use in sector (2002): 10,845.43 ODP tonnes

Sub-sector cost-effectiveness thresholds: N/A

Project Titles:

(a) Sector plan CFC final phase-out domestic refrigeration and domestic refrigeration compressors (second tranche)

Project Data	**Multiple**
	Sector Plan
Enterprise consumption (ODP tonnes)	3,508.7*
Project impact (ODP tonnes)	1,099**
Project duration (months)	48
Initial amount requested (US $)	2,171,539
Final project cost (US $):	
Incremental capital cost (a)	
Contingency cost (b)	
Incremental operating cost (c)	
Total project cost (a+b+c)	2,171,539
Local ownership (%)	
Export component (%)	
Amount requested for second tranche (US $)	2,171,539
Cost effectiveness (US $/kg.)	
Counterpart funding confirmed?	
National coordinating agency	State Environmental Protection Administration (SEPA)
Implementing agency	UNIDO

Secretariat's Recommendations	
Amount recommended (US $)	
Project impact (ODP tonnes)	
Cost effectiveness (US $/kg)	
Implementing agency support cost (US $)	
Total cost to Multilateral Fund (US $)	

* Remaining national aggregate consumption in China.

** Total phase-out target of the sector plan: remaining consumption in the domestic refrigeration sector.

PROJECT DESCRIPTION

117. On behalf of the Government of China, UNIDO has submitted for consideration by the Executive Committee a progress report on activities undertaken in 2003 and a work plan for the years 2003 – 2006 for the Sector Plan CFC Final Phase-out: Domestic Refrigeration and Refrigeration Compressors in China. UNIDO has requested approval of the second tranche of US $2,171,539, being the balance of the total funding level for the project. The Progress Report and the Work Plan for 2003 – 2006 are attached to this document.

118. The sector plan was approved in principle at the 38th Meeting of the Executive Committee at a total cost of US $7,360,530 (Decision 38/45).

119. The Executive Committee also approved the amount of US $1,788,991 plus support cost of US $161,009 to be offset against the bilateral contribution of Italy for 2002, and US $3,400,000 plus support cost of US $299,200 for UNIDO, for implementation of the first tranche of the sector plan, *inter alia*, subject to the following conditions:

(a) The Government of China commits to completely phase out 1,099 ODP tonnes of CFC consumption in the refrigeration (manufacturing) sector and permanently sustain the reduction of 1,099 ODP tonnes from its national aggregate consumption of 3,508.7 ODP tonnes according to the agreed phase-out schedule.

(b) The Executive Committee will endeavour to provide the second tranche of US $2,171,539 plus agency support cost of US $192,239 at the last meeting of the Executive Committee in 2003.

(c) UNIDO as the lead implementing agency will be responsible for:

- Providing in 2003 a work programme for the period 2004, 2005 and 2006;
- Reporting annually on implementation and providing verification of CFC phase-out in the sub-sector according to the approved schedule.

120. The Executive Committee also approved the following CFC phase-out schedule:

Year	2004	2005	2006	Total
Annual CFC phase-out target (ODP tonnes) from Italian Bilateral Portion	0	181	0	181
Annual CFC phase-out target (ODP tonnes) from UNIDO Portion	140	169	609	918
Total	140	350	609	1,099

121. At its 39th Meeting, the Executive Committee cancelled two projects in the domestic refrigeration sector (Bole project) and compressor sector (Hangli project) and requested UNIDO to investigate the possibility of redeploying the equipment from those cancelled projects to the sector plan, and to adjust the future work programmes in the light of the redeployment as part of UNIDO's request for the second tranche of the sector plan (Decision 39/14 (f)). The Executive Committee also noted in its decision that that US $1,145,659 of the net US $1,469,029 approved

for the Bole project had been disbursed up to 2002 with 132 ODP tonnes phased out and that US $674,109 of the net US $861,000 approved for the Hangli project had been disbursed up to 2002 with no direct phase-out of ODS consumption, since this was a compressor project.

122. In the 2003 programme report, UNIDO has indicated that the required institutional arrangements have been undertaken by the State Environmental Protection Administration (SEPA) in consultation with UNIDO. A contract between UNIDO and SEPA was negotiated and signed in July 2003. Activities on the identification of the potential beneficiaries have been completed and the draft project documents have been prepared for individual enterprises involved.

123. The progress report includes information on activities under bilateral assistance provided by the Government of Italy, which is an integral part of the Plan.

124. As per Decision 39/14(f), UNIDO reports that it investigated the possibility of redeployment the equipment from enterprises under two cancelled projects to enterprises involved in the Sector Plan. It was found that the redeployment is not technically feasible and the actual balance to be accrued from termination of the contracts along with the current balance could be returned to the Multilateral Fund. As a result of its investigation, UNIDO concluded that no funds could be deducted from the second tranche of the total project budget approved in principle for the Sector Plan.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

125. The Secretariat observed delays in implementation of several activities in 2003 against the milestones established in the work programme. UNIDO explained that the main reason for the delays was the severe acute respiratory syndrome (SARS) problem and travel restrictions imposed at that time. The delayed activities will be accomplished by the end of 2003. On this basis, the report indicates satisfactory progress with the project.

126. The Secretariat discussed extensively with UNIDO the logistical and technical issues involved in potential redeployment of equipment from the two cancelled projects and re-use of this equipment by beneficiary enterprises in China under the Sector Plan as per Decision 39/14(f). Notwithstanding UNIDO's initial report on the issue, the Secretariat considered that a more thorough examination of the specifications and an evaluation of the condition of the equipment stored at the closed enterprises are required before it can be concluded that redeployment of the equipment is not possible. However, in order to ensure the continuity of the implementation of the Sector Plan, partial disbursement of the total requested amount of US $2,171,539 could be approved at the 41st Meeting.

RECOMMENDATIONS

127. The Executive Committee may wish to consider:

(a) Approving the second funding tranche at the level of US $2,171,539 and associated agency support cost of US $192,239;

(b) Requesting the Secretariat to disburse US $1,085,770 plus US $96,120 in support costs, being the first 50% of the approved amount, namely US $2,171,539, pending completion by the Secretariat and UNIDO of a further examination of the possibility of redeployment of equipment from two cancelled projects to the Sector Plan, if necessary, involving independent experts to assess the condition and the value of the equipment;

(c) To authorize the Secretariat to disburse the balance to UNIDO, upon completion of the examination, after taking into account the value from re-use of some or all of the equipment;

(d) To request the Secretariat to report to the Executive Committee on the final disbursement and the return of any unallocated funding.

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CFC-11 PHASEOUT IN THE POLYURETHANE CHINA FOAM SECTOR

2004 ANNUAL PROGRAM

MP PROJECT MANAGEMENT OFFICE
STATE ENVIRONMENTAL PROTECTION AGENCY, CHINA

AND

THE WORLD BANK

September 30, 2003

Data Sheet

Country	Peoples Republic of China
Project title:	Sector Plan for phasing out the use of CFC in the PU Foam Sector
Year of plan	2004
# of years completed	2
# of years remaining under the plan	6
Ceiling for 2003 national CFC consumption (in ODP tons), 2003 Annual Plan	15,500 ODP tonnes
Ceiling for 2004 national CFC consumption (in ODP tons), 2004 Annual Plan	13,100 ODP tonnes
Ceiling for 2003 CFC consumption in the PU foam sector	13,830 ODP tones
Ceiling for 2004 CFC consumption in the PU sector	11,666 ODP tones
Total funding approved in principle for the CFC sector plan	US$53.9 million
Total funding released as of Oct. 2003	US$22.57 million
Level of funding requested for 2004 Annual Plan	US$10.903 million

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

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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 **third tranche of US$10.903 million** for the implementation of the 2004 annual program. With this funding, China's CFC-11 consumption in the PU foam sector will be limited to a **maximum of 11,666 ODP MT** by the end of 2004. Details of the 2004 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 2002

*3. **China's annual national CFC-11 consumption and the CFC-11 consumption in PU foam sector in the year of 2002.*** China's national CFC-11 consumption in 2002 was 17,187 tonnes, CFC-11 consumption in PU foam sector was 14,100 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 2003 Annual Program

Phaseout Targets

4. By the end of 2003, national CFC-11 consumption target will be limited to 15,500 MT through the control of CFC-11 production in the CFC production sector being implemented, and the control of net import. At the same time, CFC-11 consumption in the PU foam sector will not exceed 13,830 MT through the completion of individual investment projects that were approved by ExCom and funded by the MLF in the past four to five years. For 2003, the CFC-11 phaseout targets in PU foam sector is 2,500 MT. All contracts for these 2,500 MT of CFC-11 will be signed in 2003, 50% of which will be phased out by the end of 2005 and another 50% by the end of 2006. 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.

Policy and Government Actions

5. 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 training programs and sino-PU website. The sino-PU website has been operating favorably since its establishment and received more than 22,000 visits.

b. ***Preparation for establishing a quota and license system of ODS consumption and trade.*** Illegal activities of ODS production, consumption, and trade are the main risks to the sustainable Ozone Action in China. The government decided to establish a quota and license system for ODS consumption and trade to control illegal ODS consumption and trade. This system will coordinate with the existing quota and license systems of ODS production and export &import. Related documents and approval procedures for the system are under proceeding.

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 are also provided training on project management. These kinds of training will be repeated in the future years if necessary.

Enterprise Phaseout Activities

6. As of June 2003, six conversion contracts have been signed, accounting for a total of 5063 ODP tons of CFC-11 to be phased out. (See Annex 1 table 1.1)

7. The 2002 annual program comprised three restructuring projects: Chengdu Jinjiang, Henan Xinyuan, and Zhejiang Chunhui. The Chengdu Project will phaseout 552 MT of CFC-11 in seven enterprises, the Henan Project will phaseout 636 MT of CFC-11 in eight enterprises, and the Chunhui Project will phaseout 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. 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 2003 Annual Program, the annual consumption of CFC-11 in PU foam sector needs to be reduced from 14,143 ODP MT to 13,830 ODP MT, the phaseout target of CFC-11 consumption should be 2,500 ODP MT. Three restructuring project contracts were signed in Jan. 2003, including Lanzhou Huayu, Shaoxing Weike, and Nantong Xinyuan. The Lanzhou Project will phaseout 1,075.44 MT of CFC-11 in 19 enterprises, the Shaoxing Project will phaseout 997.75 MT of CFC-11 in five enterprises, and the Nantong Project will phaseout 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. 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.

9. As indicated above, the implementation of 2002 annual program has been audited by the China National Audit Office.

10. **World Bank Verification of CFC-11 Consumption in Signed Reduction Contracts (Annex 2).** In August 2003, the Bank has verified and confirmed that CFC-11 consumption in 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 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. Fifteen technical assistance activities have so far been planned under 2002 and 2003 annual programs, of which seven have been completed and eight 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 status of the 2003 technical assistance activities is summarized as follows:

a. ***F-03-TA1 – Training of personnel in implementation of phaseout activities.*** The training objectives are to: (i) promote the foam sector plan to PU enterprises; (ii) familiarize enterprises with the application and implementation process, and encourage enterprises to participate; (iii) familiarize selected experts on the process and the requirements of the sector plan; and (iv) train enterprises included in the annual program so that the enterprises understand implementation schedule and their responsibilities; and (v) improve management capability of ozone unit and DIA staff. There will be four workshops to be organized for staff in the foam team in the ozone unit, local experts, prospective beneficiaries in the 2003 and 2004 annual programs, the DIA, procurement agency, general contractors, and enterprises that have signed reduction contracts. It is planned that one training workshop will be conducted by the end of 2003, the others will be done in 2004.

b. ***F-03-TA2 – PU foam products standard formulation and revision (Phase I).*** A TA of Preparation for the Revision of Existing Standard of PU foam was conducted under the 2002 annual program. Based on the action plan proposed by that TA, six relevant standards were expected to be formulated or revised under the 2003 annual program, including the following:

   i. Formulation of the cellular plastics, spray-applied rigid polyurethane foam for thermal insulation of buildings—specification,
   ii. Formulation of the flexible cellular polymeric materials—Determination of fatigue by constant-load pounding,
   iii. Formulation of the rigid cellular plastics—Determination of water absorption (mass),
   iv. Revision of the cellular plastics—Tear resistance test for flexible materials,
   v. Revision of the Polymeric materials, cellular flexible—Determination of hardness (indentation technique), and
   vi. Revision of the rigid cellular plastics—Determination of water absorption (volume).

c. ***F-03-TA3 – The 2002 performance audit.*** A Performance audit is required under the foam sector plan to be carried out by the China National Audit Office (CNAO). Because of SARS, the 2002 performance audit was delayed to August 2003 and the final audit report was submitted to the Bank in September 2003.

d. ***F-03-TA4 – Website improvement and management.*** The website established by the foam working group under a 2002 TA project has been operating smoothly. It has played an important role in (1) raising public awareness of the basic knowledge of protecting the Ozone Layer, the Montreal Protocol, the sector plan, and government policies relevant to phase-out ODS, (2) motivating enterprises to participate in ODS phaseout projects, and (3) providing information on the development of the PU industry and PU technology, the status of phase out projects, and the latest procurement information. This TA is for the

maintenance and update of the website from October 2003 to October 2005. The TOR has been approved by the Bank. The recruitment of IT staff is underway.

e. ***F-03-TA5 -- Manual on substitute technology in the PU foam Sector.*** The objective of this project is to (1) to review the development of the substitution technology in the past ten years, (2) to analyze application experience, and (3) to find out existing problems and provide suggestions on resolutions. The TOR has been approved by the Bank. A consultant firm will be selected through bidding.

f. ***F-03-TA6 -- Consultant services.*** Three groups of local consultants have been recruited under the 2002 annual program to provide technical assistances for enterprises. Consultant services have been proved very useful to the implementation of the foam sector plan and will be continued under the 2003 annual program.

13. The above TA activities are summarized in the Table 2 below.

Table 2. 2003 Annual Program Technical Assistance Activities

(Amount in US$ million)

Technical Assistance Activities (all TORs have been agreed with the Bank)				
TA#	Activities	Funding[1/] (US$ Million)	Performance Indicator	Key Dates
F-03-TA1	Training of personnel involved in implementation of phaseout activities	0.06	1. Conduct all training workshops	1. Throughout 2003/2004
F-03-TA2	PU foam products standard formulation and revision (Phase I)	0.04	1. Recruitment of consultant firm 2. Review and formulate standard 3.Revised and formulated standards completed	1. 4Q2003 2. 1Q-3Q2004 3. 4Q2004
F-03-TA3	2002 performance audit	0.06[2/]	1. Audit report completed	1. 3Q 2003
F-03-TA4	Website improvement and management	0.04	1. Recruitment of individual consultants 2. Website management & improvement 3. final report	1. 4Q2003 2. Throughout Oct. 2003 and Oct. 2005 3. Oct. 2005
F-03-TA5	Manual on substitute technology in the PU foam Sector	0.03	1. Recruitment of Consultant firm 2. Final Manual	1. 3Q 2003 2. 2Q2004
F-03-TA6	Consultant services	0.04	1. Recruitment of consultants	1. Throughout 2003/2004
Total		**0.27**		

[1/] These are estimated costs. After bidding for TA contractors and consultants, these costs will be adjusted to reflect contractural amounts for each TA.

[2/] It is increased because the content of this audit is more substantive than the conventional financial audit.

PART B

2004 ANNUAL PROGRAM

Phaseout Objectives

14. The phaseout objectives of the 2004 annual program are to ensure that: (i) the national CFC-11 consumption limit of 13,100 MT will not be exceeded; (ii) the CFC-11 consumption limit of 11,666 MT in PU foam sector will not be exceeded; and (iii) the CFC-11 phaseout target of 2,500 MT in PU foam sector will be met. China is requesting the release of the third annual tranche of US$10.903 million as agreed in the sector plan for phaseout of CFC-11 consumption in the PU foam sector to achieve these objectives. 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 2004

15. ***Policy and government actions.*** In 2004, 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 will remain effective. Continued public awareness activities on the sector phaseout plan will help 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.*** 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, and the Second Group in January 2001. Under this regulation, China has introduced quota and permit requirements exports and imports of CFC-11.

d. ***Consumption control of CFC-11 in other sectors.*** All other sector plans will continue implementation and CFC-11 in those sectors will be controlled.

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 CFC-11 foam enterprises in the use of substitute and understanding of substitute technologies.

g. ***Quota license system for trade and consumption control of ODS.*** The government will establish a quota license system for ODS trade and consumption. The quota license system is supposed to be an effective way to control ODS trade and consumption. The system is also expected to be helpful in collecting ODS data. In addition, they can effectively prevent the converted enterprises from using ODSs again. Each dealer must hold a license to buy and sell ODS. The consumers (exclude individual users and servicing stations) must hold a quota license to buy ODSs from the producers or dealers who have ODS quota and licenses. In foam sector, some CFC-11 consumers, who use CFC-11 as raw materials to produce pre-blended chemicals and sell to foam producers, are not end users of CFC-11. They will be required to hold a trade license to purchase CFC-11 from CFC-11 producers and sell their products to foam producers. The quota license system for ODS trade and consumption is expected to be in place on an experimental basis in the beginning of 2004.

16. **Enterprise activities.** SEPA will identify PU foam enterprises with total CFC-11 consumption amounting to 2,500 MT. A minimum of 50% of the reduction contracts are expected to be signed by the mid-2004, and another 50% to be signed not later than by the end of 2004. Based on the current preparation status, SEPA expects three to four large regional projects to be included in the 2004 annual program.

17. **Technical assistance activities.** The following activities are proposed for 2004:

a. ***F-04-TA1-Training of personnel in implementation of phaseout activities.*** Training for concerned stakeholders has been proved very important for the implementation of the foam sector phaseout plan according to the past two-year's experience. Due to staff movement and new enterprises involved, training in 2004 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.

b. ***F-04-TA2-PU foam products standard formulation and revision (Phase II).*** According to the study results of the TA project in 2002, a series of technical standards were identified for revision and new standards need to be formulated. Six relevant standards are going to be revised and formulated in 2003. Another several standards will be revised and formulated in 2004. The formulation and revision of foam products standards will last until 2007.

c. ***F-04-TA3-The 2003 performance audit.*** Since the yearly performance audit is a requirement of implementing the Sector Plan, it will continue to be done in 2004. The audit of 2003 AP will be carried out in the second quarter of 2004 and completed by the end of June 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 be to 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.

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.

f. ***F-04-TA6- Consultant services.*** Consultant services will be continued to help the Sector Plan implementation in 2004.

18. The above policy and government actions, enterprise-level activities and technical assistance activities are summarized in Table 3 below.

Table 3: 2004 Annual Program

(Amount in US$ Million)

CFC 11 control targets			
Control targets in 2004	**CFC 11 in MT ODP**	**Performance Indicators**	**Key Dates**
National CFC 11 consumption limit	13,100	1. Government confirms that the two CFC-11 consumption targets for 2003 are met. 2. ODS reduction contracts amounting to at least 1,250 MT of CFC11 in the 2004 annual program to be signed before mid-2004. 3. Implementation of TA activities to help phaseout.	1. June 2004 2. June 2004 3. Throughout the year
CFC 11 consumption limit in PU sector	11,666		
CFC 11 phaseout targets in PU foam sector	2,500		

Policy Measures			
Measures	**Funding**	**Performance Indicators**	**Key Dates**
1. Ban on new construction of CFC 11 foam production	Incl .in training TA	1. Training workshops to be held for local government officers and all stakeholders	1. Throughout the year
2. Tradable production quota for CFC producers	n.a.	1. Establish 2004 annual CFC 11 production quota 2. Issue annual production quota to CFC 11 producers for 2004	1.Nov. 2003 2.Apr. 2004
3. Import/export trade management	n.a.	1. Implement the import/export trade management mechanism.	1. January 2004-December 2004
4. Trade and consumption license system to control CFC-11	n.a.	1. Trail implement the quota and license system for trade and consumption of CFC-11 in PU foam sector	1. January 2004-December 2004
5. Consumption control of CFC-11in other sectors	n.a.	1 Other CFC-11 consuming sectors will continue implementation as per their sector plans	1. January 2004-December 2004

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 2004 and 2005 annual programs 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 2004 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 3: 2004 Annual Program (cont.')

(Amount in US$ million)

Technical Assistance Activities				
TA#	**Activities**	**Funding[1/] (US$ Million)**	**Performance Indicators**	**Key Dates**
F-04-TA1	Training of Personnel Involved in Implementation of Phaseout Activities	0.04	1. TOR to be agreed with the Bank 2. Conduct all workshops	1. 1Q 2004 2. Throughout 2004
F-04-TA2	Standard Formulation and Revision (Phase II)	0.05	1. TOR to be agreed with the Bank 2. Start process in recruiting a consulting firm 3. Formulation and revision of standards 4. Submit final report	1. 1Q-2Q2004 2. 3Q2004 3. 4Q2004 - 2Q2005 4. 3Q2005
F-04-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, 2004	1. 1Q 2004 2. 1Q 2004 3. 2Q 2004 4. June 30, 2004
F-04-TA4	A Research on Application of 245fa technology	0.04	1. TOR to be agreed with the Bank 2. Start process in recruiting a consulting firm 3. Research 4. Submit final report	1. 1Q 2004 2. 2Q 2004 3. 3Q-4Q 2004 4. 4Q 2004
F-04-TA5	Study Tours	0.04	1. TOR to be agreed with the Bank 2. Take the study tours 3. Submit the reports for the tours	1. 1Q 2004 2. 3Q -4Q 2004 3. 4Q 2004
F-04-TA6	Consultant Services	0.07	1. TOR to be agreed with the Bank 2. Recruitment of consultants to Provide consulting services in 2004	1. 1Q 2004 2. Throughout 2004
Total		**0.31**		
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 and 2003 Annual Programs

Table 1.1: Basic Information on Conversion Projects as of June 30, 2003

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	2/9/02
2. Chengdu Jinjiang	552	Con-F-02-Iv-02	2,166.3	2002	20/8/02
3. Zhejiang Chunhui	1164.98	Con-F-02-Iv-03	5,125.9	2002	27/12/02
4. Lanzhou Huayu	1075.44	Con-F-03-Iv-01	4,664.3	2003	9/1/03
5. Shaoxingshi Weike	997.75	Con-F-03-Iv-02	4,264.22	2003	9/1/03
6. Nantong Xinyuan	648.11	Con-F-03-Iv-03	2,510.93	2003	9/1/03
Total	5063.28		22,173.25		

Table 1.2: Implementing Status of Conversion Projects under 2002 and 2003 Annual Programs

Project Name	CFC Equipment Disposal	CFC Consumption in 2002	New Equipment Procurement	Civil works of Projects	Estimated Completion Date
1. Xinxiang Huojia	Disposal Completed	196	Bid invitation issued	Not started[1]	31/12/04
2. Chengdu Jinjiang	4 foam production lines using CFC-11 disposed	481	Bid invitation issued	Not started	31/12/04
3. Zhejiang Chunhui	CFC equipment in 11 enterprises disposed	852	Bid invitation issued	Not started	31/12/05
4. Lanzhou Huayu	CFC Equipment in 12 Enterprises disposed	1039.3	Bid invitation issued	Not started	31/12/06
5. Shaoxingshi Weike	Disposal Completed	612.5	Bid invitation issued	Not started	31/12/05
6. Nantong Xinyuan	5 foam production lines using CFC-11 disposed	492	Bid invitation issued	Not started	31/12/05

[1] The General Contractors will be responsible for civil works of the projects. The General Contractors will be selected through bidding processes. The bidding document is under preparation.

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

Name of Enterprises	Date of Establishment	CFC-11 Consumption				Verified
		1999	2000	2001	99-01	
9. Pizhou Kesheng Polyurethane Foam Co. Ltd.	1993	50	43.3	34	42.43	Verified
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**	

Annex 3 Technical Assistance Activities, 2002-2003

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	To be completed by Oct. 31, 2003
F-02-TA4	Consultant Service	Individual consultants	To be signed in Sep.2003	2003-12-31	To be completed by Dec. 31, 2003
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	To be completed by Oct. 31, 2003
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	TOR agreed
F-03-TA2	Standard Revision	To be selected through bidding		2005-9-30	TOR agreed
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	TOR agreed
F-03-TA5	Substitute Technology Manual	To be selected through bidding		2004-12-31	TOR agreed
F-03-TA6	Consultant Service	Individual consultants		2004-12-31	TOR agreed

Annex 4: Enterprise list of Conversion Projects under 2002 and 2003 Annual Program

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 2002[2]
1	Huixian Zijinshan Foam Plant	Dec-89	84.3	20
2	Yanshi Foam Plant	Mar-94	86.2	25
3	Shangqiushi Foam Plant	Sep-93	75.3	33
4	Shangqiushi Yongfeng Foam Plant	Apr-95	65.3	18
5	Zhengzhou Development Zone Foam Plant	Dec-94	79.3	60
6	Wuzhi Fuli Foam Plant	Sep-92	73.7	
7	Yiyang jinjiu Foam Plant	Apr-93	85.3	40
8	Luoyang Jinling Foam Plant	Apr-95	87.3	
	Total		**636.7**	**196**

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 2002
1	Duocai Co. Ltd.	Feb-93	76	85
2	Huiyu Co. Ltd.	Mar-94	86	112
3	Hongyang Foam Plant	Apr-94	76	100
4	Liuli Foam Plant	Oct-91	80	114
5	Qianjin Foam Plant	Oct-92	79	
6	Dongzikou Foam Plant	Jun-89	79	
7	Chongqing Jinjiang Foam Plant	Oct-94	76	70
	Total		**552**	**481**

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-11Consumption (MT) Year 2002
1	Wujin Henglin Refrigeration Equipment Plant	Jan-93	33.2	29.92
2	Wujin Luoyang Taihu refrigeration Equipment Plant	Apr-94	24.3	29.01
3	Wujin Youyi Regrigeration	Aug-92	16.58	16.35

[2] The blanks are for either closed factories or factories which do not produce foam any more.

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 2001	CFC-11Consumption (MT) Year 2002
	Equipment Plant			
4	Wujin Huanyu Freezing Equipment Plant	Mar-95	29.2	30.08
5	Wujin Xuelian Freezing Equipment Plant	Apr-94	32.4	31.19
6	Wujin Yuzhou Freezing Equipment Plant	Dec-93	17.5	22.85
7	Wujin Luoyang Dongfang Cold-Storage Factory	Jan-93	26.5	30.77
8	Wujin Daixi Refrigeration Equipment Plant	Dec-91	41.34	37.07
9	Wujin Snowball Refrigeration Equipment Plant	Dec-92	27.3	23.41
10	Wujin Jinggong Refrigeration Equipment Plant	Aug-88	25.8	28.05
11	Wujin Yueqiu Refrigeration Equipment Plant	Jan-93	29.7	26.85
12	Changzhou Snowball Refrigeration Equipment Plant	Apr-94	40.4	39.30
13	Changzhou Lidong Refrigeration Equipment Plant	Mar-94	41.25	42.66
14	Wujin Luoyang Refrigeration Equipment Plant	Mar-92	47	33.47
15	Wujin Hanhyu Refrigeration Equipment Limited Company	May-95	34.8	30.87
16	Wujin Luoyang Metal Material Plant	Sep-93	42	42.21
17	Wujin Huazhong Chemical Equipment Limited Company	Apr-94	33.14	36.83
18	Wujin Luoyang Cold-Storage Factory	Oct-92	33.9	37.95
19	Wujin No.1 Refrigeration Equipment Plant	Jan-92	58.72	49.08
20	Wujin Xinyue Refrigeration Equipment Plant	Oct-92	79.65	53.61
21	Shengzhou Chunlian Refrigeration Equipment Plant	Aug-82	30.63	10.50
22	Shangyu Tianyu Refrigeration Equipment Plant	Jan-95	52.4	12.51
23	Shangyu Southeast Refrigeration Equipment Plant	Jun-93	41.7	8.10
24	Yuyao Moushan Xingsheng Refrigeration Equipment Plant	May-93	41.78	13.05
25	Zhejiang Commercial Machinary Company	Nov-93	21	20.70
26	Hangzhou South Refrigeration	Jul-81	22.4	23.40

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 Consumption (MT) Year 2001	CFC-11Consumption (MT) Year 2002
	Equipment Plant			
27	Shangyu Refrigeration Equipment Plant	Jan-94	40.3	20.40
28	Shaoxing Refrigeration Equipment Plant	Oct-93	110.1	34.50
29	Shanghai Minhang Refrigerator Plant	Mar-90	42.74	20.55
30	Shanghai Lianglun Refrigeration Equipment Plant	Oct-92	24.3	9.30
31	Shanyu LiDong Youlong Equipment Plant	Mar-90	22.95	7.50
	Total		**1164.98**	**852.04**

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

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11Consumption (MT) Average of 99-01	CFC-11 Consumption (MT) in 2002
1	Tongzhou Xianfeng Xinan Polyurethane Foam Plant	May-91	47.5	29
2	Tongzhou Xianfeng Polyurethane Foam Co. Ltd.	Mar-93	81.33	89.5
3	Nantong Haoli Laminating Textile Plant	Aug-92	50.5	37
4	Tongzhou Nanxing Polyurethane Foam Plant	Aug-92	50	31.25
5	Rugao Jinru Polyurethane Foam Co. Ltd.	Jun-94	82.67	77.5
6	Rugao Jixing Polyurethane Foam Co. Ltd.	Sep-93	82.58	69.5
7	Xuzhou Tongshan Polyurethane Foam Plant	Aug-90	78.25	34.5
8	Fengxian Pengya Polyurethane Foam Plant	Apr-95	41.67	22
9	Pizhou Kesheng Polyurethane Foam Co. Ltd.	Dec-93	42.42	38
10	Dafeng Zhongyi Laminating Foam Plant	Dec-86	44.52	34.75
11	Jiangyan Harbor Plastic Foam Plant	Nov-91	46.67	29
	Total		**648.11**	**492**

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 2002
1	Shaoxing Weike Polyurethane Co.,Ltd.	Jan-95	221	242.5
2	Zhejiang New Southeast Limited Company	Jan-94	191.75	80
3	Shaoxing Anti-Corrosion Engineering Company	Jul-89	139	65
4	Shangyu Xingmao Equipment Plant	May-93	256	150
5	Shaoxing Jialong Engineering Company	Apr-88	190	75
	Total		**997.75**	**612.5**

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 2002
1	Lanzhou Huayu Innovation Technoogy Co.,Ltd.	Sep-88	201.35	194.58
2	Lanzhou Xinxin Polyurethane Material plant	Jul-94	64.22	40.74
3	Lanzhou Tianyuan Pipeline Plant	Oct-94	34.18	33
4	Jiayuguan Fuli Foam Plant	Apr-91	48.16	46.54
5	Jiayuguan Hongsheng Building Material Limited Company	Feb-94	37.28	36.03
6	Yinchuan Themal Insulation Material Limited Companuy	May-94	64.28	62.12
7	Yinhcuan Xingyuan Pipeline Plant	Mar-95	35.1	33.92
8	Gansu Zhenhao Trade Limited Company	Jan-93	61.5	59.45
9	Ku'erle Xinying Limited Company	Apr-95	31.38	30.32
10	Lanzhou Xiangyun Goods Limited Company	May-95	22.08	21.34
11	Wulumuqi Haoyu Pipeline Limited Company	Feb-93	69.5	78.58
12	Gansu Wuwei Wanbao Plant	Jul-94	26.24	36.37
13	Gansu Gaotai Hongfa Building Material Limited Company	Mar-95	20.53	38.54

SN	Name of Enterprise	Date of Establishment	Baseline CFC-11 consumption (MT) Year 2001	CFC-11 Consumption (MT) in 2002
14	Kelamayi Xiwang Hi-tech Development Company	Jan-91	56.87	40.5
15	Ningxia Yinchuan Themal Insulation Material Plant	Mar-95	22.93	32.87
16	Xi'an Tongtai Limited Company	Oct-92	22.7	21.5
17	Xi'an Hongxing Limited Company	Jan-91	162.6	108.6
18	Shanxi Sida Engineering Limited Company	Oct-94	71.55	98.7
19	Gansu Polyurethane Research Institute	Jan-92	23	25.6
	Total		**1075.45**	**1039.3**

SECTOR PLAN FOR HALON PHASEOUT IN CHINA

2004 ANNUAL PROGRAM

MP PROJECT MANAGEMENT OFFICE
STATE ENVIRONMENTAL PROTECTION AGENCY, CHINA

AND

THE WORLD BANK

October 21, 2003

Data Sheet

Country	China
Year of plan	2004
# of years completed	6
# of years remaining under the plan	6
Ceiling of Halon 1211 and halon 1301 consumption of the 2003 Annual Plan	Halon 1211: 1,890 MT Halon 1301: 150 MT
Ceiling of Halon 1211 and Halon 1301 consumption 2004 Annual Plan	Halon 1211: 1,890 MT Halon 1301: 150 MT
Ceiling of halon 1211 and halon 1301 production of the 2003 Annual Plan	Halon 1211: 1,990 MT Halon 1301: 600 MT
Ceiling of halon 1211 and halon 1301 Production of 2004 Annual Plan	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 Oct 2003	US$ 46.8 million
Funding requested for the 2004 Annual Plan	US$ 1.2 million

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

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The Halon Sector
2004 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 seventh tranche of US$1.2 million for implementation of the year 2004 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 2004. 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 2004. 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, 13 enterprises have signed contracts to close their extinguisher production, and 39 enterprises have signed contracts to convert their manufacturing lines for fire extinguishers from halon to non-ODS extinguishers. 42 of the 52 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, 4 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. There are currently 20 remaining fire extinguisher manufacturing enterprises and 18 fire extinguishing system enterprises who have not been addressed by the program yet. A total of 41 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. 24 out of these projects have been completed.

3. The national production level of halon 1211 allowed for 2003 is 1,990 MT, a reduction of 664 MT from the allowable production level of 2,654 MT in 2002. 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 2003 is 600 MT, a reduction of 18 MT from 1997 levels. There was no halon 1301 production in 2002. 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 significant 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 2001 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		1,890		600		150	
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.

[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

1998-2002 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 and 2002 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 under 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 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. All the closure and conversion activities have been completed on schedule and were commissioned by SEPA and MPS. Details are provided in Annex III.

Technical assistance (TA) aactivities

8. All activities under TA projects of 1998 and 1999 have been completed. The others are under implementation. Details of all these activities are in Annex IV (A-E).

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.

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. The first batch of purchased equipment arrived the site and the last batch will arrive by the end of 2003.

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 installation and commission in April 2003.

13. ***Plant-protein based foam.*** 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 April 2000. The project has been completed by December 2001.

14. ***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.

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

2003 Annual Program

15. ***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.

16. ***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

17. ***Closure of halon production.*** Two quota reduction (partial closure) contracts were signed with two halon1211 producer. The total halon phased out will be 480 MT of halon 1211, thereby ensuring that the 2003 national targets for halon production level are met. Details are in Annex II.

18. ***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, and all the remaining 20 contracts will be signed in the early 2004.

Special initiatives

19. ***Development of 3,600 MT plant-protein foam fire fighting agent production line*** The development of a 3,600 MT Honsen L119 plant-protein based foam plant is under way (while the overall designed plant capacity is larger at 10,000 MT, the special initiative will only support this limited capacity in keeping with the requirement that halon sector funding should not result in any incremental increase in national fire-fighting capacity in China). The beneficiary's feasibility study is being reviewed by Government.

20. ***Halon banking*** Halon recycling center which located at Panyu in Guangdong province, as a Halon recycling center to collect, recycle and reclaim demonstration project, a contract will be signed between SEPA and Panyu to start-up this project. Subsequently, the recycling center and other similar recycling center such as Dalian Jinshan Plant(in Liaoning province)will be run under the market mechanism.

21. ***3.59 million CO_2 extinguisher manufacturers survey*** A new special initiative project is added into the 2003 annual program. This project is focus on obtaining the information of exact production capacity and sale of CO_2 extinguisher and other clean agent fire extinguishing

agent extinguishers in China at present.

The implementation status of 2003 special initiative projects is summarized in Annex V.

Technical assistance activities

Three TA projects were identified for the 2003 annual program, including training and auditing, and are at various stages of implementation. A TA project namely Testing Equipment and Technology for Aerosol Fire Extinguishing Equipment was added into the 2003 annual program. Details are in Annex IV(F).

PART B
2004 ANNUAL PROGRAM

Objectives

1. The phaseout target for the 2004 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 2004 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$ 1.2 million for the 2004 annual program as agreed in the overall Halon Sector Phaseout Plan. To achieve these goals, the following activities are envisioned:

a. US$ 0.28 million to be used for closing and converting 5 fire extinguisher manufacturers;
b. US$ 0.8 million to be used for converting 8-10 halon 1211 fire system manufacturers; and
c. US$ 0.12 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 2004, 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 2003 annual programs. Preparatory work will be finished by the end of 2003. Bidders with the lowest evaluated unit prices will be awarded grant funds. The Government will sign closure/conversion contracts with the winning enterprises.
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 three 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. All contracts for conversion projects are expected to be signed in the early 2004 and implementation may take one and half years.

Technical assistance (TA) activities

7 ***Standard for Performance Requirements and Test Methods for Components for Water Mist Fire Extinguishing Systems*** As one of alternative systems to halon system, water mist fire extinguishing system is used at home and abroad. In China, some water mist products imported from abroad and some are produced domestically, the quality of these products is different. Therefore, it is necessary to establish a standard for quality control and to ensure fire safety.

8 ***Design Code for Dry Powder Fire Extinguishing Systems*** Dry powder systems, with superior fire extinguishing characteristics, are used for the places where water and gaseous extinguishing systems are not appropriate. This type of system is especially available in low temperature applications where water would freeze and in petroleum, petrochemical and vehicle systems. Since there is no design code for the application of dry powder system, a design code for dry powder systems should be established as soon as possible.

(The above TA projects were originally proposed in Halon 2000 AP, since the application of these systems is very limited in that time, the TA projects on these systems were postponed. With China Halon Phaseout Plan implementing, halon systems are replaced more and more, a number of these systems are applied as alternative systems to halon, therefore, it is due time to launch the TA projects, and these two TAs will be financed by 2000 AP fund.)

9. ***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.

Table BI. 2004 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. 2004
O/w export		100		
Consumption ceiling	1,890	1,890	1. Closures of extinguishers manufacturers 2. Conversion of halon fire extinguishers and Halon fire extinguishing system to non-Halon extinguishers and system 3. Financial support for introduction of substitutes and alternatives, 4. TA activities	1. Jan.-Dec. 2004 2. To start conversion by second half of 2004
Halon 1301 Production ceiling	600	600	1.Production quota and TA activities to support introduction of substitutes.	1. Jan-Dec. 2004
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. 2004

Continuation of policy instruments		
Policy Instruments	Actions Required	Key Dates
1. Bidding system for fire extinguisher and system manufacturers	1. Training for the 2004 bidding 2. Bidding started 3. Bidding completed 4. Bid winners awarded for 2004 5. Contracts signing with winners 6. Implement closure/ conversion contracts.	1. Sept..- 2003 2. Oct. 2003 3. Dec. 2003 4. Jan. 2004 5. Jan. 2004 6. (a) Closure – Jan .to Dec. 2004 (b) Conversion—starting Jan. 2004 for a 18 month Period
2. Tradable production quota for halon producers	1. Establish 2004 halon production quota ; 2. Issue 2004 production quota to halon producers	1. Dec. 2003 2. Dec. 2003
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 2004 2. Through 2004

Table BI: 2004 Annual Program (Contd.)

Enterprise-level Activities						
	Funding Requested (US$ mill)	Existing Enterprises	# of enterprise targeted	# of enterprises at end of 2004	Key Actions Required	Key Dates
1. Reduction of halon 1211 production	0	2	2	2	Issue the production quota to these two enterprises.	1. At beginning of 2004
2. Closure & conversion of halon extinguisher manufacturer	0.28	20	20	0	Selection through bidding process. Some of the companies will be financed as part of the 2003 AP which was delayed due to the SARS..	1. Bid winners by July, 2004. 2. Contracts signed no later than July 31, 2004. 3. Completed in 12 months after signing contract
3. Conversion of halon fire extinguishing system manufacturers	0.80	18	8-10	8-10	Selection through bidding process.	1. Bid winners and contracts signed no later than September. 2003 2. Completed in 12 months after signing contract
Subtotal	**1.08**					

Table BII: 2004 Annual Program-Technical Assistance Activities

TECHNICAL ASSISTANCE ACTIVITIES			
Activities	MLF funding requested (US$ million)	Actions Required	Key Dates
1. Standard for Performance Requirements and Test Methods of Components for Water Mist Fire Extinguishing Systems	(0.075)	Selection of qualified institutions to formulate the standard	1. Contract signed no later than the end of 2004. 2. Finish work within 24 months after signing contract
2. Design Code for Dry Powder Fire Extinguishing Systems	(0.075)	Selection of qualified institutions to formulate the code	1. Contract signed no later than the end of 2004. 2.Finish work within 24 months after signing contract
3. Training	0.12	Training workshops will be carried out	Training will be carried out through the 2004.
Subtotal	0.12		
TOTAL for phaseout activities	**1.20**		

Table BIII: 2004 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	• Enterprises trained for bid preparation for 2004 bidding by Oct. 2003 • bidding for 2004 annual plan by Dec. 2003 • Winning enterprises for 2004 selected by Jan., 2004
Tradable production quota for halon producers	• Annual production quota to halon producers for 2004 issued by March 30, 2004 • Production reports from enterprises received on quarterly basis
The ban on halon extinguisher uses in non-essential areas	• 3 training workshops conducted throughout the year in key provinces

Enterprise-level activities				
Activities	Funding requested (US$ mill)	Existing Enterprises	# of enterprises at end of 2004	Performance Indicators
Reduced Halon 1211 production	0	2	2	
Closure & conversion of halon extinguisher manufacturer	0.28	20	20	Halon consumption phaseout contracts signed by July 30, 2004.
Conversion of halon fire extinguishing system manufacturers	0.80	18	8-10	Halon consumption phaseout contracts signed by July 30, 2004.
Subtotal	1.08			Total disbursement to enterprises

Table BIII: 2003 Annual Program - Proposed Performance Indicators (Contd.)

Technical assistance activities		
Activities	Amount in US$ million	Performance Indicators
1. Standard for Performance Requirements and Test Methods of Components for Water Mist Fire Extinguishing Systems	(0.075)	Invitation issued by June 2004.
2. Design Code for Dry Powder Fire Extinguishing Systems	(0.075)	Invitation issued by June 2004.
3. Training	0.12	Workshops will be conducted begin in June 30, 2004
Subtotal	0.12	
TOTAL for Phaseout Activities	**$1.2million**	

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)		1240	970	1060	450	370	590	120	180	1140	40	30	10		6200

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.

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 Hahira Group Shogun Fire-fighting Chemical Plant	240	January 1, 2003	Production based on the reduced production quota.	Partial closure.

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.	1999.03.14	Plant closure
2.Zhejiang Yiwu Fire-fighting Extinguisher Plant	1998.03.14	162.2	Project completed and commissioned. Equipment dismantled.	1999.03.14	Plant closure
3.Changzhou Fire-fighting Equipment Plant	1998.03.14	47.5	Project completed and Commissioned	2000.03.14	Conversion
4.Dalian Jinzhou Fire-fighting Equipment Plant	1998.03.14	105.7	Project completed and Commissioned	2000.03.14	Conversion
5.Guangxi Wuzhou Fire-fighting Equipment Plant	1998.03.14	52.4	Project completed and Commissioned	2000.03.14	Conversion
6.Guangzhou Zhujiang Fire-fighting Equipment Plant	1998.03.14	138.4	Project completed and Commissioned	2000.03.14	Conversion
7.Jiangxi No.1 Fire-fighting Equipment Plant	1998.03.14	220.8	Project completed and Commissioned	2000.03.14	Conversion
8.Nanjing Heli Fire-fighting Equipment Plant	1998.03.14	146.4	Project completed and Commissioned	2000.03.14	Conversion
9.Ningxia Yongning Fire-fighting Equipment Plant	1998.03.14	23.0	Project completed and Commissioned	2000.03.14	Conversion
10.Panyu Shengjie Fire-fighting Equipment Plant	1998.03.14	435.1	Project completed and Commissioned	2000.03.14	Conversion
11.Shanghai Haishen Fire-fighting Equipment Plant	1998.03.14	149.6	Project completed and Commissioned	2000.03.14	Conversion
12.Shanghai Punan Fire-fighting Equipment Plant	1998.03.14	268.4	Project completed and Commissioned	2000.03.14	Conversion
13.Shanghai Qingpu Fire-fighting Equipment Plant	1998.03.14	169.9	Project completed and Commissioned	2000.03.14	Conversion
14.Shenyang Fire-fighting Equipment Plant	1998.03.14	153.7	Project completed and Commissioned	2000.03.14	Conversion
15.Xiangshan Fire-fighting Equipment Plant	1998.03.14	270.6	Project completed and Commissioned	2000.03.14	Conversion
16.Ningbo Sanyou Fire-fighting Equipment Ltd.	1998.03.14	50.0	Project completed and Commissioned	2000.03.14	System conversion
Total (Average halon 1211 consumption 1995 to1997):		**2,616.7**			

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.	2000.03.16	Plant closure
2.Shanghai Global Fire-fighting Extinguisher Plant	1999.03.16	32.66	Project complete and commissioned. Equipment dismantled.	2000.03.16	Plant closure
3.Helongjiang Fire-fighting Equipment Plant	1999.03.16	23.4	Project completed and commissioned.	2001.03.16	Conversion
4.Guangzhou Fire-fighting Equipment Plant	1999.03.16	83.431	Project completed and commissioned.	2001.03.16	Conversion
5.Jiangsu Taixin Fire-fighting Equipment Plant	1999.03.16	336.6	Project completed and commissioned .	2001.03.16	Conversion
6.Chongqing Zhendan Fire-fighting Equipment Plant	1999.03.16	60.77	Project completed and commissioned.	2001.03.16	Conversion
7.Heilongjiang Shangzhi Fire-fighting Equipment Plant	1999.03.16	78.4	Project completed and commissioned.	2001.03.16	Conversion
8.Hubei jiangling Fire-fighting Equipment Plant	1999.03.16	194.78	Project completed and commissioned.	2001.03.16	Conversion
9.Shandong Weifang Fire-fighting Equipment Plant	1999.03.16	153.116	Project completed and commissioned.	2001.03.16	Conversion
10.Shunde Fire-fighting Equipment Plant	1999.03.16	192.72	Project completed and commissioned.	2001.03.16	Conversion
11.Guangzhou Fire-fighting Equipment Plant	1999.03.16	29.697	Project completed and commissioned.	2001.03.16	System Conversion
Total (Average halon 1211 consumption 1995 to1997):		**1317.431**			

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..	2001.02.24	Plant closure
2.Zhejiang Linhai Fire-fighting Equipment Plant	2000.02.24	57.5	Project complete and commissioned. Equipment dismantled.	2001.02.24	Plant closure
3.Anhui Bengbu Fire-fighting Equipment Plant	2000.02.24	142.124	Project complete and commissioned. Equipment dismantled.	2001.02.24	Plant closure
4.Suzhou Fire-fighting Equipment Plant	2000.02.24	14.2677	Project completed and commissioned.	2001.02.24	Conversion
5.Shanghai No. 4 Fire-fighting Equipment Plant	2000.02.24	74.762	Project completed and/ commissioned	2001.02.24	Conversion
6.Lianyungang Tianyi Fire-fighting Equipment Plant	2000.02.24	52.35	Project complete and commissioned.	2001.02.24	Conversion
7.Tianjin Tanggu Fire-fighting Equipment Plant	2000.02.24	45.64	Project completed and commissioned.	2001.02.24	Conversion
8.Zhejiang Wananda Fire-fighting Equipment Plant	2000.02.24	56.5	Project complete and commissioned.	2001.02.24	Conversion
9.Zhenzhou Huanghe Fire-fighting Equipment Plant	2000.02.24	25.153	Project complete and commissioned.	2001.02.24	Conversion
10.Nanjing Honghu Fire-fighting Equipment Plant	2000.02.24	81.818	Project complete and commissioned.	2001.02.24	Conversion
11.Zhuhai Zhuzhou Fire-fighting Equipment Plant	2000.02.24	80	Project completed and commissioned.	2001.02.24	Conversion
12.Fujian Changle Fire-fighting Equipment Plant	2000.02.24	284.2	Project completed and commissioned.	2001.02.24	Conversion
13. Zhuhai Zhuzhou Fire-fighting Equipment Plant	2000.02.24	40.5	Project completed and commissioned.	2001.02.24	System Conversion
Total (Average halon 1211 consumption 1995 to1997):		**1138.423**			

D. 2001 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Completion date	Remarks
1.Fuzhou fire-fighting equipment plant	2001.07.10	22.52	Project complete and commissioned.	2002.12.31	Closure
2.Zhenjiang fire-fighting equipment plant	2001.07.10	17.463	Project complete and commissioned.	2002.12.31	Conversion
3. Nanjing jiangpu fire-fighting equipment plant	2001.07.10	84	Project complete and commissioned.	2002.12.31	Conversion
4.Jiangsan fire-fighting equipment co.	2001.07.10	41	Project complete and commissioned.	2002.12.31	Conversion
5.Wuhan jiangan fire-fighting equipment plant	2001.07.10	16.8	Project complete and commissioned.	2002.12.31	Conversion
6. Jiangxi ship's valve plant	2001.07.10	40	Project complete and commissioned.	2002.12.31	System Conversion
Total (Average halon 1211 consumption 1995 to1997):		221.783			

E. 2002 Annual Program

Name of the manufacturer	Project starting date	Phaseout amount (MT)	Implementation Status	Planned completion date	Remarks
1. Ningbo Yongjiang Fire Equipment Manufacturer	2002.10.28	4.2	Equipment dismentled and ready for commission.	2003.10.28	Closure
2. Anhui Wuhu Wanjiang Fire Equipment Manufacturer	2002.10.28	1.17	Equipment dismentled and ready for commission.	2003.10.28	Closure
3. Haerbin Longquan Fire Tools Manufacturer	2002.10.28	3.42	Conversion project ongoing	2003.10.28	Conversion
4. Beijing Yanqing Changcheng Fire Equipment Manufacturer	2002.10.28	4.43	Conversion project ongoing	2003.10.28	Conversion
5. Guangdong Shantou Fire Equipment Manufacturer	2002.10.28	9.12	Equipment dismentled and ready for commission.	2003.10.28	Closure
6. Zigong Jianfei Fire Equipment Co. Ltd.	2002.10.28	9.177	Conversion project ongoing	2003.10.28	Conversion
7. Bengang Fire Equipment Manufacturer	2002.10.28	17.77	Equipment dismentled and ready for commission.	2003.10.28	Closure
8. Zhejiang Huzhou Meihua Group Co. Fire Equipment Manufacturer	2002.10.28	16.50	Equipment dismentled and ready for commission.	2003.10.28	Closure
9. Daqin Fire Equipment Manufacturer	2002.10.28	17.63	Conversion project ongoing	2004.04.28	Conversion
10. Ningbo Yinghai Fire Equipment Co. Ltd.	2002.10.28	104.39	Conversion project ongoing	2004.04.28	Conversion
Total (Average halon 1211 consumption 1995 to1997):		187.807			

ANNEX IV

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.Revision of Standards for ABC Powder	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2001.6.30	Completed
2.Design Codes for Gaseous Fire Extinguishing Systems	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2002.09	Completed
3.Standards for Components of Gaseous Fire Extinguishing Systems	Tianjin Fire Research Institute	1998.04.28	Completed and commissioned	2001.6.30	Completed
4.Halon Management Plan-Overall Management	Shanghai Fire Research Institute	1998.04.28	Completed and commissioned	1999.12.31	Completed
5.Halon Management Plan-Training Courses and Propaganda Materials	Shanghai Fire Research Institute	1998.04.28	Completed and commissioned	2000.12.07	Completed
6.Halon Management Plan-Provincial Promotions and Demonstration Centers	Shanghai Fire Fighting Bureau	1998.04.28	Completed and commissioned	1999.10.31	Completed
7.Halon Management Plan-Provincial Promotions and Demonstration Centers	Guangdong Fire Fighting Bureau	1998.04.28	Completed and commissioned	1999.08.31	Completed
8.Development of halon Management Database and Data collection System	Qinghua University	1998.04.28	Completed and commissioned	1998.09.28	Completed
9.Management Information System	Qinghua University	1998.04.28	Completed and MIS accepted by SEPA	1998.04.02	Completed
10.Training	SEPA		Four training workshops have been conducted	1998.12.10	Completed
11. Export/Import study	Beijing University	1998.09.28	Completed and commissioned	1999.11.30	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.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
2. 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
3. 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
4. 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
5. 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
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. 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
8. Formulation of national standard for HFC227 agent	Tianjin Fire Research Institute	1999.11.10	Project completed and commissioned	2002.06.01	Completed
9. Study on the disposal standard for Halon 1211 extinguishers	Shanghai Fire Research Institute	1999.11.10	Project completed and commissioned	2002.06.01	Completed
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.Design code for Water Mist Fire extinguishing System					Cancelled
2. Performance test Method of Components for Water Mist Fire Extinguishing Systems					Cancelled
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. Design Code for Dry Powder Fire Extinguishing System					Cancelled
5. Tests equipment for light weight CO2 Cylinders	Shanghai Fire Research Institute	Oct. 2001	Contract signed in 2001. Project being implemented.	2003.12.31	Ongoing
6. Future requirements for essential uses, Special places					Cancelled
7. Standards for Mechanic foam extinguishers					Cancelled
8. Standards for portable dry powder extinguishers					Cancelled
9. Nitrogen system					Cancelled
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. Formulating Design Code for Mist Water Fire Extinguishing System					Cancelled
2. Revision of Design Code for Installation of Fire Extinguishers for Buildings					Cancelled
3. Feasibility Study on Substitutes for Halon Fixed Fire Extinguishing Systems					Cancelled
4. Studies of Market Prospect for Closure Enterprises	Seven enterprises were chosen to carry out the project	2001.4.10	2 projects completed; others are still ongoing	December 2002	Ongoing
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. Study on Evaluation Method of Engineering Application of Inert Gases Fire-fighting System	Selected bidder	By the end of July, 2003	Bidding under way	26 months after contract signing	ongoing
2. Evaluation Method of Engineering Application of Heptfluoride Propane Fire-fighting System	Selected bidder	By the end of July, 2003	Bidding under way	36 months after contract signing	ongoing
3. National Standard Formulation for General Specifications of Low-pressure Carbon Dioxide Fire-fighting System and Parts	Tianjin Fire Research Institute	2002.12	Contract singed in Dec. 2002 The project ongoing	18 months after contract signing	ongoing
4. Study on the Testing Equipment and Technology of Aerosol Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Contract singed in Dec. 2002 The project ongoing	24 months after contract signing	ongoing
5. Standard Formulation for Aerosol Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Contract singed in Dec. 2002 The project ongoing	18 months after contract signing	ongoing
6. Study on Testing Equipment and Technology of Heptfluorid Propane Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Contract singed in Dec. 2002 The project ongoing	20 months after contract signing	ongoing
7. National Standards Formulation for Inert Gas Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Contract singed in Dec. 2002 The project ongoing	18 months after contract signing	ongoing
8. Study on the Testing Equipment and Technology of Inert Gas Fire Extinguishing Agent	Tianjin Fire Research Institute	2002.12	Contract singed in Dec. 2002 The project ongoing	20 months after contract signing	ongoing
9. Liaoning Halon Management Plan	Liaoning Fire Bureau	2002.09	Contract singed in Sept. 2002 The project ongoing	18 months after contract signing	ongoing
10.Training	DIA		three training workshops were carried out	2002.12.31	Completed
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. Standard of "General Specifications of Aerosol Fire Extinguishing Equipment"	Selected bidder	In the second half of 2003	TOR under review	18 months after contract signing	Under preparation
2. Testing Equipment and Technology for Aerosol Fire Extinguishing Equipment	Selected bidder	In the second half of 2003	TOR under review	24 months after contract signing	Under preparation
3. Performance Audit of 2002	CNAO	2003.03	Performance audit was conducted from March-June, 2003	6 months after contract signing	ongoing
4.Training	DIA		Two training workshops will carried out in the second half of 2003	2003.12.31	Under preparation

ANNEX V

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-DI-02 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-03 Halon Bank Guangdong Branch	Panyu Shengjie Fire Fighting Equipment Plant	2000.08.05	Equipment installation /commission finished..	2003.06.30	ready for .Sepa's commission
HAL-00-SI-04 Light Weight CO_2 Cylinders	Weifang Dongming Fire-fighting Equipment Co., Ltd.	2000.11.18	The buildings finished and first lots of imported equipment arrived..	2003.11.18	Ongoing
HAL-01-SI-05 Plant Protein Foam test laboratory Project	Honsen Fire-fighting Hi-tech Co., Ltd.	2001.04.04	Project Completed and commissioned.	2002.12.31	Completed
HAL-02-SI-06 Development of a 3,600 MT Production Line of Honsen L119 Vegetable -protein Foam Extinguishing Agent	Dalian Honsen Hi-tech Fire-fighting Co., Ltd.		Feasibility study reviewed.	18 months after contract signing	Under preparation
HAL-03-SI-1 Survey for CO_2 Extinguisher Production	Shanghai Fire Research Institute	2003.06	The contract is signed and the survey starts.	2003.09.30	Ongoing

PROGRESS REPORT ON THE IMPLEMENTATION OF SOLVENT SECTOR PLAN FOR ODS PHASEOUT IN CHINA FOR 2003

AND

2004 ANNUAL IMPLEMENTATION PROGRAMME

submitted by
State Environmental Protection Administration (SEPA), China
and
United Nations Development Programme (UNDP)

October 2003

A. BACKGROUND

Funding in the amount of $52 million for the Solvent Sector for ODFS Phase-out in China was approved at the 30th Executive Committee Meeting in March 2000, to phase out the consumption of trichlorotrifluoroethane (CFC-113) and 1,1,1 trichloroethane (TCA), as well as the consumption of carbon tetrachloride (CTC) used as cleaning solvents in China, by 1 January 2006, 1 January 2010 and 1 January 2004 respectively.

Since implementation was initiated in 2000, China has met its 2000 and 2001 CFC-113, TCA and CTC solvent consumption control limits through the completion of individual investment projects and ODS .Reduction Contracts implemented under the 2000 – 2001 Annual Implementation Programme.

Under the Sector Plan, funding tranches for 2000 – 2003 in the total amount of $25.79 million has been approved and released by the Executive Committee at its 30th, 33rd, 36th and 40th Meetings. The annual phase-out targets and the funding tranches for the Sector Plan are reflected in Table 1 and Table 2 below.

Table 1 Consumption Control Targets for ODS Solvents (tonnes ODP)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CFC-113	3300	2700	2200	1700	1100	550	0[1]	0[1]	0[1]	0[1]	0[1,2]
TCA	621	613	605	580	502	424	339	254	169	85	0[3]
CTC	110	110	110	55	0[1]	0[1]	0[1]	0[1]	0[1]	0[1]	0[1,2]
Total	4031	3423	2915	2335	1602	974	339	254	169	85	0

Table 2 Annual Programme Actual Amounts (US$ 1,000s)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
CFC 113	4800	4800	4050	3600	3600	3600	3300	4000	0	0	0	31750
TCA	1450	1455	1455	1455	1455	1455	1455	1455	1455	1455	1455	16000
CTC	0	0	325	200	200	325	0	0	0	0	0	1050
TA	500	700	500	500	300	300	300	25	25	25	25	3200
Total	6750	6955	6330	5755	5555	5680	5055	5480	1480	1480	1480	52000

B. ODS PHASEOUT ACTIVITIES UNDERTAKEN IN 2003

Under the Sector Plan, SEPA and UNDP continue to implement enterprise level phase-out activities through ODS Reduction Contracts initiated in 2000, 2001 and 2002. New activities were also initiated in 2003 to achieve the required phase-out targets in 2004 and 2005.

1. 2000 ODS Reduction Contracts

16 ODS Reduction Contracts were signed in November 2000 and February 2001 to phase out 473.169 tons of CFC-113, 101.6 tons of TCA and 7.6 tons of CTC in 12 – 18 months. Project activities in 13 of the 16 enterprises were completed by December 2002 and one enterprise went bankrupt. Thus the completion of the 14 ODS Reduction Contract contributed to the phase out of 340.135 ODP tonnes of CFC-113, 9.8 ODP tonnes of TCA and 8.36 ODP tonnes of CTC in 2002.

Implementation continued during 2003 for the two remaining enterprises, equipment installation and commissioning were completed in October 2003 and thus contributed the phase out of 38.4 ODP tonnes of CFC-113 and 0.4 ODP tonnes of TCA to the 2003 phase-out targets.

As a result of travel restriction imposed due to SARS situation in China, the destruction of baseline equipment will only take place in November 2003.

2. 2001 ODS Reduction Contracts

21 ODS Reduction Contracts signed in July and September 2001 would phase out 676.978 tons of CFC-113, 105.973 tons of TCA in 12 – 18 months. Contracts for the equipment were awarded in the fourth quarter of 2002 for delivery to enterprises' sites by June 2003

Most of the equipment has now been delivered and installed during 2003, the remaining equipment will be delivered by November 2003. Technical review and performance audit for these 21 enterprises will be carried out in November 2003. Project commissioning and equipment destruction will take place in December 2003 or early 2004. Thus, 676.978 tons (541.58 ODP tonnes) of CFC-113 and 105.973 tons (10.6 ODP tonnes) of TCA will be phased out in 2003 upon completion of these 21 ODS Reduction Contracts by the end of 2003.

3. 2002 ODS Reduction Contracts

International competitive bidding on equipment for the 32 enterprises who signed ODS Reduction Contracts in December 2002 was completed, purchase order for most of the equipment will be issued in November 2003. Bid for some enterprises exceeded the available budget, a new round of bidding has been initiated and purchase order for the equipment for these enterprises will be issued in December 2003. Delivery for all the equipment is targeted for March 2004, follow by installation and commissioning at enterprise project sites.

Completion of these 32 ODS Reduction Contracts in June 2004 will phase-out 535.82 ODP tonnes (669.776 MT) of CFC-113, 43.2 ODP tonnes (431.895 MT) of TCA and 17.94 ODP tonnes (16.31 MT) of CTC, contributing to ODS reduction in 2004.

4. 2003 ODS Phase-out Activities

The situation of SARS in China had significant impact on the organization of the 2003 enterprise-level phase-out activities and the implementation of the voucher system. Travel

restrictions imposed as a result of SARS caused major delays in the initiation of the 2003 phase out activities.

As required in the Agreement, China is required to phase-out 600 ODP tonnes of CFC-113, 78 ODP tonnes of TCA by the end of 2004. As a result of hard work that took place immediately after the WHO travel advisory was lifted, phase-out activities at 12 enterprises has been identified and ODS Reduction Contracts are being finalized that will phase-out 223 ODP tonnes (278.665 MT) of CFC-113 and 1.5 ODP tonnes (15 MT) of TCA. ODS Reduction Contract will be signed in November 2003.

Through the voucher system, 78 SMEs have been identified to participate in the first batch of implementation, to phase out 170.04 ODP tonnes (212,553 MT) of CFC-113 and 11.50 ODP tonnes (114.99 MT) of TCA in 2004.

In addition to the ODS Reduction Contracts and Voucher System, China has identified enterprises that will directly undertake gradual phase-out of CFC-113 consumption in 2004 and 2005 and phase out of TCA to be achieved between 2004 - 2009. SEPA has entered into agreement with about 143 enterprises so far. The agreement stipulates the gradual reduction of ODS consumption at these enterprises. Based on the agreements, the enterprises are issued quota for the amount of reduced annual solvents consumption. The agreements signed in 2003 so far will phase out a total of 109.9 ODP tonnes of CFC-113 and 28.2 ODP tonnes of TCA that will contribute to the 2004 phase-out targets. Table 3 reflects the phase-out that will be achieved through the 2003 enterprise-level activities identified so far, as well as the four-year cumulative phase-out that will be achieved.

Table 3: Phase-out through 2000 – 2003 ODS Reduction Contracts, Voucher System and Reimbursement Mechanism

		CFC-113		TCA		CTC		No. of Enterprises	Funding (US$ 1,000)
		ODS tons	ODP tons	ODS tons	ODP tons	ODS tons	ODP tons		
2000 Bidding	Planned	466	372.8	100	10	0	0	10 – 20	$5,000
	Executed	473	378.4	101	10.1	7.6	8.36	16	$4,132
2001 Bidding	Planned	655	524	100	10	0	0	10 – 20	$5,505
	Executed	677	541.6	105.9	10.6	0	0	21	$4,361
2002 Bidding	Planned	625	500	250	25	50	55	20 – 40	$5,830
	Executed	669.8	535.8	431.9	43.2	16.31	17.94	32	$4,004
2003	Planned	750	600	780	78	50	55	120-140	$5,255
	Executed	628.6	502.9	412	41.2	0	0	233	$5,100
Four Year Cumulative Total	Planned	2,496	1,996.8	1,230	123	100	110		
	Executed	2,448.4	1,958.7	1,050.8	105.1	23.91	26.3		

Therefore for the required enterprise-level phase out targets to be achieved in 2004 through activities initiated in 2003, there will be a shortfall of 38.1 ODP tonnes of CFC-113 and 17.9

ODP tonnes of TCA. SEPA intends to make up this shortage by locating enterprises that had undertaken phase-out at its own initiative. Through the reimbursement mechanism, SEPA will identify and reimburse these enterprises for the costs of their phase-out activities. SEPA is confident that the enterprises that complete its phase-out in 2004 can be identified so that the enterprise-level phase-out quantity can be accounted for in the 2004 phase-out targets. For CTC, as SEPA the ban on CTC for solvent use took effect as of June 2003, CTC consumption for solvent use will already have been phased out.

It is however important to note that as China has now put in place sufficient legislative measures to control the supply of ODS, either through production quotas or through the issuance of Usage Certificates, and as the remaining ODS consumers are more and more SMEs, emphasis should not be placed on accounting for the annual enterprise-level phase-out results, but rather more and more on the national consumption level, and as long as the national consumption level meets the consumption control limits, it does not matter how many phase-out contracts were actually signed.

5. Voucher System

Implementation of the Voucher System was initiated in June 2003 as a pilot with three intermediate execution agent (IEA) in Chengdu, Guangzhou and Shaanxi provinces. Training on investigation and identification of small ODS consuming enterprises, verification procedures to evaluate their eligibilities, registration and operational mechanism etc. were provided to the IEAs. The Solvent Special Working Group (SWG) will conduct review with these IEAs in October 2003 and approve the issuance of vouchers. As indicated in section B, paragraph 4 above, it is expected that the first batch of voucher will be finalized by the three IEAs in November 2003, leading to the phase out of 170.04 ODP tonnes of CFC-113 and 11.50 ODP tonnes of TCA in 2004.

6. Relevant Policy Measures

Since the implementation of the Solvent Sector Plan in March 2000, China has initiated and effectively implemented policy actions to facilitate ODS phase-out. The "Notice of Issuing Execution Methods on Issuing Usage Certificate on Selling ODS Products" was issued jointly by FECO/SEPA and the Ministry of Information Industry (MII) in June 20, 2002 to control the production quota as well as the sales of CFC-113, TCA and CTC for solvent use. Based on the experience of Usage Certificates issued in 2002 as well as the requirement of the Solvent Sector Plan, China Cleaning Engineering Technique Cooperation Association (CCETCA) finalized the issuance of ODS Usage Certificates to ODS producers and consumers for the period of August to December 2003. In December 2003, Usage Certificates for 2004 will be issued, based on the requirements to meet the phase out targets for 2004. In addition, The Notice also requires ODS producing factories, distributors and importers to report to CCETCA information on their ODS production, sales, consumption and name of users.

SEPA also issued a circular to ban the use of CTC as cleaning solvent that took effect 1 June 2003. Enterprises, environmental protection and other related units who violate the rules and regulations will be subject to harsh penalties.

C. TECHNICAL ASSISTANCE ACTIVITIES

1. Training Activities

Training activities were conducted in June 2003 for national experts, IEAs and candidate enterprises to participate in the 2003 phase out activities, either through ODS Reduction Contracts or the Voucher System. Training programme includes:

- Introduction of Solvent Sector Plan and its execution modality;
- Preparation of project proposal and how they will be evaluated and executed;
- Operational mechanism of the ODS Reduction Contracts and the Voucher System;
- Introduction by technical experts on alternative technologies;
- Exchange and discussion between technical experts and enterprises;
- Cleaning theory and technology training to the enterprise engineers will also be conducted by end of December 2003.

2. Public Awareness & Promotion

Promotion of the Solvent Sector Plan was carried out throughout the year to raise public awareness through publications and articles in trade journals, publications, newspaper, news media, Radio and TV. A website is under design to promote implementation of ODS phase out in the solvent sector, to publicize important policies, phase out schedules, substitute technologies and experience of model projects and their progress. It also provides a useful forum for exchanges of technologies among national, international and enterprises experts.

An International Cleaning Technologies Forum and Expo has been organized to take place in November 2003. The Forum and Expo will facilitate the sharing of advanced knowledge in non-ODS cleaning applications and solvents, and to provide a forum for cleaning professionals and enterprises to exchange experience and track progress on phase-out activities.

3. Strengthening of Alternative Technology Support System (ATSS)

Through training programmes and professional exchanges, the capacity and quality of the national institutes and experts to participate in the ATSS has been significantly strengthened. The institutes and experts were also briefed and trained on the operational mechanism of the Voucher System and other phase out activities.

4. Development and Research on Alternative Solvents

To ensure that non-ODS cleaning technologies are appropriate for various cleaning applications and that cleanliness requirements and production capacity can be maintained, experiments on alternative technologies and production-scale tests will be carried out and standards on non-ODS cleaning application will be complied or developed. A comprehensive strategy on alternative solvents will also be developed.

D. 2002 ODS PHASE OUT TARGETS AND CONSUMPTION CONTROL LIMITS

As phase out activities at the enterprise level will take at least 12-18 months to complete implementation, phase-out of ODS consumption in 2002 are therefore results of activities initiated in 2000 and 2001. As indicated in the previous reports submitted to the Executive Committee, China has met the 200 and 2001 consumption control targets stipulated in the Agreement.

Based on official data and statistics on China chemical production and import & export obtained by SEPA, the total national consumption of CFC-113 and TCA in 2002 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. Phase-out was achieved through completion of individual investment projects and the 2000 ODS Reduction Contracts initiated in 2000. For CTC as cleaning solvent, confirmation by an independent auditing firm will verify CTC consumption in 2002. Based on last years verification, it was reasonable to conclude that consumption of CTC as solvent will not be increased and that, as in the year 2001, the consumption did not exceed the 100 MT (110 ODP tonnes) limit. The 2002 national consumption of CFC-113, TCA and CTC is presented in Table 4 below.

Table 4: ODS Solvent Consumption for the Year 2002 **Unit: Ton**

	CFC-113		**TCA**		**CTC**	
	ODS	ODP	ODS	ODP	ODS	ODP
Consumption Control Target	**2,750**	**2,200**	**6,050**	**605**	**100**	**110**
Production	2,750	2,200	1,205	120.5		
Import	0.4	0.3	2,617.4	261.7		
Export	10	8	16	1.6		
Raw Material Usage	0	0	0	0		
Solvent Consumption	**2740.4**	**2,192.3**	**3,806.4**	**380.6**	**<100**	**<110**

A performance audit will be undertaken in November and December 2003, to verify the about data. Once the above data are verified, it will show that China meets the 2002 consumption control limited stipulated in the Agreement between the MLF and the Government of China.

In 2002, no CFC-113 was used as exempted feedstock. As required under paragraph c of the Agreement, the name list and quantity of CTC for feed stock use, for process agent use and for other applications not yet approved as ODS process agent for 2002 are presented in Table 5, 5a and 5b below:

Table 5: List of Plants using CTC as feedstock for CFC Production and Other Usages in 2002

Name of Plant	Quantity (MT)	Usage
Zhejiang Juhua Fluoro-Chemical Co. Ltd.	15,242	CFC Production
Changshu 3F Fluoro-Chemistry Co. Ltd.	16,135	CFC Production
Jiangsu Meilan Electro-Chemical Co. Ltd.	3,210	CFC Production
Zhejiang Fluorescence Chemical Industry Co. Ltd.	2,459	CFC Production
Sub-Total for CFC-Production	***37,046***	
Linhai South-China Chemical Industry Co. Ltd.	14	Other Usage
Jiangsu Yangnong Chemical Industry Co. Ltd.	571.3	Other Usage
Zhejiang Three Circle Chemical Industry Co. Ltd.	245	Other Usage
Sub-total for Other Usages	***830.3***	
Total for Feed Stock Use	**37,876.3**	
Limit as per Agreement	*60,000 MT (66,000 ODP MT)*	

Table 5a Name List and Quantity of CTC for Process Agent Use in 2002

Name of Enterprise	Quantity (MT)
Shenyang Chemical Industry Co. Ltd.	56.3
Shanghai Dihe Chemical Industry Factory	177.9
Sichuan Longchang Shouchang Chemical Industry Co. Ltd.	64
Jiangyin Faersheng Refine Chemical Industry Co. Ltd.	161.8
Sichuan Longchang Shenhua Chemical Industry Co. Ltd.	89.18
Zhejiang Longyou Lude Pesticide Chemical Industry Co. Ltd.	0
Wuxi Greenapple Chemical Industrial Co. Ltd.	89.16
Huangye Jinhua Chemicals Industry Co. Ltd.	200
Chloro-Rubber Factory of Mid-China Oilfield Reconnoitre	33.3
Guangzhou Haotian Chemical (Group) Co. Ltd.	195.6
Zhejiang Xinan Chemicals Industry Group Co. Ltd.	128.61
Jiangsu Anbang Electrical Co. Ltd.	72
Dalian Lushunkou District Jiangxi Chemical Industry Company	422.5
Haerbin Yibin Chemicals Industrial Co. Ltd.	30.18
Calcium Carbide Factory of Jilin Chemical Industry Co. Ltd.	967
Zhejiang Huahai Medicine Co. Ltd.	24.91
Total	**2,712.44**
Limit as per Agreement	*5,000 (5,500 ODP MT)*

Table 5b: Plants using CTC in other applications not yet approved as ODS process agent in 2002

Name of Plant	Quantity (MT)
Guangdong Yangchun Gangli Chemical Industry Co. Ltd.	494.5
Guangzhou Golden Zhujiang Chemical Co. Ltd.	779.17
Anhui Suzhou Xianke Chemical Industry Co. Ltd.	179.4
Dongguan Jincheng Chemical Industry Co. Ltd.	967.3
Haili Guixi Chemical Industry Pesticide Co. Ltd.	179.25
Hunan Liangxiang Ammonia Chemical Factory	560
Jiangyin No. 2 Pesticide Factory Co. Ltd.	0
Jiangsu Changlong Chemical Industry Co. Ltd.	698.61
Zhejiang Longyou Lude Pesticide Chemical Industry Co. Ltd.	0
Suzhou Jianfeng Termite Treatment Co. Ltd.	0
Shangyu Qiming Chemical Industry Co. Ltd.	145.62
Hebei Xinfeng Nongyao Huagong Co. Ltd.	12
Jiangsu Anbang Electrical Co. Ltd.	209
Jiangsu Zhaoxing Pesticide Chemical Co. Ltd.	0
Chongqing Changfeng Chemical Industry Factory	133
Shanghai Dongfeng Pesticide Factory	24.6
Sichuan Mianyang Lier Chemical Industry Co. Ltd.	
Nanjing No. 1 Pesticide Factory	0
Jiangsu Chemical Industry Pesticide Group Co. Ltd.	0
Jingjiang Jinguo Pesticide Chemical Co. Ltd.	0
Jiangsu Yangnong Chemical Industry Group Co. Ltd.	77.1
Shandong Huayang Pesticide Chemical Industry Group Co. Ltd.	0
Suyang Guanghua Chemical Industry Co. Ltd.	170
Suyang Xinhai Chemical Factory	0
Shandong Huayang S&T Co. Ltd.	180
Experimental Factory of Hunan Haili Chemical Industry Co. Ltd.	72.5
Shanghai Fangjiang Termite Treatment Material Co. Ltd.	513.14
Total	**5,395.19**

The total quantities of 37,876.3 MT for feedstock, 2,712.44 MT for process agent and 5,395.19 MT for other application not yet approved for process agent use total 45,984 MT. The 45,984 MT is below the 65,000 MT (71,500 ODP tonnes) limits, as specified in paragraph c of the Agreement, China has thus met all the terms and the 2002 consumption control limits of the Agreement.

E. PERFORMANCE AUDIT ON 2002 PHASE-OUT TARGETS AND LIMITS

As was done in previous years, UNDP has included the China Solvent Sector Plan project in its regular annual management and financial audit undertaken in 2003 by the National Audit Office of the People's Republic of China (CNAO). The audit was conducted in conformity with the provisions of the project document, International Generally Accepted Auditing Standards,

relevant Chinese auditing standards and the principles and procedures prescribed for the United Nations with respect to funds obtained from or through UNDP. The audit included examination of accounting records, tests of internal control systems and other procedures considered necessary for due performance of this audit. Opinion is expressed by the National Auditors on:

(a) Financial operations and controls
(b) Adequacy of the management structure
(c) Equipment use and control
(d) Monitoring, evaluation and reporting
(e) Project execution rate

Due to travel restrictions imposed as a result of SARS in China, the implementation of project activities under the Solvent Sector Plan was put on complete hold from March to June 2003. While project activities has since resumed, the completion of project activities thus encountered significant delays. SEPA and UNDP is in the process of finalizing a contractual agreement with an independent accounting firm to under a performance audit on the 21 recipient enterprises under the 2001 Annual Implementation Programme and the technical assistance activities undertaken under the Solvent Sector Phase-out Plan, and to verify the national consumption limits through verification on TCA production, the import and export quantities of CFC-113 and TCA, and the confirmation of CTC consumption in the 34 enterprises originally identified in the Solvent Sector Plan.

The performance audit is expected to take place between later November 2003 and early December 2003, so that the audit report will be available as a basis for SEPA and UNDP to submit the audit results to the Executive Committee, immediate prior to the meeting on 15-19 December 2003..

F. INDEPENDENT TECHNICAL AUDIT BY UNDP

In addition to the performance and financial audits., UNDP's international and national solvent sector experts will also carried out a technical audit in early December 2003 at the 21 enterprises under the 2001 ODS Reduction Contract. The technical audit will review the ODS cleaning applications, the quantity of ODS consumption, the alternative solvents, the new non-ODS cleaning equipment installed and commissioned, and the fate of the baseline equipment.

G. 2004 ANNUAL IMPLEMENTING PROGRAMME AND RELEASE OF 2004 FUNDING TRANCHE

The 2004 Annual Implementation Programme is submitted for the review and approval of the Executive Committee. The 2004 Annual Programme will phase out 550 ODP Tonnes of CFC-113 and 78 ODP Tonnes of TCA, contributing to the 2005 Consumption Control Limits. Phase-out activities at the enterprises level will be achieved through a combination of ODS Reduction Contracts, Voucher System for SMEs, agreement for enterprises undertaking direct phase-out and a reimbursement mechanism for enterprises who have initiated and achieved phase-out on its

own effort. In order that phase-out activities will be completed by the end of 2005, activities will be initiated in early 2004.

Necessary technical assistance activities, legislative measures and monitoring and enforcement mechanism are also included in the 2004 Annual Implementation Programme. This will include strengthening training to potential and successful enterprises that will participate in the phase-out activities on financial and administrative management to ensure appropriate use of MLF funds and efficient management of the sub-projects. In addition, supervision and monitoring functions of the SWG and DIA will also be strengthened.

The Executive Committee is requested to review and approve the 2004 Annual Implementation Programme of the China Solvent Sector Plan as the basis for the release of the 2004 funding level of $5,555,000 and the corresponding support fees of $416,625 at the first (42nd) Executive Committee Meeting of 2004.

SOLVENT SECTOR PLAN
FOR ODS PHASEOUT IN CHINA

2004 ANNUAL IMPLEMENTATION PROGRAMME

October 2003

SOLVENT SECTOR PLAN FOR ODS PHASE-OUT IN CHINA 2004 ANNUAL IMPLEMENTATION PROGRAMME

1. Data

Country	China
Year of plan	2004
Number of years completed	4
Number of years remaining under the plan	6
Target ODS consumption in Sector for 2003 (ODP MT)	2,335
Target ODS consumption in Sector for 2004 (ODP MT)	1,602
Level of funding requested (US$)*	5,555,000
Lead implementing agency	UNDP
Co-operating agency (ies)	N/A

2. Targets

Target:	CFC-113, TCA and CTC phase-out target for 2004 in the China Solvent Sector: 733 ODP MT			
Indicators		**Preceding Year**	**Year of Plan**	**Reduction**
Supply of ODS (ODP MT)	Import			0
	Production	0	0	0
	Total (1)	**2,335**	**1,602**	**733**
Demand of ODS (ODP MT)	Manufacturing	2,335	1,602	733
	Servicing	N/A	N/A	N/A
	Stock piling	N/A	N/A	N/A
	Total (2)	**2,335**	**1,602**	**733**

3. Industry Action

Sector	**Consumption Preceding Year (1)**	**Consumption Year of Plan (2)**	**Reduction within Year of Plan (1) - (2)**	**No. of Projects Complete**	**Number of Servicing Related Activities**	**ODS Phase-Out (ODP MT)**
CFC-113	1,700	1,100	600			600
TCA	580	502	78			78
CTC	55	0	55			55
Total	2,335	1,602	733			733

It is envisaged that the phase-out of CFC-113, TCA and CTC will be achieved through the completion of enterprise-level activities initiated in 2002 and 2003, as a result of ODS Reduction Contracts, Voucher System and Reimbursement Mechanism that will contribute and most probably exceed the 733 ODP MT phase-out targets required in 2004.

Activities and Achievement of Phase-out Targets in 2004

Activities	CFC-113	TCA	CTC
Completion of 2002 ODS Reduction Contracts	535.8	43.2	17.94
Implementation and partial completion of 2003 ODS Reduction Contracts, Voucher System, Self Phase-out and Reimbursement Mechanism	258.4	40.4	-
Initiate 2004 phase-out activities – identify all large and medium size consumers for CFC-113 and TCA phase-out	-	-	-
Total	**794.2**	**83.6**	**17.94**

4. Technical Assistance

Activity	Description	
Establishment of a National Training Center 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
Strengthening of ATSS	Objective	To support successful and smooth phase-out activities
	Target group	Participant enterprises
	Impact	Effective support to solvent consumers who participate in phase-out activities
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

5. Government Action

Policy/Activity Planned	Schedule of Implementation
Notice on TCA Sales Certification	Formulation early 2004 for issuance third quarter 2004
Public Awareness	Throughout the year
Others	See below

The following additional activities are proposed for 2004:

a) Continuing identification and monitoring of enterprises who undertook phase-out at their own initiatives, verify phase-out and implement reimbursement of phase-out costs.
b) Continuing identification of enterprises who decide to undertake gradual phase-out, finalize agreement, verify annual phase-out and monitor issuance of Usage Certification.

6. Annual Budget

Activity	Planned Expenditures (US $)
Enterprise-level phase-out activities	4,000,000
Technical Assistance	1,555,000
TOTAL	**5,555,000**

7. Administrative Fees

The administrative fees of $416,625 will be utilized by UNDP throughout the implementation of this tranche to ensure effective monitoring and implementation of project activities and provision of policy guidance.

Sector Plan for Phaseout of CTC and Process Agents in The People's Republic of China (PHASE I)

2004 ANNUAL PROGRAM

November 27, 2003

Data Sheet

Country	China
Year of plan	2004
# of years completed	1
# of years remaining under the plan	6
Target ODS consumption of the preceding year	Not to exceed 5049 ODP Tons (Max.) for CTC consumption in 25 PA applications and 17.2 ODP tons for CFC-113
Target ODS consumption of the year of plan	Not to exceed 5049 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 54,857 ODP Tons of CTC production
Level of funding requested	$16 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 is presently under implementation

2. Under the 2003 Annual Programme, China has initiated sector activities, including the establishment of policies and regulations, enterprise-level phaseout activities and technical assistance activities, to enable it to meet the obligations under the Agreement . There were some delays related to the SARS epidemic, but China has taken urgent corrective actions and is confident that the program is on track to successfully meet its targets for the year.

3. China is hereby requesting release of the third tranche of US$16 million for the implementation of the 2004 Annual Program to meet the control targets of 2004 specified in the Agreement.

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	Maximum allowable CTC consumption in PA Sector (25 applications)	Maximum allowable CFC-113 consumption in the PA Sector (25 applications)	Agreed funding
Baseline /1	86,280	3,825	17.2	
2001*	64,152*	4,347*	17.2*	
2002*	64,152*	5,049*	17.2*	2
2003	61,514	5,049	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 based on 2001 CTC data. The first control year is 2003

Activities and Progress in 2003

5. Phase-out targets in 2003 were as follows:

   (a) Total CTC production and imports will not exceed 61,514 ODP Tons (55,921.8 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 2003 to not more than 61,514 ODP tons. ;

   (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 17.2 ODP Tons (21.5 MT).

6. Policy actions in 2003 include:

   (a) The"Circular on Implementing Carbon Tetrachloride (CTC) Production Quota-License System" will be promulgated in October 2003. This Circular will regulate in detail the management measures for CTC production and will require CTC producers to provide quarterly reports of their CTC production data.

   (b) On April 7, 2003, SEPA promulgated the "Circular on Control of New Construction or Capacity Expansion of Carbon Tetrachloride Production Lines". This Circular bans the new construction and capacity expansion of dedicated CTC production plants and laces the the construction of new or capacity expansion of existing co-production (CTC and other Chloromethanes) plants under strict management of Local Environmental Protection Bureau.

   (c) On May 27, 2003, the "Circular on Carbon Tetrachloride Consumption Quota-License System" was promulgated. Based on this circular, a CTC consumption quota is established for enterprises under the 25 agreed PA applications, to be limited within the agreed maximum limit. CTC consumption at these enterprises each month is also required to be reported in quarterly reports. CFC-113 consumption is controlled under other existing policies.

   (d) The "Circular on Management Procedures for Site Supervision of Carbon Tetrachloride Production Enterprises" was promulgated on July 10, 2003. This describes the site supervistion procedures and production data reporting requirements by site supervisors in order to ensure that every CTC producer stays within the quota issued.

7. Enterprise-level activities in 2003 are comprised of four following types:

   (a) CTC production of 61,514 ODP tons in 2003: Production quotas were issued to the CTC producers. Four dedicated CTC producers had their quotas reduced from the 2001 production levels to achieve this target.

(b) CTC and CFC-113 Consumption (25 PA applications): Consumption quotas of CTC and CFC-113 have been issued to 18 enterprises consumed CTC as PA and 5 PTFE producers respectively. Total of issued CTC consumption quota was less than 5,049 ODP tons and total of CFC-113 consumption quota less than 17.2 ODP tons.

(c) The following phaseout contracts were signed:

(1) CTC production reduction contracts: To achieve the CTC production control target of 2003 (61,514 ODP tons), 4 dedicated CTC producers will reduce their CTC production of total 5,917 ODP tons by CTC production reduction contracts and one distiller will reduce 34 ODP tons production through CTC Production Quota-Licence System in 2003 from the 2001 production levels.

(2) CTC consumption phaseout contracts: 12 PA enterprises (CR and CP-70) which will close and dismantle their CTC consumption facilities in 2003 or 2004 have signed 13 CTC consumption phaseout contracts with the Government.

PA Project List								
Sector Plan number	**Enterprise**	**Baseline (Ave. 1998-2000)**		**Nature of Contract**	**Year of Contract (Annual Program)**	**Consumption** MT		**Quota of 2003** MT
		ODS	MT			2001	2002	
CR								
1	Shanghai Chlor Alkali	CTC	109	Not decided	2004	143.1	177.9	230
2	Haotioan	CTC	218	Closure	On Sept 24, 2003	173	91 195.65	250
3	Jiangsu Wuxi	CTC	313	Closure	On Sept 24, 2003	122.97	89.16	180
4	Zhejiang Xin' an	CTC	142	Closure	On Sept 24, 2003	96.02	138.61	250
5	Jiangsu Jiangyin Fasten	CTC	178	Not decided	2004	150.31	161.81	242
6	Henan Puyang	CTC	43	Closure	On Sept 24, 2003	134.8	33.3	70
170	Zhejiang Shangyu Qiming	CTC	119	Closure	On Sept 24, 2003	144.22	145.62	0
CP- 70								
4	Zhejiang Xin' an	CTC	82	Closure	On Sept 24, 2003	94.21	98.84	Included in its CR
5	Jiangsu Jiangyin Fasten	CTC	161	Converted Retroactive Contract	After verification in 2003 of 2004	0	0	0
18	Shengyang	CTC	48	Closure	On Sept 24, 2003	76.4	56.3	100
19	Sichuan Luzhou Hongyuan	CTC		Dismantling in a future year	CTC residual destilation facility and not eligible for contract; no quota will be issued	N/ a	N/ a	N/ a
20	Sichuan Longchang Shouchang	CTC	62	Closure	On Sept 24, 2003	53.0	64.0	150
21	Sichuan Longchang Shenghua	CTC	73	Closure	On Sept 24, 2003	104.59	89.18	180
22	Chongqing Tianyuan	CTC	45	Closure	On Sept 24, 2003	0	0	0
23	Zhejiang Longyou Lude	CTC	48	Closure	On Sept 24, 2003	9.09	0	0
24	Dalian Jiangxi	CTC	233	Closure	On Sept 24, 2003	246.15	422.5	500
25	Harbin Yibin	CTC	38	Closure	On Sept 24, 2003	65.96	30.18	80
45	Shangxi Fenyang	CTC	0	No longer in existence		N/ a	N/ a	N/ a
71	Hebei Huanghua	CTC	N/ a	Closure	After verification in 2003 ro 2004	250	200	130
CSM								
51	Jilin	CTC	878	Emission control	2003; by December 31	1119	967	1100
54	Hunan Hongjiang	CTC	0	No longer in existence		N/ a	N/ a	N/ a
55	Jilin Jiaohe	CTC	0	No longer in existence		N/ a	N/ a	N/ a
Ketotifen								

59	Zhejiang Huahai	CTC	13	Emission control	2006	25.92	24.91	40
Endo- sulphan								
	Jiangyin Anbang	CTC	24	Coversion	Not included in the Sector Plan; Quota controlled and not decided if it is funded.	88	72	100
PTFE								
56	Shanghai 3F	CFC 113	11	Conversion	2003: December 31	25.25	24	10
57	Sichuan Chengguan	CFC 113	5	Conversion	2003: December 31	8.01	8.12	3.5
166	Shanghai Tianyuan	CFC 113	0	Conversion	Not eligible; no contract is possible.	0	35	0
167	Shandong Jinan 3F	CFC 113	4	Conversion	2003: December 31	6.07	6.54	5
168	Jiangsu Meilan	CFC 113	2	Converted	Already converted; retroactive contract in 2004 AP	11	17	0
169	Liaoning Fuxin	CFC 113	1	Conversion	2003: December 31	2.7	2.9	3

(d) The following technological schemes were formulated:

(1) CTC emission control in CSM and Ketotifen production: they were prepared by the enterprises and will be evaluated by the experts recruited by SEPA. CSM's CTC emission control will be put into operation before January 1, 2005 and that of Ketotifen will be made operational at a later time.

(2) CFC-113 substitute technology scheme in PTFE production was prepared by the enterprises and will be evaluated by experts recruited by SEPA. The substitute technology will be put into operation in the enterprises one by one to meet the annual CFC-113 consumption quota.

8. Technical assistance (TA) is an important part of the activities. In 2003, the TAs process is described as follows:

(a) *Extension of the Management Information System (MIS) to include ODS Phaseout in PA and CTC Production.* This is to be integrated into PMO's MIS, and TORs are being developed.

(b) *Investigation of substitute technologies for PA enterprises*: this TA is to support the PA enterprises of CR, CP-70, CSM and PTFE to select and adopt substitute technologies for phasing out ODS process agents consumption. Because most of the CR and CP-70 enterprises will be closure and CSM and PTFE enterprises will prepare the technological scheme by themselves, this investigation will not be put into implementation and has been cancelled for the year.

(c) *Investigation of Conversion of CTC to other (non-ODS) Products:* SEPA intends to support the development of HFC-245fa, a main substitute of HCFC-141b and CFC-11 as foam blowing agent, to consume CTC as raw material and convert to non-ODS product. However, this investigation has been cancelled for the year.

(d) *Training of personnel involved in implementation of phaseout activities*: The training workshops for PA enterprises and CTC producers were held in September 2003. The training workshop for auditors will be held in November. The training to CTC producers concerning CTC production reduction in 2004 will be also held in November 2003.

(e) *Site supervision for CTC producers:* This is an additional TA taken up under the 2003 Annual Program. The site supervisor training workshop has been conducted in July 2003 and 16 supervisors were trained. From January 1, 2004, these site supervisors, technical professionals recruited from CTC producers by SEPA, will be assigned to CTC producers to implement site supervision of CTC production.

(f) *Study of market prospects for CTC producers:* This is another additional TA taken up under the 2003 Annual Program. It aims n to support CTC producers to develop

technologies and/or products to maintain the enterprises alive after voluntary CTC plants are shut down, and to encourage involuntary CTC producers to lower the CTC production proportion and to develop the technologies to properly dispose of the residual CTC.

2004 Annual Program

9. **The targets for the 2004 Annual Program,** according to Table 1, are as follows:

   (a) Total CTC production and imports will not exceed 54,857 ODP Tons (49,870 MT);

   (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 (17.5MT).

10. Funding for the 2004 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 in CSM producers, and for technical assistance activities, which are described in detail below.

Activities to be covered in the 2004 annual program

11. The implementation modalities for Annual Programs are contained in the CTC and PA Sector Plan documents. The annual targets will be met by continued implementation of, or introduction of, the following activities:

   (a) Management of established CTC production quota-license system: under this system, production of CTC will only be allowed with a lisence to be issued by SEPA and enforced by local EPBs in coordination with local industry administrative department.

   (b) CTC and CFC-113 consumption quota-license system: these systems will continue to be implemented during the year.

   (c) CTC production quotas: these systems will continue to be implemented during the year.

   (d) Establishment of CTC sales license system, and issuance of the sale licenses to CTC vendors.

   (e) Intital steps for introducing CFC-113 substitute technologies for PTFE manufacturers, and CTC emission control for CSM producers;

   (f) Technical assistance activities.

Programmed Activities In 2004

12. ***Policy actions.*** In 2004, the following policies and measures will be implemented to ensure a successful ODS consumption and CTC production reduction targets in China**.**

(a) CTC Sales license system : Based on the CTC production and consumption quota license system, the regulation on CTC sales will be issued so as to establish a complete management system on CTC production, trade and consuming to prevent illegal CTC consumption. Under this system, CTC producers and vendors will be required to indicate the names of the CTC endusers, quantities and usages of each CTC trade through quarterly reports.

(b) Annual reporting and verification: Annual verification of production and consumption has to be conducted to monitor and supervise the implementation of the annual program activities.

13. ***Enterprise-level activities.*** There will be four types of activities at the enterprise level: production reduction for CTC producers, and emissions control, conversions, and closures for PA enterprises. All these activities will be based on assignment of quotas and signature of contracts.

(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 54,857 ODP Tons in 2004 is not exceeded. CTC production reduction contracts will be signed between the govermment and CTC producers.

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

(c) *Conversion and Closure* - ODS consumption phaseout contracts for CR, CP-70, endosulphan and PTFE enterprises:

(1) Closure: For all enterprises targeted for closure, CTC phaseout contracts must be signed and implemented by the end of 2004. All the closing production facilities will be dismantled before the end of 2004.

(2) Conversion: All the other enterprises who wish to receive MLF funding for constructing substitute plants will sign substitute contracts and begin to implement their substitute projects in 2004. This will also include PTFE manufacturers who will complete their projects in 2005.

(d) *Emission Control* – Contracts for CSM. By the end of 2004, CTC emission control for CSM manufacture will have to be executed to ensure the maximum allowable CTC consumption is less than 493 ODP tons in 2005. The emission control contracts will be signed.

14. ***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 will continue in 2004 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 2003 performance audit will be agreed between the World Band and SEPA by December 2003, and the audit is expected to be completed by June 30, 2004.

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

15. The above targets, policy initiatives, enterprise-level and technical assistance activities are summarized in Tables 2 - 4 below.

Table 2: Targets under 2004 Annual Program

Target I: Maximum Allowable sum of production and Imports of CTC							
Indicators	**Sub-sector**	**2003** (Preceding Year)	**2004** (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	61,514	54,857	6,657	7	1. Issue CTC production quota-licenses. 2. Sign CTC production reduction contracts with CTC producers	1. By March 31, 2004 2. By Nov. 31, 2003
	Subtotal	61,514	54,857	6,657	7		
Target II: Maximum Allowable CTC Consumption in the PA Sector (25 Applications)							
CTC Consumption	Related PA enterprises	5,049	5,049	0	6.2	1. .Issue CTC consumption quota-licenses. 2. Sign ODS consumption phaseout contracts with CR and CP-70 enterprises 3. Sign CTC emission control contracts with CSM producers	1. By Dec. 31, 2003 2. By Dec. 31, 2003 3. By Dec. 31, 2003
Target III: Maximum Allowable CFC-113 Consumption in the PA Sector							
CFC-113 Consumption	Related PTFE Manufacturers	17.2	14	3.2	2	1. Issue CFC-113 consumption quota-licenses. 2. Sign CFC-113 substitute contracts with PTFE manufacturers	1. By Dec. 31, 2003 2. By Dec. 31, 2003

Table 3: Policy Actions and Enterprise activities in 2004

Initiatives	Funding (US$ Million)	Actions Required	Key Dates
1. Management of CTC Production	7	1. Train CTC producers 2. Sign CTC production reduction contracts with CTC producers 3. Issue CTC production quota-licenses 4. Implement CTC production reduction contracts, including production reporting and verification	1. By Nov. 30, 2003 2. By Nov. 30, 2003 3. By March 31, 2004 4. Through 2004
2.Management of CTC and CFC-113 consumption (25 applications)	8.2	1. Train PA enterprises 2. Sign ODS consumption phaseout contracts with CR, CP-70 and endosulphan enterprises 3. Sign CTC emission control contracts with CSM enterprise 4. Sign CFC-113 substitute contracts with PTFE manufacturers 5. Issue CTC and CFC-113 quota-licenses 6. Implement the contracts, including collection and verification of contracts' progress situations, supervision of plants' dismantlement	1. By Dec. 31, 2003 2. By Dec. 31, 2003 3. By Dec 31, 2003 4. By Dec 31, 2003 5. By Dec 31, 2003 6. Through 2004
3. Management of CTC sales	N/A	1. Issue CTC trade license regulation 2. Train CTC vendors 3. Issue CTC sales licenses 4. Collect and verify CTC sales situations	1. By Dec. 31, 2003 2. By Dec. 31, 2003 3. By Dec. 31, 2003 4. Through 2004
Subtotal	15.2		

Table 4: Technical Assistance Activities in 2004

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 vendors 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. 31, 2003 2. By Dec. 31, 2003. 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 Oct. 31, 2003 2. Through 2004
3. Performance audit	0.1	1. TOR to be agreed with the World Bank 2. Audit implementation 3. Audit completion	1. By Dec. 31, 2003 2. By April 30, 2004 3. By June 30, 2004
4. Other activities	0.3		
Subtotal	0.8		

Annex I: Status of CTC producers

(Data ready for verification)

No.	Enterprise Name	Type	Capacity (MT/year)	CTC Production Recorded			Status
				2001	2002	2003 (Jan-June)	
1	Sichuan Honghe Fine Chemical Industry Co. Ltd.	voluntary	16,000	13,806	21,018	8,472	Producing
		involuntary	4,000	3,451			Producing
2	Zhejiang Quhua Fluro-Chemstry Co. Ltd.	involuntary	20,000	16,204	17,217	8,186	Producing
3	Luzhou Beifang Chemical Industry Company	involuntary	3,000	2,106	2,318	1,489	Producing
4	Jiangsu Meilan Fluro Chemical Industry Co. Ltd.	involuntary	3,000	703	2,929	1,944	Producing
5	Shanghai Chlor-Alkali Chemical Industry Co. Ltd.	involuntary	10,000	7,209	9,192	5,005	Producing
6	Chongqing Tianyuan Chemical Industry Plant	voluntary	9,000	8,009	8,198	3,441	Producing
7	Sichuan Luzhou Xinfu Chemical Industry Co. Ltd.	voluntary	8,000	6,903	7,754	2,902	Producing
8	Chongqing Tianxuan Chemical Industry Co., Ltd.	voluntary	4,400	2,100	3,067	425	Producing
9	Quzhou Jiuzhou Chemical industry Co. Ltd	distillation	1,000	596	477	300	Distillation from residue
10	Chongqing Tiansheng Chemical Industry Co. Ltd	distillation	500	245	195	40.5	Distillation from residue
11	Changshu 3F Taiyuuan CTC Plant	voluntary	4,000	0	0	0	Stopped production
12	Guangzhou Haotian Chemical	Involuntary	5,000	0	0	0	Stopped production
13	Panjin Third Chemical	Voluntary	3,000	0	0	0	Stopped production
Total (ODS tons)			90,900	61,332	72,365		
Total (ODP tons)				67,465	79,602		

Annex II: Information on PA enterprises (25 APPLICATIONS)

A. ODS Consumption in 25 Applications (1997-1999)

ODS	Application No.	Products	Annual consumption of ODS, t/a							
			1997	1998	1999	2000	2001	2002	2003	2004
CTC	C3	CR	1290	1154	1097	1118	965	933		
	C4	Endosulfan			20	53	88	72		
	C7	CSM	710	720	839	1074	1119	967		
	C12	CP-70	900	818	1008	1016	899	961		
	C17	Ketotifen	9	12	11	16	26	25		
	Total		2909	2704	2963	3277	3097	2958		
CFC-113	C9	PTFE	5.65	5.85	27.6	34.1	53.0	59.8		

B. Eligible PA Enterprises and Production Status

No	Sub-Sector No.	Enterprises Name	Product	Capacity (MT/year)	CTC Consumption (MT/year)							Production (MT/year)				
					1997	1998	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
CR																
1	CR1	Shanghai Chlor-Alkali Chem. Co Ltd	CR	450	144	115	118	95	143	178		131	119	239	329	
2	CR2	Haotian Chem Co Ltd.	CR	500	281	252	199	202	174	196		181	171	141	168	
3	CR3	Wuxi Chem Group Co Ltd	CR	1000	370	284	345	311	123	89		444	369	194	172	
4	CR4	Zhejiang Xin-an Chem. Group Co Ltd	CR	500	121	162	142	123	96	129		412	352	299	360	
5	CR5	Jiangyin Fasten Co Ltd	CR	1000	300	247	144	144	150	162		380	462	478	523	
6	CR6	He-nan Puyang oilfield CR Factory	CR	500	29	12	19	97	135	33		23	119	167	91	
170	CR7	Shangyu Qimin Chemical Co., Ltd	CR	500	45	82	130	146	144	146		402	456	427	439	
		Total		4450	1290	1154	1097	1118	965	933		1973	2048	1945	2082	
CP-70																
171	CP1	Huanghua City Jinghua Chem. Co., Ltd.	CP-70	3000	21	23	73	375	250	200		363	1500	1000	800	

4	CP2	Zhejiang Xin-an Chem. Group Co Ltd	CP-70	500	61	73	85	88	94	99		428	440	490	544	
5	CP3	Jiangyin Fasten Co Ltd	CP-70	800	280	243	240	stop				600				
18	CP4	Shenyang Chem. Co Ltd.	CP-70	1500	160	89	16	38	76	56		158	441	546	569	
19		Luzhou Longmatanqu Hongyuan Chem	CP-70	Not eligible												
20	CP5	Longchang Shouchang Chem Co Ltd	CP-70	500	78	67	56	64	53	64		265	241	198	257	
21	CP6	Longchang Shenghua Chem Factory	CP-70	1000	34	65	83	72	105	89		369	374	546	510	
22	CP7	Chongqing Tianyuan Chemical General Factory	CP-70	500	0	0	70	64	stop			173	166	0	0	
23	CP8	Longyou Lude Pesticide Chem Co Ltd	CP-70	300	49	51	45	48	9	stop		267	314	61	0	
24	CP9	Dalian city Jiangxi Chem Ind Head Co.	CP-70	3000	198	188	287	224	246	423		1647	1333	1866	2103	
25	CP10	Harbin Yibin Chem Ind. Co Ltd	CP-70	1000	19	19	20	43	66	30		383	409	481	803	
45		Shanxi Fenyang Catalyst Factory	CP-70	500	Can't contact											
		Total		12600	900	818	1008	1016	899	961		4653	5218	5732	5586	
CSM																
51	CSR1	Jilin Chem. Ind. Co Ltd	CSM	3000	710	720	839	1074	1119	967		2298	2628	2995	2727	
54	CSR2	Hongjiang Chem Co Ltd	CSM	300	stop											
55	CSR3	Jiaohe Organic Chem Factory	CSM	1000	stop											

		Total														
Ketotifen																
59	KET1	Zhejiang Huahai Pharm Group Co Ltd	Ketotifen	3	9	12	11	16	26	25		0.53	0.75	0.13	1.25	
Endo-sulphan																
	ES1	Jiangyin Anbang Electro-Chemical Co., Ltd.	Endo-sulphan	1000			20	53	88	72		77	100	500	411	
CFC-113																
56	PTFE1	Shanghai 3F New Materials Share Co Ltd	PTFE	1000	0.25	1.75	12	18	25.2	25.2		878	1241	1402	1436	
57	PTFE2	Chenguang Chem Research Institute	PTFE	3000	0	0	7.9	7.9	8.0	8.1		1024	1368	1846	2239	
166		Shanghai Tianyuan Group Fluor-Chem	Not eligible													
167	PTFE3	Jinan 3F Chemical Co Ltd	PTFE	1500	4.4	3.1	4.1	4.2	6.1	6.5		831	1040	1474	1454	
168	PTFE4	Jiangsu Meilan Chemical Co Ltd	PTFE	3000	0	0	1	1.5	11	17		1050	820	1500	1643	
169	PTFE5	Fuxin Fluor-chemical Co Ltd	PTFE	2000	1	1	2.6	2.5	2.7	2.9		1200	1200	1300	2000	
		Total			5.65	5.85	27.6	34.1	53.0	59.8		4983	5669	7522	8772	

SECTOR PLAN FOR CFC PRODUCTION PHASEOUT IN CHINA

2004 ANNUAL PROGRAM

MP PROJECT MANAGEMENT OFFICE
STATE ENVIRONMENTAL PROTECTION AGENCY, CHINA

AND

THE WORLD BANK

November 27, 2003

Data Sheet

Country	Peoples Republic of China
Project title:	Sector Plan for CFC production phase-out in China
Year of plan	2004
# of years completed	4
# of years remaining under the plan	6
Ceiling for 2003 CFC production (in ODP tons), 2003 Annual Plan	30,000 ODP tonnes
Ceiling for 2004 CFC Production (in ODP tons), 2004 Annual Plan	25,300 ODP tonnes
Total funding approved in principle for the CFC sector plan	$150 million
Total funding released as of Oct. 2003	$65 million
Total funding disbursed from World Bank to China (as of Oct. 2003)	$56.6 million
Level of funding requested for 2004 Annual Plan	$13 million

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

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Introduction

1. In accordance with 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), China is hereby requesting release of the sixth tranche of US$13 million for the implementation of the 2004 Annual Program. With this funding, China's CFC production will be reduced to a maximum of 25,300 ODP MT by the end of 2004. The production quotas issued will also ensure that the ceiling on overall national CFC-11 consumption of 13,100 MT for 2004 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 2004 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 2003. CFC production has correspondingly been reduced from 50,351 ODP Tons in 1997 to 32, 896 ODP Tons in 2002, and will not exceed 30,000 ODP tons in 2003.

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 27 ODP tons (average of 1998-2000). China will reduce its production from the baseline production of 27 ODP tons to 21.6 ODP tons in 2003.

4. ***China's CFC phaseout obligations.*** Within the Sector Plan, China agreed to the following phaseout schedule for in Group I Annex A and Group I Annex B CFCs. 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% 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 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	

2004	13	25,300		
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, 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 1, CFC production was below the annual targets in each of the years of the program. The annual production of CFCs are shown in the table 2 below.

Table 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	162	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 (Jan-June, reported)	7,182	7,644	1,203	0	118	15

6. Thirty-five 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 projects have been taken up. Under the first, Government is supporting the construction of a facility to produce HFC-134a. Under 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 one is China Country Compliance Center Activities.

8. The detailed implementation status of the 1999 – 2003 Annual Programs is provided in Part A.

PART A

IMPLEMENTATION STATUS OF PREVIOUS YEARS' ANNUAL PROGRAMS

As of June 2003

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 four years' annual programs are summarized in Table 1 above. In the year 2003, there are six remaining CFC producers, and quotas for production of 29,998 ODP tons have been issued to them to meet the production reduction target of 30,000 ODP tons.

Enterprise Phaseout Activities

2. Details regarding the enterprise phaseout and production activities in the 1999-2003 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 2003. 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).

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.

5. Under the 2001 Annual Program, 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 MT. The production of CFCs needed to be reduced from 36,200 ODP MT to 32,900 ODP MT. 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 MT, which was verified by World Bank verification team in January 2003.

7. Under the 2003 Annual Program, the production of CFCs will be reduced from 32,900 ODP MT to 30,000 ODP MT. Two kinds of contracts were signed in Dec.2002. Two producers signed closure contracts with SEPA (including one who close 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 1.6). Four producers except one being retained at the previous level signed quota reduction contracts. Six producers remaining in production in 2003.

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

9. All the closed production lines for all the years (1999 to 2003) 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 2002 was within the ceiling established under the Agreement.

10. It is planned that the World Bank verification of the 2003 CFC production under the 2003 annual Program will be conducted starting early February of 2004 immediately after the Chinese new year to enable a report to the first ExCom meeting in 2004.

Implementation of Policy Instruments

11. *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 the State Administration of Petroleum and Chemical Industry (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. 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. Since 2002 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 MT were provided to 6 CFC producers, while one CFC producer was closed..

12. 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.

13. *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 trade 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 the Ministry of Foreign Trade and Economic Cooperation (MOFTEC), and helps China to monitor trade in ODS and eliminate illegal ODS trade. Two batches of *Export/Import Control List of ODS in Chia* 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 MOFTEC. Now, in order to prevent illegal selling activities of CFCs, SEPA is developing the regulation on CFCs sales, expected to be implemented in 2004.

Technical Assistance Activities

14. Thirty-five technical assistance activities have so far been planned under the annual programs, of which twenty-seven were taken up for implementation. Eighteen TAs have been completed, and nine 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.

15. The status of the 2003 technical assistance activities is as follows:

(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. The TOR was prepared and sent to the World Bank for Bank's Clearance on May 14, 2003.

(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, 2003, 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.

(c) Policy training managed by UNEP. In order to enforce executive capacity of Local Authorities in China in implementing Ozone Layer Protection policy, this TA project was planed in 2003. The trainee mainly includes custom officer, audit officer and other staff in related local government departments.

(d) Compilation of China Country Compliance Plan (CCCP). Facing all kinds of problems and challenges during implementing *Montreal Protocol*, China carries out this project to formulate overall scheme and action approach of later compliance activities. The TOR has been submitted to World Bank for clearance.

Other activities (former Special initiatives)

16. 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).

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 plant with final annual capacity of 10,000 Tons (with the first stage capacity of 5,000 tons) is under construction. All of the construction designs and most of the civil works have been completed. The main equipment is presently being manufactured to required specifications.

17. ***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. Three progress reports have been submitted up to now. Because there are a lot of data to be analyzed, the collection, sorting, and statistical analysis and the writing of the report took longer than expected, and data from one of the sites is still being collected because of the delay in the cultivation season caused by the low temperatures in the early spring in 2003. The final report and the book summarizing the findings will be published by the end of 2003.

18. ***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 some staff costs, operating costs and purchase of the building, which will be partially supported with MLF funding available from the CFC Production Sector Plan, by using of some of the not yet allocated balances from previous years' annual programs and also partially supported by bilateral contributions to China.

Plants producing HCFC-22 in China

19. 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.

PART B

2004 ANNUAL PROGRAM

1. *Phaseout Objectives* The phaseout objective of the 2004 Annual Program is to ensure that CFC production in the year does not exceed 25,300 ODP MT. China is requesting the release of the **sixth 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 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 2004, 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 – The regulation has been under implementation since 1999, and will continue.

(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) 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 MFTEC, 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.

(c) Sales permit system – In order to prevent illegal transaction of CFCs, the Management Regulation on Sales Control of CFCs will be issued by SEPA in 2004. Under this system, all producers and sellers of CFCs must hold CFCs 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 2003. Closure projects are expected to take effect from January 1, 2004 and are to be completed by the end of June 2004. Key equipment should be dismantled and destroyed by the end of January 2004.

4. *Technical assistance* (TA) activities. The following TA activities are proposed for 2004:

(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.

(b) *Daily Site Supervision to CFCs Production Enterprises.* This TA will continue in 2004 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 2003 performance audit will be agreed between the Bank and SEPA for this purpose by November 2003, and the audit is expected to be completed by June 30, 2004.

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: 2004 Annual Program

CFC production phaseout targets						
	Funding (US$ mill.)	2003 Production Limit[1] (MT)	Phaseout in 2004 (MT)	Allowed Production in 2004[2] (MT)	Performance Indicators	Key Dates
CFC (ODP Tons)	13	30,000	4,700	25,300	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 25,300 MT	1. Dec. 2003-June 2004 2. Jan. 2004-Dec. 2004 3. Dec.31, 2004
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 2004 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 2005 reduction target				1. Dec. 2003 2. Dec. 2003-June 2004 3. Sep. 2004
2. Tradable production quota for CFC producers	n.a.	1. Establish 2004 annual CFC production quota 2. Issue annual production quota to CFC producers for 2004				1. Dec. 2003 2. Feb. 2004
3. Import/export trade management	n.a.	1. Implement the import/export trade management mechanism.				1. January 2004-December 2004
4. Sales permit system	n.a	1. Implement the sales permit system.				1. January 2004-December 2004
Enterprise activities						
	Funding (US$ million)	Existing enterprises	Enterprises at end of 2004		Performance Indicators	Key Dates
Closure of CFC11/12/113 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. 2003 2. No later than June 2004

[1] Per Agreement

[2] Maximum production quota that can be allocated for calendar 2004.

Table B.1: 2004 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, bidding system, management of CFC production quota system, and CFC Project Implementation Manual	1. June, 2004 2. Start in Jan. 2004. 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. January, 2004 2. January 1-December 31, 2004
3. 2003 Performance audit	t.b.d	1. TOR to be agreed with the Bank 2. Audit implementation. 3. Audit is completed.	1. November, 2003 2. April, 2004 3. By June 30, 2004
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 CFC Producing Plants in the 1999-2003 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 1999	Status
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			

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 1999	Status
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			

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		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				

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		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				

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			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					

Table 1.6: 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					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							

Table 1.7: Remaining CFC producers by January 2003 (Quota reduction contracts signed in December 2002)

SI	SRI	Name of enterprise	Capacity (MT/year)	CFC type	CFC Production					Status
					1999	2000	2001	2002	2003	
31	A8	Jiangsu Meilan Electric Chem. Plant	3,000	CFC-11	1766	1,050	1,050	1,050	164.89	Data not verified for 2003 (first half year reported)
			3,000	CFC-12	1866	1,793	1,793	1,315	489.70	
32	B14	Zhejiang Juhua Florochem. Com. Ltd.	4,000	CFC-11	3376	4,339	4,827	4,489	2166.65	Data not verified for 2003 (first half year reported)
			8,000	CFC-12	6325	7,759	7,706	7,157	3800.38	
33	A10	Jiangsu Changsu Refrig. Plant (Changsu 3F)	10,000	CFC-11	7960	8,192	8,222	10,232	4850.53	Data not verified for 2003 (first half year reported)
			5,000	CFC-12	2780	5,019	5,075	3,035	2738.36	
			4,000	CFC-113	2834	2,756	2,700	2,200	1202.99	
			2,000	CFC-115	90	60	30	60	94.00	
34***	B8	Zhejiang Linhai Limin Chem. Plant	50	CFC-13	27	27	27	27	15.10	Data not verified for 2003 (first half year reported)

35	B12	Zhejiang Dongyang Chem. Plant	5,000	CFC-12	2053	2,219	2,219	1,741	616.00	Data not verified for 2003 (first half year reported)
37	B11	Zhejiang Chemical Research Institute	100	CFC-114		7	7	29	0	Data not verified for 2003 (first half year reported)
			100	CFC-115	72	72	76	54	23.78	
		TOTAL ANNUAL PRODUCTION			**44,793**	**39,991**	**36,196**	**32,896**	**16162.38**	

*: 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.	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.)
6.	Shanghai Chlor-Alkali Chemical Co. Ltd. (Fluoro-Chemical Factory Of Shanghai 3F New Materials 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

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.

Annex 3

Technical Assistance Activities, 1999-2003

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 were submitted to the Standardization Committee of the State Bureau of Quality Supervision, Quarantine and Inspection in Jannuary, 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	**Suspended.** This project was commenced in 2001 AP, The final report has been submitted to SEPA in March, 2003. It is expected to complete by end of September, 2003
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:** Finished analysis report on enterprises investigation questionnaire and partial visit to enterprises and firms. Expected to be completed on 31st July 2003.
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			**Ongoing.** Contact being established with related agencies in USA and Canada to propose the visit date.
CFC-02-TA-04	Integration of ODS MIS	SEPA			**Ongoing.** Bid documents being issued in October 2003
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			**Ongoing.** The overseas training has been carried out in July, 2003. The study report is under preparation and is expected to be submitted by 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 Impl. Activities	SEPA			**Under preparation**. TOR sent to the World Bank.
CFC-03-TA-02	Site supervision for ODS Producing Enterprises	SEPA			**Under implementation.** Expected to be completed by end of 2003.
CFC-03-TA-03	Policy training managed by UNEP.	UNEP			**Ongoing.** Arrangements being finalized with UNEP and SEPA.
CFC-03-TA-04	China Country Compliance Plan (CCCP)	SEPA			**Ongoing.** SEPA is organizing experts for formulating the framework document.

Annex 4

Other Activities, 1999-2003

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.	Jannuary 2001	Most of the installation work has been completed.	July 2003	Implementation ongoing.
Screening of alternatives to Methyl Bromide in soil fumigation in China	Chinese Academy of Agricultural Sciences	April 2002	Three progress reports have been submitted up to now.	July 2003	The TA was delayed, because of weather conditions; the final report and the book of articles will be completed by December 2003.

Annex 5
Status of CFC producing plants under the CFC Sector Plan as of June 2003

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.

State Environment Administration Protection of China, SEPA
United Nations Industrial Development Organization, UNIDO

Progress Report I

To the 41st Meeting of the Executive Committee of the Multilateral Fund
For the Implementation of the Montreal Protocol

Sector Phase-out Plan for CFCs in the Domestic Refrigeration (Manufacturing) Sector in China

October 2003

1. Introduction

1.1. Sector Phase-out Plan for CFCs in the Domestic Refrigeration (Manufacturing) Sector

The project for the Sector Plan was approved by the 38th Meeting of the Executive Committee approving in principal a total of US$ 7,360,530 in funding for the phased reduction of the remaining national aggregate CFC consumption through the implementation of the Sector Phase-out Plan for CFCs in the Domestic Refrigeration (Manufacturing) Sector in China (Decision 38/45).

It was also decided by the Executive Committee that the amount of US$ 1,788,991 plus support cost of US$ 161,009 to be offset against the bilateral contribution of Italy for 2002, and US$ 3,400,000 plus support cost of US$ 299,200 for UNIDO, subject to the following conditions:

a) The Government of China commits to completely phase out 1,099 ODP tones of CFC consumption in the refrigeration (manufacturing) sector and permanently sustain the reduction of 1,099 ODP tones from its national aggregate consumption of 3,508.7 ODP tones according to the agreed phase-out schedule.
b) The Executive Committee will endeavour to provide the second tranche of US$ 2,171,539 plus agency support cost of US$ 192,239 at the last meeting of the Executive Committee in 2003.
c) According to the Decision 38/45, in order to apply for the second tranche of US$ 2,363,778 (including support cost) UNIDO as the Implementing Agency should submit the following documents to the 41st ExCom:

   - A Work Programme of the Sector Plan Implementation
   - Progress Report I summarizing annual (2003) activities funded under the Sector Plan

1.2. Cancelled Hangli Refrigeration Ltd. and Bole Electric Appliance Group

In connection with cancellation of these projects, UNIDO was requested to investigate the possibility of redeploying the equipment from those cancelled projects to the Sector Plan, and to adjust the future work programmes in the light of the redeployment as part of UNIDO's request for the second tranche of the Sector Plan (Decision 39/14 f).

The project for conversion of Hangli Refrigeration Ltd., in Hangzhou, CPR/REF/26/INV/256), was designed and implemented by UNIDO to replace the CFC-12 to isobutane technology and products at this compressor factory. It was noted by the ExCom, that US$ 674,109 of the net US$ 861,000 approved for the project had been disbursed up to 2002 with no direct phase-out of ODS consumption, since this was a compressor project.

The project for phasing out of ODS at the refrigerator plant of Bole Electric Appliance Group (CPR/REF/23/INV/222), was also designed and implemented by UNIDO. It was noted by the ExCom that US$ 1,145,659 of the net US$ 1,469,029 approved for the project had been disbursed up to 2002 with 132 ODP tones phased out.

2. Summary of activities carried out in year 2003 for Sector Plan execution

2.1. Preparatory activities undertaken for Sector Plan implementation

After approval of the Sector Plan, a series of meetings had been held between UNIDO, SEPA, the Chinese Household Electrical Appliances Association (CHEAA) and the project beneficiaries.

Prior to these meetings, SEPA's experts paid visits to the selected project beneficiaries to verify with them the latest baseline data and to discuss possible concepts of the conversion to match needs with the approved budget for the Sector Plan.

Special attention was paid to the remaining compressor manufacturers since this sub-sector is not funded by the approved Sector Plan. The possible scope of technical assistance for this sub-sector was discussed between SEPA, CHEAA and the relevant enterprises noting that no incremental investment cost compensation will be provided over the technical assistance component.

As a result of these meetings and discussions, a Work Plan for the entire project implementation was jointly elaborated (see attachment I).

A detailed work programme of the project implementation in form of Milestones indicating the main activities, timing and reporting was also prepared. (See attachment II).

As a first step of the implementation of the Sector Plan, a Special Working Group (SWG) was established by SEPA.

In accordance with the Work Plan, the Special Working Group (SWG) will harmonize the management of the implementation of the Sector Plan. The SWG is located at FECO of SEPA. Ms. Jiang Feng Chairman of CHEAA was appointed, as Director of the SWG and Mr. Li Hongbing, team leader of SEPA, became Deputy Director.

SWG invited experts of different specialty and established an Expert Group (EG) to assist the implementation of the project activities. The key members of the EG are from Changsha Light Industry Design Institute of China who assumed the implementation of many CFC phase out projects in China's refrigeration industry. The EG also includes refrigeration experts, foaming experts and compressor experts from other research institutes or companies. They will participate in local and overseas survey of the availability of the production equipment in project document preparation and assessment of project enterprises. They will also provide the technical assistance services and technical advice during the implementation process.

2.2. Contractual activities

After receiving approved UNIDO's portion of the first tranche, US$ 3,400,000 (excluding support cost), the relevant contractual arrangements between UNIDO and SEPA were initiated based on a respective Terms of Reference.

The contract has been structured in a way that both approved project budget components (UNIDO portion, US$ 3,400,000 and Italian bilateral contribution, US$ 1,788.991, excluding support cost) constitute budget to enable UNIDO and SEPA to proceed with the practical implementation of the Sector Plan. After eventual approval of the second tranche the contract could be amended accordingly.

In accordance with the agreement between SEPA and UNIDO, the Sector Plan will be executed according to the respective UNIDO/SEPA implementation modalities. Specific features related to the national execution as well as flexibility of the fund utilization provided by the agreement between the Executive Committee and China have also been taken into account.

The funds from Italy were received by UNIDO on 4th June 2003. Due to the delay in transfer of the Italian contribution to UNIDO's account as well as various administrative difficulties created at SEPA by SARS, the contract was officially awarded to SEPA on 17th July 2003.

Subsequently, the original Milestones of the Sector Plan implementation have been adjusted accordingly as reflected in the attachment II.

2.3. Implementation activities of year 2003

The following activities have been initiated and partially completed during the reporting period:

2.3.1. In accordance to the Milestones, the experts of the Special Working Group of SEPA as well as the Expert Group revisited the refrigeration equipment manufacturing enterprises involved in the Sector Plan in order to verify the current operational and financial conditions to discuss potential scope of supply and services required for the conversion to the selected hydrocarbon technologies and to discuss the content and the conditions of the respective agreements between the project beneficiaries and SEPA reflecting technical, administrative and legal responsibilities of the parties concerned.
The agreements will serve as a basis for further formulation and implementation of the individual projects for the conversion of the enterprises concerned.

2.3.2. A work outline for the project management training of the managerial personnel of the enterprises has been prepared reflecting objectives, timing and modalities of a workshop to be conducted by the end of year 2003.

2.3.3. A work outline for the technical training of operational personnel of the enterprises was prepared reflecting objectives, contents, modalities and timing of two workshops to be organized to train approximately 40 technicians.

2.3.4. Draft project documents for individual enterprises have been prepared based on the results of the above-mentioned revisits to the project sites as well as the respective agreements with SEPA.
According to the Milestone, the enterprises will be addressed for conversion in three groups.

2.3.5. A survey of local and international markets with regards to the availability and sources for procurement of equipment, instrumentation, materials and engineering/consultancy services is in process.

2.3.6. Various technical and other information required for establishment of the information center are being collected. SEPA and CHEAA are in process of preparation of list and specification of hardware and software required for the center to be installed under SEPA's supervision.

2.4. Status of Italian bilateral contribution

Although the Italian bilateral contribution is an integral part of the general contract between UNIDO and SEPA under Sector Plan, the contribution is aimed on phase-out of CFC-12 and CFC-11 from manufacturing of domestic refrigerators at Guizhou Haier Electric Appliances Company. Therefore, the Haier project is treated separately from the rest of the enterprises included in the Sector Plan.

Following the agreed implementation modalities, an agreement between Haier and SEPA was signed and the project document was formulated in July-August 2003. The total cost of the project is estimated at US$ 3,391.000.

In accordance with the agreement between Haier and SEPA, terms and conditions of the contract between UNIDO and SEPA as well as conditions of the Italian contribution, not more than US$ 1,788,991 could be granted from the Sector Plan for this project for procurement of eligible equipment and services specified in the Sector Plan. Haier should absorb the rest of the actual project cost.

A bidding process for purchase of 4 sets of equipment was initiated by SEPA and the domestic procurement agency (China Green). It is expected that the relevant sub-contract or purchase orders could be placed by end of 2003.

3. Summary of activities undertaken with regard to the cancelled Hangli and Bole projects

Following decision 39/14 f described in item 2.1 above, several meetings between UNIDO, SEPA, CHEAA, managers of Hangli and Bole as well as the suppliers of equipment have been carried out at UNIDO Headquarters and in China. The outcomes of these meetings are summarized as follows:

3.1. Hangli Refrigeration Ltd., Hangzhou

The Hangli compressor factory is a joint venture of a Hong Kong enterprise (30%), Xiling (56%) and the Bank of China (14%). The Hong Kong Shareholder withdrew its capital from the company by selling its shares to Xiling. This move led to severe financial difficulties since Xiling was practically bankrupt. As a result, in agreement with the Government of China, the Executive Committee was requested to cancel the project.

The project was designed to convert a production of CFC-12 based compressors to isobutane technology and all eligible equipment was purchased and delivered to the project site.

In connection with cancellation of this project, UNIDO is currently negotiating legal and financial terms and conditions of termination of one small contract for engineering services. Upon completion of the negotiations, the actual balance of the project budget will be returned to the 43rd of the ExCom.

It is also relevant to be mentioned that the assistance provided to the project so far is representing a package of engineering services for the modification of the production facilities, redesign of models of the compressors for future manufacturing, consultancy services, training etc. As for the new production equipment is concerned (delivered to the project site in the period between July 2000 and June 2001), it was specifically designed for manufacturing of certain models of compressors and therefore cannot be used for manufacturing of other models of compressors.

As for the fate of the delivered equipment is concerned, due to cancellation of the project, SEPA is temporary owner of the equipment. According to the official statement of SEPA, see attachment III, neither the equipment itself nor the remaining cost of the equipment could be subject for consideration in connection with the Sector Plan since no any financial provisions for conversion of remaining compressor manufacturers was approved by the Executive Committee. Therefore, there is no ground for a deduction of any fund from the Sector Plan budget. Moreover, any deduction will unavoidably harm the CFC- phase-out programme from the manufacturing of domestic refrigerators and freezers under the Sector Plan.

3.2. Bole Electric Appliance Group

The project was designed to substitute CFC-12 and CFC-11 by isobutane and c-pentane respectively in manufacturing of refrigeration equipment at Bole. In accordance with the original project document, all equipment was purchased and delivered to the project site in 1999.
In connection with the project cancellation, the current situation and possible usage of the equipment for conversion of some enterprises included in the Sector Plan have been thoroughly discussed and analyzed during the recent mission to China, as well as with Cannon as the supplier of the equipment.
The following observations should also been taken into consideration:

- According to the approved technical concept of the conversion process, most of the existing production and supporting facilities expected to be retrofitted. Therefore, majority of the items of the delivered equipment are tailor-made to be compatible with the existing equipment and therefore cannot be used by other refrigeration equipment manufacturers;
- Technical condition of delivered equipment is not known since the boxes could not be opened without presence of the supplier due to the insurance policy;
- In case the boxes were opened, it is difficult to ensure further safe storage of it;
- The baseline equipment is the property of Bole and cannot be transferred elsewhere. Thus, the conversion kits above cannot be readily reused by another company;
- In case the project equipment has been taken away from the factory, Bole will not have any incentives to start conversion after completion of current legal investigations and temporary bankruptcy process;
- Taking into account that the factory is under the legal inspection and financial audit, the access to the production facilities and documentation is limited.

Upon request of UNIDO, Cannon experts made thorough technical analyses of the delivered equipment in order to advise UNIDO and SEPA on its possible usage and remaining value.

UNIDO was informed that one set of delivered equipment was designed and fabricated by Cannon to meet specific requirements of Bole's production facilities and to be compatible with existing machinery. Therefore this equipment has no value at all since it could not be utilized for a different plant configuration.

The second set of delivered equipment is mainly composed of retrofitting units to enables existing HP foaming machines to operate with c-pentane. Taking into consideration that the guarantee on the equipment manufactured in1999 has already been expired, neither Cannon nor the project beneficiaries are prepared to take responsibility for installation, commissioning and operation of these equipment due to mainly safety reasons even after standard maintenance. As a result, a safety certificate for the overall converted production facilities (in case these equipment are installed) will not be possible to receive.

A process of the contracts' termination with Cannon is in progress and approximately US$ 120,000 could be recovered from the termination. The recovered fund along with the actual balance will be returned to the 43rd Meetings of the ExCom.
According to Cannon, see attachment IV, the total value of the equipment is estimated approximately US$ 80,000.

4. Conclusion

As a result of investigations regarding the possibility of redeploying the equipment from both cancelled projects to Sector Plan (decision 39/14f), it was found that the redeployment is not technically feasible and the actual balance to be accrued from termination of the contracts along with the current balance could be returned to the Multilateral Fund in due course. Therefore, no fund could be deducted from the second tranche of the total project budget approved in principal for the Sector Plan.

In view of the above, SEPA and UNIDO consider that all conditions of the Decision 38/45 as well as Decision 39/14f are fulfilled and therefore the transfer of the second tranche US$ 2,171,539 and agency support cost of US$ 192,239 is requested.

Sector Phase-out Plan for CFCs in the Domestic Refrigeration (Manufacturing) Sector in China

Work Plan for the Years 2003-2006

Prepared by: SEPA, CHEAA, UNIDO

February 2003

A. Preface

1. The Sector phase-out Plan for CFCs in the domestic refrigeration (manufacturing) sector in China was approved by Decision 38/45 of the 38th meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol in November 2002.

2. The total fund approved in principle amounts to USD 7,360,530 which will be released by ExCom in two tranches: first tranche being US$ 3,400,000 to be charged to the multilateral fund and US$ 1,788,991 from Italian bilateral contribution. The second tranche of US$ 2,171,539 will be made available by the ExCom on its 40th Meeting upon acceptance of the Work Plan as stipulated in Decision 38/45.

3. The Chinese Government will execute this project with the assistance of UNIDO.

4. The purpose of the project is to phase-out and permanently sustains the reduction of CFC consumption by 1,099 ODP tonnes in the refrigeration sector from the national aggregate consumption of 3,508.7 ODP tonnes CFC of China, by 2006. From January 1, 2007, CFCs will be banned in Chinese refrigerator and freezer manufacturing processes.

5. This Work Plan was developed to facilitate planning, implementation and monitoring of the phase-out activities, their timetable and budgets.

6. In order to ensure and permanently sustain the targeted CFC phase out policy interventions are required. Thus, the Government will establish policies promoting enterprises to convert to CFC-free technologies, to terminate production of CFC based domestic refrigeration equipment and to enforce some enterprises to phase out CFC by closure. The Government will establish a mechanism to effectively monitor the progress and sustainability of the phase-out process in the sector. In view of the significance of policy measures and technical assistance support, appropriate budget for these components should be allocated, in addition to the investment component.

B. Phase-out target

The Sector Plan aims at the following yearly performance achievements:

Phase-out of CFCs in 2004: 140 tons

Phase-out of CFCs in 2005: 350 tons

Phase-out of CFCs in 2006: 609 tons

By 2006 the total CFC phase-out target of 1,099 ODP tonnes will be achieved and from January 1, 2007, the use of CFCs will be banned in CDRS.

C. Project Activities

7. The project activities will comprise of three groups of measures:
   7.1. Conversion of selected enterprises through investment and technical support services, including engineering, product development and training.
   7.2. Development and establishment of policy measures, public awareness.
   7.3. Technical assistance, including elaboration of appropriate standards, establishment of management information system.

8. The implementation of the project will be steered by a special work group (SWG), comprising of experts from SEPA/ FECO and Chinese Electrical Appliances Association (CHEAA). The SWG will be established by March 2003 and will be chaired by SEPA.

9. For the implementation of the project activities SEPA in cooperation with CHEAA will establish a Domestic Implementing Team (DIT), based on existing technical expertise, broad experience, managerial and co-ordination capacity within the sector.

D. Conversion of Eligible Enterprises

10. After approval of the Sector Plan, experts from SEPA/ FECO and CHEAA jointly revisited the remaining enterprises in the Sector. The review of the technical, production and financial status of these enterprises revealed, that the following ten refrigerator and freezer manufacturing enterprises are serious eligible candidates for participation in the conversion component: Beijing Xuehua Haixin, Jiaxing De'er, Guizhou Haier, Wenzhou Huawei, Zhejiang Shuanglong, Hubei Wanyin, Hunan Zhongyi, Mudanjiang Kangjia, Shandong Xiaoya, and Guangxi Dule

11. Due to the limited funds available, the conversion component of the Sector Plan cannot be implemented in the same way as the previous individual projects. Only the key equipment will be procured from project funds and the enterprises have to share part of the investment costs, furthermore, no incremental operating cost will be considered.

12. In view of the scarce availability of funds, the conversion of the compressor enterprises will be supported only through technical assistance and training programmes. These programmes will assist the companies to convert their

13. Compressors and manufacturing techniques to non-CFC alternatives, improve the design and quality of products.

14. For the technical support of the project the SWG will establish an Expert Team in March 2003.

15. Both the Expert Team and the DIT will work under the leadership of the SWG.

16. The Expert Team will prepare project documents for each eligible refrigerator and freezer manufacturing enterprises. The project documents will contain the description of the current technologies, equipment and products, the baseline consumption of CFCs, the selection of the alternative CFC-free technologies, the list of equipment and services required for the conversion, as well as the distribution of responsibilities of the parties involved. The document will also outline the estimated budget, counterpart co-sharing requirements and the planned implementation schedule.

17. The enterprises undergoing conversion are divided into three groups based on their technical and financial conditions and market position. In the prioritisation of the enterprises the availability of financial and human resources of project implementation as well as the mandatory phase-out targets of the Sector Plan will be taken into full consideration.

18. The conversion of the first group of up to four enterprises will yield to a CFC phase-out of minimum 490 ODP tonnes. The project documents for this group of enterprises will be made available by July 2003.

19. The second group of approximately four enterprises will represent a CFC phase-out of 350 ODP tonnes. The project documents for these companies will be ready by December 2003.

20. The conversion of the remaining enterprises will result in a CFC phase-out of 249 ODP tonnes. The project documents will be finished by May 2004.

21. An independent technical evaluation team will review all project documents.

22. The project documents will be submitted to the SWG for approval.

23. Based on the recommendation of the SWG, phase-out contract will be signed by SEPA, DIT and the individual enterprises. The model phase-out contract will be agreed upon between UNIDO and SEPA.

24. The phase-out contracts for the first group of enterprises will be signed by end September 2003; for the second group – by end March 2004 and for the third group - by end July 2004.

25. Upon its signature, a copy of the complete phase-out contract signed by SEPA, DIT and enterprises, will be submitted to UNIDO along with its translation to English.

26. Based on the signed phase-out contract, DIT, in close cooperation with respective enterprises, will implement the conversion project in accordance with

the approved project document.

27. DIT will set up a project management and information system which should enable SWG, SEPA and UNIDO to exercise their respective monitoring, auditing and reporting obligations on the progress and performance of each conversion project of the Sector Plan and on the Sector Plan as a whole.

28. Upon completion of the project, DIT will inform SWG. In turn, SWG will undertake a site inspection and will decide whether all conditions of the project have been met. In case of satisfactory completion, SWG will sign a completion report and a certificate on destruction of CFC related equipment. These documents shall be prepared by DIT.

29. The title of equipment will be passed on from SEPA to the respective enterprise upon signature of the completion report by SEPA, i.e. after complete cease of CFC consumption, start-up of CFC-free production and destruction of the CFC related equipment.

30. SWG will inform UNIDO on the successful project completion and request verification of the annual phase-out result of the project for further reporting to the Executive Committee of Multilateral Fund.

E. Policy Measures

a. Policies in place

31. Various existing policies will contribute to facilitate the domestic refrigeration sector phase out targets being achieved. Key policies include:

31.1. <u>To control expansion of CFC based production capacities</u>
On November 11, 1997, SEPA, State Planning Commission, State Economic and Trade Commission and State Administration of Industry and Commerce issued a ban-Circular on Bans of Establishment of New Production Sites for Production and Consumption of ODS. The ban requires all regions not to build, enlarge or renovate ODS-producing equipment and other equipment using ODS as material. The measures adopted ensure that new non-CFC products become established in the market place at a sufficient rate for the phase-out goals to be achieved.

30.2. To control CFC supply:
30.2.1 CFC Production quota system: A tradable production quota system has been adopted for the CFC production sector. Annual CFC production quotas are issued to CFC producers, and are reduced annually based on the CFC production sector plan. The system will effectively reduce the uncertainties in implementing this sector plan. The future shortage of CFC supply will also encourage the move to use of substitutes and alternative technology.

30.2.2 Import & export license system: A notice on controlling import and export of ODS was issued and entered into force in April 2000. The regulation requires ODS import and export activities to be registered. Importation of CFCs is controlled by a national import quota system; the quota is determined on a yearly basis.

30.2.3 A production quota system controls the national supply of CFCs. The management of ODS imports and exports, effectively regulates and encourages the development and production of substitutes.

b. Policies Under Development and/or Consideration for this Sector Plan

31. Production ban

By the end of 2005, production bans will be issued by SEPA and the respective line ministries to stop CFC based refrigeration equipment production starting from 1January 2007, which will force remaining enterprises to close or convert. The aim of the measures is to cease production of all CFC- based refrigeration equipment. SEPA, respective line ministries, local governments and China Household Electrical Appliances Association (CHEAA) will organize information dissemination and public awareness campaigns on and supervision of the ban.

32. Control of import and export

In 2004, the responsible line ministries, SEPA, and GCA (General Custom Administration) will set up a system of control of foreign trade of CFC refrigeration appliances and will issue the ban to stop importing as of 1 January 2005 and exporting in as of 1 January 2007 CFC based refrigerator and freezer.

33. Ban of sale

By the end of 2005 sale bans will be issued by the respective line ministries to stop sale of CFC based refrigeration equipment starting from 1 January 2008. The State Administration of Industry and Commerce, assisted by CHEAA, will enforce the ban.

34. Safety regulations for using flammable refrigerants and blowing agents

Since some substitutes are flammable, safety regulations will be promulgated to prevent fire accidents and guarantee the safety of workers.

35. Awareness policy

Raise public awareness through various media programmes disseminating information on depletion of Ozone Layer caused by ODS and to encourage consumers to purchase CFC free products.

F. Technical Assistance and Other Supporting Services

36. In addition to the provision of equipment and services for the conversion of the selected eligible enterprises, a package of technical assistance will be provided through the DIT as follows:

36.1. Consultancy services and training on selection of alternative technologies, refrigerator and freezer model redesign, industrial safety aspects of conversion;

36.2. Consultancy services and training on selection of alternative CFC- free compressor manufacturing technologies, implementation of compressor model redesign (three models for each company) , industrial safety aspects of conversion

36.3. Training on project management, financial and reporting requirements related to implementation of phase out activities under the Sector Plan.

36.4. Market survey on availability of production equipment and control instrumentation for efficient implementation of conversion work.

36.5. Collect and disseminate experience on successful CFC phase out projects through training and awareness programmes to encourage enterprises to take part in phase out activities.

37. Revision of national standards on products and components, establishing of new national standards for CFC- free appliances:
Two technical standards will be formulated. One is the safety standard on handling and servicing R600a refrigerator products and the other is the safety standard on manufacturing processes using flammable chemicals, like cyclopentane and R600a, in the domestic refrigeration industry. The work would be initiated in 2003 and completed in 2004 .

38. Setting up a Management Information System by DIT for data collection and monitoring of the implementation of the Sector Plan to ensure sustained achievement of its phase- out targets, as approved in Dec. 38/ 45 of the ExCom. This system should be in place throughout the full compliance period, i.e. until year 2010.

39. The Sector Plan will support initiatives to enable continuous supply of most up to date and appropriate materials for the Domestic Refrigeration Sector.

G. Budget

40. The total budget approved in principle amounts to US$ 7, 360, 530. The first tranche already released by the ExCom is US$ 3 , 400, 000 to be charged to the multilateral fund and US$ 1, 788, 991 from Italian bilateral contribution. The second tranche of US$ 2 , 171, 539 will be released by the ExCom on its 40th

Meeting upon meeting of conditions put forward in Dec. 38/ 45.

41. The suggested allocation of the total project funds by components is as follows:

- Policy measures and Technical Assistance: **USD 1,150,000**
- Conversion of enterprises (Investment component) : **USD 5,010,530**
- Other phase- out support activities and contingency: **USD 1,200,000**

H. Reporting Requirement

42. The following milestones should be applied in the project. The contractor should report after each of these milestones.

a. Signature of the contract between UNIDO and SEPA
- *(04. 2003)*

b. On phase- out contracts for the first group of enterprises to phase- out at least 490 ODP tonnes: - *(09.2003)*

c. On completion of competitive bidding and selection of equipment suppliers for the first group of enterprises
- *(12. 2003)*

d. On phase- out contracts for the second group of enterprises to phase- out at least 350 ODP tonnes:
- *(03. 2004)*

e. On phase- out contracts for the third group of enterprises to phase- out at least 259 ODP tonnes:
- *(07. 2004)*

f. On verification of CFC phase- out of 140 ODP tonnes
- *(12. 2004)*

g. On verification of CFC phase- out of 350 ODP tonnes
- *(12. 2005)*

h. On verification of CFC phase- out of 609 ODP tonnes
- *(12. 2006)*

i. Final Report (PCR)
- *(05. 2007)*