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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-sixth Meeting
Montreal, 20-22 March 2002

PROJECT PROPOSALS: CHINA

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

Foam

• Elimination of CFC-12 in manufacturing of EPE foam packaging nets at 30 enterprises (Terminal Umbrella Project)	UNIDO

Other

• 2001 implementation report and 2002 workplan under the tobacco sector plan for CFC-11 phaseout in China (second instalment)	UNIDO

Production

• Sector plan for CFC production phaseout in China, 2002 annual programme	World Bank

Refrigeration

• Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of medium open compressors at Dalian #2 Refrigeration Machinery Factory	World Bank

• Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small and medium open compressors at Shanghai Minhang Refrigerator Factory	World Bank
• Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small open compressors at Zhejiang Beifeng Refrigeration Machinery Co. Ltd	World Bank
• Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small open compressors at Zhejiang Chunlian Refrigeration Machinery Co. Ltd	World Bank
• Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small open compressors at Zhejiang Yuhuan Refrigeration Machinery Co. Ltd	World Bank

Solvent

• The 2002 implementation programme of the China solvent sector plan	UNDP

PROJECT EVALUATION SHEET
CHINA

SECTOR: Foam ODS use in sector (1999): 23,143 ODP tonnes

Sub-sector cost-effectiveness thresholds: Polystyrene/Polyethylene US $8.22/kg

Project Titles:

(a) Elimination of CFC-12 in manufacturing of EPE foam packaging nets at 30 enterprises (Terminal Umbrella Project)

Project Data	**Polystyrene/polyethylene**
	30 Enterprises
Enterprise consumption (ODP tonnes)	849.00
Project impact (ODP tonnes)	
Project duration (months)	30
Initial amount requested (US $)	1,118,726
Final project cost (US $):	
Incremental capital cost (a)	6,552,000
Contingency cost (b)	625,200
Incremental operating cost (c)	-1,361,967
Total project cost (a+b+c)	5,815,233*
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	1,530,000
Cost effectiveness (US $/kg.)	
Counterpart funding confirmed?	Yes
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 $)	

*UNIDO requests partial funding of the grant amount.

PROJECT DESCRIPTION

Sector background

1. At the 35th Meeting in December 2001, the Executive Committee approved an agreement for CFC phase-out in the polyurethane foam sector in China with a total phase-out target of 14,143 ODP tonnes of CFC-11 and total funding of US $53.85 million. In addition, the Committee approved a terminal umbrella project with a value of US $2,450,123 to phase out 359 ODP tonnes of CFC-12 in the manufacture extruded polystyrene foam. The approval of this extruded polyethylene foam project will, therefore, result in the funding of the entire CFC consumption in the foam sector in China.

2. The residual consumption remaining to be addressed in China by the Multilateral Fund was identified in the polyurethane foam sector agreement as 4,745 ODP tonnes of CFCs. This will be reduced by the consumption approved at the 35th Meeting of 359 ODP tonnes of CFC-12 to be phased out in the terminal umbrella EPS foam project as well as 849 ODP tonnes in this terminal umbrella EPE foam project if approved at the 36th Meeting.

Polyethylene/polystyrene Foam

Sub-sector Background information

3. The phase-out of CFC-12 from the polyethylene and polystyrene foam sub-sector is covered under a strategy plan submitted by UNIDO to the Executive Committee at its 33rd Meeting. The strategy plan envisioned submission by China of 5 group projects to phase out a total of 6,661 ODP tonnes of CFC-12 in the manufacturing of extruded polyethylene and polystyrene foams. Two umbrella projects for a total amount of US $9.8 million had been approved at the 25th and 28th Meetings. The three remaining group projects were scheduled to be submitted as follows:

1. Mid-2001 Terminal EPE group project (30 enterprises)
2. End-2001 1st Group EPS project (9 enterprises)
3. Mid-2002 Terminal EPS group project (7 enterprises)

However, at the request of the Government of China the second and third group projects were rather submitted in 2001, leaving the terminal EPE project for 2002.

4. The summary of the groups of projects in the EPE/EPS sector for China under the strategy plan is given below:

Date	Project	No. of Enterprises	Grant Amount US $	CFC Phase-out ODP Tonnes
Already Approved Projects				
July 1998	Group EPE project	25	4,488,516	1,146.0
July 1999	Group EPE project	27	5,289,441	825.7
July 2001	Group EPS project	9	2,808,338	750.0
December 2001	Terminal EPS project	7	2,450,123	359.0
TOTAL		68	15,036,418	3,080.7
Projects in the Pipeline				
March 2002	Terminal EPE project	30	5,815,000	849.0

5. In view of business planning limitations UNIDO is requesting further revision to the schedule of funding of the EPE/EPS projects under the strategy plan as follows:

(a) To approve in principle the remaining group project, i.e. the terminal umbrella EPE project for 30 enterprises at the 36th Meeting.

(b) To approve payment of the eligible incremental cost of the project in three tranches to be covered under 2001-2003 business plans.

6. Consequently, the project is submitted to the 36th Meeting as requested by UNIDO with the agreement of the Government of China. The payment schedule and any relevant conditions will be communicated to the Sub-Committee on Project Review following agreement of the eligible level of funding which is still under discussion between the Secretariat and UNIDO.

Terminal Umbrella project: 30 enterprises

7. The 30 enterprises included in the umbrella project consumed a total of 849 ODP tonnes of CFC-12 per year in the production of extruded polyethylene foam nets. They all operate single screw extruders of capacity 105-115 kg/hour manufactured in China sixty of the sixty-one extruders were installed in 1993 and 1994. The remaining extruder was installed in January 1995. The profile of the 30 enterprises is provided in Table 1 below.

8. The enterprises will convert their production from CFC-12 to butane as the foaming agent. The project includes incremental capital costs for the 30 enterprises amounting to US $6,552,000, covering the cost of retrofitting 61 existing extrusion lines, butane storage facilities and fire protection and safety equipment, as well as consultancy, trials and training and safety certification. Incremental operating savings of a total of US $1,361,967 are deducted from the respective budgets according to the level of CFC-12 consumption.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

9. The Secretariat identified a number of technical issues which are still under discussion with UNIDO. The total level of funding of the project as well as its breakdown by individual enterprise will be communicated to the Sub-Committee on Project Review. As stated in paragraph 6 above, the agreed schedule and conditions of release of funding will also be communicated to the Sub-Committee.

RECOMMENDATIONS

Pending.

Table 1: Profile of enterprises in the terminal project to phase-out CFC-12 in manufacturing of EPE Foams

	Name	No. of Extruders	Installation Date	Production Tonnes	CFC-12 Consumption Tonnes	Total ICC, US$	10% Contingency* US$	IOC (saving) US$	Project Budget US$	Cost-effectiveness US$/kg
1	Shandong Xixia Plastics Foam Nets Plant	1	08/93	56.7	14	120,400	11,540	-22,812	109,128	7.69
2	Shandong Sitong Packaging Nets Plant	5	05/93, 11/94	273.5	68	467,100	46,210	-109,190	404,120	5.93
3	Shandong Xixia Fruit Freshness-retaining Packing Plant	1	04/94	56.3	14	120,400	11,540	-22,016	109,924	7.97
4	Shandong Tongda Packaging Nets Plant	4	05/93, 10/94	202.3	51	383,200	37,820	-81,656	339,364	6.68
5	Shandong Hefengqiao Packaging Nets Plant	1	03/94	53.7	13	116,400	11,140	-20,667	106,873	8.22
6	Shandong Liyuan Packaging Nets Plant	5	93/94	255.7	64	467,100	46,210	-102,782	410,528	6.41
7	Pucheng Baofeng Packaging Nets Plant	2	03/94	116.8	29	214,900	20,990	-46,663	189,227	6.50
8	Shandong Yongxing Packaging Nets Plant	2	06/94	111.7	28	214,900	20,990	-44,990	190,900	6.82
9	Pucheng Xingshen Packaging Nets Plant	2	09/94	108.3	27	214,900	20,990	-43,513	192,377	7.10
10	Xinjiang Jinma Packing Co.,Ltd	3	93/94	170.0	42	295,900	29,090	-67,181	257,809	6.14
11	Pucheng Xingquan Packaging	1	11/93	55.3	14	120,400	11,540	-21,928	110,012	8.03
12	Pucheng Jinyao Packaging Nets Plant	2	93/94	116.0	28	214,900	20,990	-44,673	191,217	6.80
13	Shanxi Pucheng Hongtupo Packaging Nets Plant	1	12/94	55.8	14	120,400	11,540	-22,495	109,445	7.82
14	Shanxi Huacheng Packaging Nets Plant	1	01/95	56.7	14	120,400	11,540	-22,603	109,337	7.75
15	Shanxi Rongchang Packaging Nets Plant	2	93/94	106.7	27	214,900	20,990	-42,879	193,011	7.23
16	Xinjiang Jinma Packing Co.,Ltd	3	93/94	168.5	42	295,900	29,090	-67,363	257,627	6.13
17	Shanxi Xingyuxing Packaging Nets Plant	1	08/94	64.7	16	120,400	11,540	-25,953	105,987	6.56
18	Shanxi Sihai Packaqing Nets Plant	3	93/94	180.0	42	295,900	29,090	-67,175	257,815	6.15
19	Shanxi Wenming Packaging Nets Plant	1	09/94	63.5	16	120,400	11,540	-25,119	106,821	6.80
20	Sichuan Chongqing Bishan packaging Nets Plant	1	03/94	53.2	13	116,400	11,140	-21,355	106,185	7.98
21	Shandong Qushi Fruit Packaging Nets Factory	1	06/93	51.8	13	116,400	11,140	-20,681	106,859	7.63
22	Pucheng Laosong Packaging Nets Plant	2	03/93, 11/93	110.7	28	214,900	20,990	-44,484	191,406	6.91
23	Shandong Xinlong Packaging Nets Plant	4	93/94	208.3	52	383,200	37,820	-83,646	337,374	6.48
24	Shandong Longkou Changlunzhuang Packaging Nets Plant	2	05/93	106.5	27	214,900	20,990	-42,686	193,204	7.26
25	Shanxi Xuehua Packaging Nets Plant	2	1993	107.3	27	214,900	20,990	-42,798	193,092	7.23
26	Shanxi Poli packaging Nets Plant	2	07/93	110.7	28	214,900	20,990	-45,321	190,569	6.78
27	Shanxi Paper Packaging Plant	2	93/94	108.5	27	214,900	20,990	-43,283	192,607	7.13
28	Shanxi Qian County Packaging Net Plant	2	93/94	110.0	27	214,900	20,990	-43,729	192,161	7.04
29	Shanxi Qian-Xing Country Packaging Nets Plant	1	12/93	54.3	14	116,400	11,140	-21,841	105,699	7.77
30	Yichun Plastics Plant	1	01/93	126.7	32	141,400	13,640	-50,487	104,553	3.32
		61		**3,420**	**849**	**6,402,000**	**625,200**	**-1,361,967**	**5,665,233**	
	General consultancy, technology transfer, civil/electrical/mechanical engineering design and training services								150,000	
									5,815,233	**6.85**

*10% contingency excludes US $5,000 for safety certification per project and US $150,000 for technical assistance for the whole project

PROJECT EVALUATION SHEET
CHINA

SECTOR: Other (Tobacco Expansion) ODS use in sector (1999): 1,090 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Title:

(a) 2001 implementation report and 2002 workplan under the tobacco sector plan for CFC-11 phaseout in China (second instalment)

Project Data	**Tobacco fluffing**
Enterprise consumption (ODP tonnes)	
Project impact (ODP tonnes)	120.00
Project duration (months)	12
Initial amount requested (US $)	2,000,000
Final project cost (US $):	
Incremental capital cost (a)	2,000,000
Contingency cost (b)	
Incremental operating cost (c)	
Total project cost (a+b+c)	2,000,000
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	2,000,000
Cost effectiveness (US $/kg.)	16.66
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 $)	

PROJECT DESCRIPTION

2001 implementation report and 2002 workplan under the tobacco sector plan for CFC-11 phaseout in China (second instalment)

Background

10. At its 30th Meeting, the Executive Committee approved in principle US $11 million for the implementation of the tobacco sector plan for CFC-11 phase out in China (Sector Plan) and requested UNIDO to prepare a draft agreement governing disbursement modalities, performance requirements and monitoring procedures of the sector plan.

11. At the 32nd Meeting of the Executive Committee, UNIDO submitted a draft agreement requested under Decision 30/54, together with an annual work programme for 2001, at a cost of US 2 million. Subsequently, the Executive Committee decided to:

(a) approve the agreement between the Government of China and the Executive Executive Committee (UNEP/OzL.Pro/ExCom/32/44 Annex XIII);

(b) approve US $2 million for the implementation of the 2001 work programme;

(c) request that UNIDO report to a future meeting of the Executive Committee on the use of funding allocated to support costs, which would be revisited in two years (Decision 32/69).

12. The Government of China has submitted for consideration by the Executive Committee at its 36th Meeting, a progress report on the implementation of the 2001 work programme together with a request in the amount of US $2 million for the implementation of the annual work programme for the year 2002.

Progress report on the implementation of the 2001 work programme

13. At the beginning of 2001, a CFC-11 consumption quota licensing system in the tobacco sector was put in force. The system determined a CFC-11 consumption quota for each company for the year 2001 in accordance with the total CFC-11 consumption for the tobacco sector and the actual production level of the company. A CFC-11 consumption quota license was assigned to each company. According to the monthly statistics reported by the companies, total annual consumption of CFC-11 through December 2001 has been estimated at 956.7 tonnes.

14. Eligible tobacco expansion companies were invited to phase out their 2001 CFC-11 quota through a public bidding system. The bidding took place in January 2001; ten companies which intended to dismantle their CFC-11 equipment in 2001 submitted their bids (UNIDO was fully informed of the bidding process and all relevant documents were reviewed by the implementing agency).

15. In February 2001, the State Tobacco Monopoly Administration (STMA) and the State Environmental Protection Administration. (SEPA) set up an evaluation Executive Committee to review the bids that were submitted. The Executive Committee selected eight sets of expansion equipment from seven companies for dismantling; one additional unit operating at Wuhu Cigarette Factory, which was installed after July 25, was dismantled at the factory's request, with no compensation from the Multilateral Fund. In total, 97.4 tonnes of CFC-11 were phased out as shown in the following table:

No. in sector plan	**Company name**	**Equipment**		**CFC-11 (tonnes)**
		Amount	**Date installed**	
18	Tongren Cigarette Factory	1	Aug 91	6.3
20	Bijie Cigarette Factory	1	Oct 93	0.0
22	Lichuan Cigarette Factory	1	Apr 92	25.0
23	Zaoyang Cigarette Factory	1	Mar 92	21.8
42	Chongqing Cigarette Factory	1	Oct 92	8.5
52	Hangzhou Cigarette Factory	1	Oct 87	22.3
56	Yuxi Hongta Group Changchun Cigarette Factory	2	Jan 85	5.8
33	Wuhu Cigarette Factory(*)	1	Dec 96	5.0
Total		9		94.7

(*) No compensation provided from the Multilateral Fund.

16. Each time a CFC-11 tobacco expansion equipment was dismantled, members of the Special Working Group of the Tobacco Sector Plan, the Foreign Economy Co-operation Office of SEPA, the corresponding provincial Tobacco Monopoly Administration, the local Environmental Protection Bureau as well as members of the local notary public's office were present (the dismantling process was videotaped and photographed and notarised; the tapes and photographs were kept by the Special Working Group for review by the implementing agency).

17. During project implementation, the Government of China decided that further research and analysis was needed to address problems that may arise in implementing the control instruments and its compliance with World Trade Organisation (WTO) rules. It is expected that a trade management mechanism will be set up at the beginning of 2002 (the first expected measure is a ban on import and/or export of tobacco expanded with CFC-11 and/or cigarettes that use expanded tobacco with CFC-11 expansion.

18. The following technical assistance activities were undertaken in 2001:

(a) A training workshop for provincial tobacco monopoly administrations and tobacco companies to discuss implementation modalities of the Sector Plan was held in Guangzhou, in December 2000;

(b) A meeting to explain the proposed quota system, and to set up the management and surveillance system for the implementation of the Sector Plan, was held in January 2001;

(c) A management information system was developed and is now operational and has been set up in the premises and local branches of STMA and SEPA. The system

monitors CFC-11 consumption at the enterprise level, preventing consumption above the allocated quotas; identifies idle capacity and availability of expanded tobacco;

(d) In December 2001, a survey was initiated at Henan Xinzheng Cigarette Factory to investigate the effect of packing on the expanded tobacco, which is being transported. Also, in March 2001, the Zhengzhou Tobacco Research Institute was selected to prepare a study to optimise expanded tobacco transportation;

(e) Experts and technicians from enterprises manufacturing CFC-11 tobacco expansion equipment were invited to address issues related with higher consumption of CFC-11 in some companies compared to standard levels (Guiyang, Zunyi, Xiamen, Shaoguan, Zhangjiakou and Longyan). Based on the work conducted by the experts, expanded tobacco output per unit of CFC-11 used increased. The experts also prepared a "Manual of CFC-11 tobacco expansion equipment" that was distributed among tobacco companies.

Annual work programme for 2002

19. The main activities to be implemented in the 2002 work programme are:

(a) In the first quarter of 2002, the Government of China will issue a total of 880 tonnes CFC-11 consumption quota for the year 2002. This will be followed by a public bid directed to the remaining qualifying enterprises to phase out up to 120 tonnes of CFC-11, according to the Sector Plan;

(b) Equipment dismantling contracts will be signed with the selected bidders and equipment dismantling will be monitored according to the procedures established in 2001;

(c) A trade management mechanism prohibiting import and/or export of CFC-11 expanded tobacco will be enforced;

(d) Technical assistance activities will include: the completion of the study on trade management mechanisms including its consistency with WTO rules; continuation of work in reduction of the amount of CFC-11 used on existing expansion equipment; feasibility studies on supply of expanded tobacco through grouping enterprises; and optimisation of the transportation of expanded tobacco;

(e) The performance indicators for the proposed activities to be implemented in 2002 are shown in the following table:

CFC-11 Phase-out Target			
Current consumption (ODP tonnes)	Phase-out target in 2002 (ODP tonnes)	Consumption at the end of 2002 (ODP tonnes)	Performance indicators
1,000	120	880	National consumption level and residual users' consumption level

Policy Enforcement	
Policy measures	Performance indicators
CFC-11 quota licensing for 2002, 880 tonnes maximum	Assignment and enforcement of quotas

Activities at Company Level	
Activity	Performance indicators
Closure of CFC-11 expansion equipment (64 lines)	1. Bidding process to select lines to be closed down completed. 2. Contracts signed. 3. Dismantling of production lines accomplished. 4. Reports on dismantling process and project completion submitted

Technical assistance activities	
Activity	Performance indicators
Information, awareness and training	Dates of training activities and dissemination of informative material to be determined.
Study on trade management mechanism	A ban on all imports and exports of tobacco expanded through the use of CFC-11 and of cigarettes made of tobacco that have been produced by means of CFC-11 expansion to be announced.
Continued work for reduction of CFC-11 consumption in existing equipment	Experts to finalise technical consultation and training, and submit performance reports.
Feasibility studies on supply of expanded tobacco	Results of feasibility studies to be submitted.
Study on transportation of expanded tobacco	Report to be submitted in final form.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

20. The Secretariat reviewed the progress report on the implementation of the 2001 work programme submitted by UNIDO, against the agreement between the Executive Committee and the Government of China on the phase-out strategy for the tobacco sector. The Secretariat noted that through the activities implemented in 2001, CFC-11 consumption for tobacco expansion decreased by 94.7 ODP tonnes (4.7 ODP tonnes more than the amount agreed).

21. The Secretariat also noted the implementation of technical assistance activities carried out in 2001, in particular the establishment of the management information system which, among others, monitors CFC-11 consumption at the plant level preventing consumption above the allocated quotas; and the reductions in CFC-11 consumption in some companies.

22. For the work programme for the year 2002, the Secretariat noted that the CFC-11 phase-out target of 120 ODP tonnes is in accordance to the amount to be phased out indicated in the agreement.

RECOMMENDATION

23. The Executive Committee may wish to consider approving the 2002 Annual Work Programme of the Tobacco Sector Plan for CFC-11 Phase out in China and allocate US $2 million for its implementation.

24. Pursuant to Decision 32/69, the Executive Committee may also wish to request UNIDO to report on the use of funding allocated to support costs together with the work plan for the year 2003.

PROJECT EVALUATION SHEET
CHINA

SECTOR: Production ODS use in sector (199): N/A

Sub-sector cost-effectiveness thresholds: N/A

Project Titles:

(a) Sector plan for CFC production phaseout in China, 2002 annual programme

Project Data	**CFC closure**
Enterprise consumption (ODP tonnes)	
Project impact (ODP tonnes)	
Project duration (months)	12
Initial amount requested (US $)	13,000,000
Final project cost (US $):	
Incremental capital cost (a)	
Contingency cost (b)	
Incremental operating cost (c)	
Total project cost (a+b+c)	
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	13,000,000
Cost effectiveness (US $/kg.)	
Counterpart funding confirmed?	
National coordinating agency	
Implementing agency	IBRD

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 $)	

PROJECT DESCRIPTION

25. The 2002 annual programme for the CFC production sector phase-out in China was submitted by the World Bank and approved by the Executive Committee at its 35th Meeting in December 2001, noting that "the funding request would be submitted by the World Bank to the 36th Meeting, together with a verification report on the implementation of the 2001 annual programme."(Decision 35/49)

26. As requested, the World Bank is submitting to the 36th Meeting the verification report on the implementation of the 2001 China CFC production phase-out programme (see Annex I) which contains the verification of complete closure of 3 plants included in the 2001 annual programme (identified by the SRIC audit report numbers as A7, A11 and B5), and the 7 plants which were producing under the quota system in the 2001 annual programme (identified by the SRIC audit report numbers as A8, A10, A13, A14, B8, B12, and B14).

27. The report includes 5 parts. Part 1 is a summary of the major findings on such parameters like the overall consumption of feedstock, and overall assessment on the achievement of the target of the 2001 annual plan. Part 2 is a description of the verification of the 7 plants which were producing under the 2001 quota. It starts with an assessment of the follow-up that had been implemented by the plant on the suggested improvements proposed by the last audit and continues with comments on the quality of record-keeping, and a detailed discussion of the methodology and the records used to verify CFC production, consumption of feedstock. Part 2 concludes with identification of the issues, and their conclusion.

28. Part 3 presents the findings in the format approved by the Executive Committee and covers data on production capacity, product mix, production quota and production, feedstock consumption ratio and actual consumption, and days of operation. Part 4 contains the verification of the closure and dismantling of the 3 plants in 2001, where the data is entered into the format approved by the Executive Committee and concludes with an assessment of completeness of the dismantling. Finally Part 5 includes a financial audit of the plant as an effort to confirm the results from the physical audit of the plant.

29. The overall assessment of the verification is that China complied with the annual target set in the Agreement for the year 2001,with the total actual production of 36,196.1 ODP tonnes which is lower than that in the agreement at 36,200 ODP tonnes. With the verification report, the World Bank requests the release of US $13 million and the associated support cost for the 2002 annual programme.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Compliance with the guidelines for verification of ODS production phase out

30. The verification of the 2001 work programme shows significant improvement in complying with the guidelines for verifications of ODS production phase-out, as compared with the reports of earlier years. This improvement was already evident in the revised verification report of the 2000 work programme submitted in July 2001 by the World Bank when requesting the second 50% of the funding for the 2001 work programme. There is a better adherence to the approved formats, and a much more detailed description of the methodology and the adequacy of the supporting documents used to track and validate the CFC production, and the consumption of the feedstock. There is also a fuller discussion of the issues identified and a year-to-year follow-up on those issues to ensure improvement.

Issues related to compliance with production quotas

31. In two cases, Zhejiang Chemical Research Institute for the quota on CFC-114 and Jiangsu Changsu 3F Refrigerant Co. Ltd. for the quota on CFC 11, the verification report cautioned about the narrow margin that the two plants complied with their quotas. In the case of Zhejiang Chemical Research Institute, there was a production of 6.833 tonnes of CFC-114, an overproduction of 0.033 ton of the quota 6.8 tonnes. The plant was in compliance with the quota only because the 0.033 tonne was rounded to one decimal on reporting. In the case of the 3F, the way that the plant treated leakage as credit against their allocated quota was challenged by the verification team on ground that any finished product to the atmosphere should be counted as ODS release and therefore production and the way of treating the leakage could make the difference between compliance or non-compliance with the quota for the plant because the reported production of CFC-11 is 8,221.9 MT against the quota of 8,222 MT.

32. There should be standard treatment of significant leakage of finished products and closer monitoring of the quota implementation by the Government. It is noted however that the Government has introduced peer on-site inspection among the remaining CFC producers for better monitoring.

Data from the financial verification

33. The introduction of the financial verification to reinforce the physical audit is a welcome initiative however there is scant data provided under Part 5 of the report to offer any insight on the outcome and conclusions made.

34. There is no financial reporting on the expenditures on the technical assistance programme and the verification does not cover it. However there is significant financial allocation to the programme. It is not clear whether the World Bank intends to cover the technical assistance programme with the financial audit or what are the mechanisms that the Bank currently use to

exercise oversight over this programme, specifically the frequency of financial reporting and the agency that carries out the audit.

Review of the administrative fee for the World Bank

35. The Agreement provides "The World Bank has agreed to be the Implementing Agency for this project. The fee for the first three years will be at a fee of 9% of project costs per annum disbursed during that time period." 2002 will be the fourth year of the programme and a review of the administrative fee for the World Bank should take place to determine a) the rate of the fee and b) the duration that the fee to be determined should cover.

RECOMMENDATIONS

36. The Secretariat recommends that the Executive Committee release to the World Bank US $13 million for the implementation of the 2002 work programme of the China CFC production phase out programme.

37. The Secretariat recommends that the Executive Committee should decide on the level of administrative fee that should be paid to the World Bank for continuing managing the programme and the duration of the fee to be determined. Once the rate is determined, the associated administrative fee for the 2002 work programme of China should be released to the Bank.

38. The Secretariat recommends that the World Bank provide information on the financial oversight exercised over the technical assistance programme, specifically the frequency of the financial reporting and the institution which carries out the audit.

PROJECT EVALUATION SHEET
CHINA

SECTOR: Refrigeration ODS use in sector (2000): 6,855 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial US $15.21/kg

Project Titles:

(a) Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of medium open compressors at Dalian #2 Refrigeration Machinery Factory
(b) Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small and medium open compressors at Shanghai Minhang Refrigerator Factory
(c) Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small open compressors at Zhejiang Beifeng Refrigeration Machinery Co. Ltd
(d) Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small open compressors at Zhejiang Chunlian Refrigeration Machinery Co. Ltd
(e) Replacement of CFC-12 refrigerant with HCFC-22 in the manufacture of small open compressors at Zhejiang Yuhuan Refrigeration Machinery Co. Ltd

Project Data	**Commercial**				
	Dalian #2	**Shanghai Minhang**	**Zhejiang Beifeng**	**Zhejiang Chunlian**	**Zhejiang Yuhuan**
Enterprise consumption (ODP tonnes)	154.18	125.00	149.76	146.47	216.60
Project impact (ODP tonnes)	148.78	120.62	144.52	141.34	209.60
Project duration (months)	36	36	36	36	36
Initial amount requested (US $)	1,828,852	1,576,100	1,524,886	1,546,071	1,395,399
Final project cost (US $)*:					
Incremental capital cost (a)	1,652,562	1,635,589	1,651,812	1,604,567	1,578,802
Contingency cost (b)	165,256	163,559	165,181	160,457	157,880
Incremental operating cost (c)	43,563	205,244	299,868	338,472	237,881
Total project cost (a+b+c)	1,861,381	2,004,392	2,116,861	2,103,496	1,974,563
Local ownership (%)	100%	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%	0%
Amount requested (US $)	1,599,680	1,583,250	1,598,954	1,553,221	1,528,280
Cost effectiveness (US $/kg.)	10.75	13.13	11.06	10.99	7.31
Counterpart funding confirmed?	Yes	Yes	Yes	Yes	Yes
National coordinating agency	SEPA				
Implementing agency	World Bank				

Secretariat's Recommendations	
Amount recommended (US $)	5,250,852
Project impact (ODP tonnes)	764.86
Cost effectiveness (US $/kg)	6.86
Implementing agency support cost (US $)	587,594
Total cost to Multilateral Fund (US $)	5,838,444

*These costs reflect the revised proposals submitted to 36th Meeting.

PROJECT DESCRIPTION

Sector Background

- Latest available total ODS consumption (1999)	67,580 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	57,818 ODP tonnes
- Consumption of Annex A Group I substances for the year 1999	42,983 ODP tonnes
- Consumption of CFCs in the commercial and industrial refrigeration sector in 2000, including servicing	6,855 ODP tonnes
- Funds approved for investment projects in the commercial and industrial refrigeration sector as of 2000	US $43.8 million
- Quantity of CFC to be phased out in investment projects in refrigeration sector as of end of 2000	4,200 ODP tonnes

39. In 1995, China developed its strategy for the phase-out of the consumption of CFC-12 in the commercial and industrial refrigeration sector. The consumption in the sector was estimated at the level of 13,000 ODP tonnes based on unconstrained demand in 1995. The strategy described the status of the sector in 1993 and envisioned the complete phase out of CFCs in the sector by 2004 based on requesting compensation only for the conversion of 24 compressor producing enterprises from the 73 enterprises listed in the strategy. Costs associated with closure of remaining 49 companies as well as costs related to retrofitting existing refrigeration equipment to non-CFC refrigerant and costs of recovery, recycling and reclamation are to be covered by the Government of China. Subsequently, China submitted projects for 19 of these enterprises and a technical assistance project for upgrading the General Machinery Research Institute. These projects were approved by the Executive Committee within the period from 1995 to 1999 at total cost of 43.8 million to phase out 4,200 ODP tonnes. The technology chosen was based on HCFC-22 and the capacity envisioned from conversion from those enterprises was about 185,000 units per year.

40. By April 2001, six projects had been completed by the World Bank. The implementation of commercial compressor projects has been evaluated in the context of the strategy for the phase-out of the consumption of CFC-12 in the commercial and industrial refrigeration sector in China. The evaluation report was presented to the 34th Meeting at which the Executive Committee took Decision 34/13. This decision recognised the under-utilised production capacity after conversion, and inter alia provided specific guidance on preparation of future project proposals in this sector to achieve more sustainable conversion at lower cost.

41. At the 35th Meeting of the Executive Committee the Government of China submitted through the World Bank the revised version of the Sector Plan on Phase out of CFC-12 and CFC-11 consumption in the Industrial and Commercial Refrigeration Sector, and five investment projects for conversion of compressor manufacturing facilities. The Executive Committee took note of the revised strategy and adopted Decision 35/50 accordingly.

42. Decision 35/50 stipulates that in line with the sector strategy the five remaining projects should be submitted to the 36th Executive Committee Meeting. The decision provides flexibility to the Government of China in using the identified incremental costs which may not necessarily involve conversion of the five enterprises in question, in order to implement the required phase out activities in the sector in the most cost-effective way.

Project Description

43. The five companies produce small- and medium-size open type compressors of several models and also refrigeration equipment such as evaporators, condensers, air-conditioning and condensing units. As well as using their own compressors the companies import hermetic and semi-hermetic HCFC-22 based compressors for manufacturing of the refrigeration equipment. The five companies will convert their production to HCFC-22 based technology.

44. The five proposals were initially submitted by the World Bank for consideration at the 35th Executive Committee meeting. The outcome of the Secretariat's preliminary review was reflected in the Secretariat's comments to the Executive Committee, which served as a basis for formulation and adoption of Decision 35/50. The proposals were deferred until the 36th Meeting. The World Bank submitted revised versions of the five proposals presenting some additional information, not all of which was consistent with that in the original submission. This information has been taken into consideration by the Secretariat in its review. However, the data pertinent to the five projects appears, in this evaluation document as per the original submissions which formed the basis of advice to the Executive Committee at its 35 th Meeting.

45. In the 19 projects so far approved, technology transfer was to be effected through the purchase of new compressor designs from non-Article 5 countries. Because of difficulties in implementing this approach, in Decision 34/13 the Executive Committee decided that for the remaining 5 projects, more sustainable conversion could be achieved at lower cost by upgrading locally available compressor designs with the assistance of the local network of universities and research centres and international consultants. Accordingly, technology transfer costs are requested at the level of US $100,000 for four companies and US $120,000 for one company.

46. As the dimensions of the major parts of the new compressors are different, and because higher precision is needed, the existing dedicated measuring tools will have to be replaced. Each company requests funding for procurement of imported numerically controlled machining centres (NCCs), for machining of crankcases in the range of US $390,000 to US $600,000 per unit depending on the size of the compressors produced. Two NCCs are requested in each of the four project proposals and one in the Dalian project, for a total of 9 machines.

47. The NCC cost represents the most significant portion of each funding request. Funds are also requested for procurement of smaller, locally produced numerically controlled machining equipment for the production of crankshafts, connecting rods and valve plates in each particular proposal depending on the configuration of the production process.

48. The conversion cost also includes replacement of machining tools, dedicated fixtures, testing equipment, trial production, training and shipment insurance and installation.

49. Contingency costs are calculated at 10% of capital cost. The 12% discounting factor was applied in five proposals to account for the technological upgrade. The project proposals contain the calculation of operating costs. These costs, however, are not claimed. The total incremental costs are calculated at the level of US $7,745,773.

Justification for the Use of HCFC-22

50. The justification for the use of HCFC is provided and attached as Annex II to this evaluation. The letter of commitment regarding the counterpart funding is also attached to each proposal and available in the Secretariat upon request.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

51. The Secretariat has reviewed the five proposals in light of the approval of 19 projects in the commercial compressor manufacturing sub-sector, the evaluation of the compressor manufacturing sector in China and the resulting Decision 34/13 as well as Decision 35/50 (China Commercial Refrigeration Compressor Strategy) and Decision 35/48 (China Foam Sector Phase-out Plan). The Secretariat has also discussed the five proposals with the World Bank. Several issues have been identified.

Number of numerically controlled centers (NCC)

52. The number of NCCs can be calculated for each enterprise using the number of working hours per year, the required machining time per compressor and the level of production required. However, this calculation should be undertaken after taking into account the relevant part of Decisions 34/13 and 35/50 which provide that the calculation base for expensive equipment should use the prolonged running time. Additionally, consistent with the practice in the 19 approved projects, the NCCs are to be used for final, high accuracy machining while the existing equipment is retained and used for rough machining to the maximum possible extent. This will reduce the time required for machining, and thus the number of machines needed.

53. Shanghai Minhang Refrigeration Factory, for which two machines were requested, is owned by the Zhejiang Chunhui Group which has already received funding of some US $2.2 million for four NCCs, which are currently not fully utilised. Therefore, consistent with Decision 34/13 there is a scope for rationalization.

54. On the above basis, the Secretariat and the World Bank agreed on the eligible number of NCC units, resulting in one NCC machine per enterprise in four proposals and two machines in case of Jhejiang Chunlian, which has the highest production among the five enterprises. The incremental capital costs have been calculated for each enterprise accordingly.

Incremental costs for NCC machines

55. Prior to the 22nd Meeting of the Executive Committee exhaustive research and discussions between the Secretariat and the World Bank took place concerning the incremental costs for NCC machines. The outcome of these discussions was that incremental costs for NCC machines between US $460,000 and US $560,000 for the relevant machine sizes, accompanied by a technological upgrade factor of 20 percent, were reduced to costs based on quotations received, in the range US $300,000 to US $350,000 accompanied by a technological upgrade factor reduced to 12 percent. These parameters were used in seven projects approved at the 22nd Meeting and in three projects approved at the 28th Meeting. In the current projects the World Bank has proposed revised costs of US $390,000 and US $600,000, together with the same 12 percent technological upgrade factor. The Banks has indicated that these costs are based on actual procurement experience in implemented projects. However the cost of the machines ultimately selected by enterprises is not necessarily relevant to the determination of eligible incremental costs. The Secretariat recommends that machine costs should remain the same as those already linked to the technological upgrade factor and established in previous projects as being eligible for funding, namely one machine at a cost of US $350,000 and five at US $300,000.

Other incremental costs

56. On the basis of approvals of similar projects at the 28th Meeting, the Secretariat provided to the World Bank the rationale for adjusted costs for several budget items such as measuring devices, machining tools, dedicated fixtures, testing equipment and trial production. The budgets of individual projects have been revised accordingly.

Total eligible funding level

57. Taking account of all of the above, and on the understanding that flexibility will be provided to the Government of China and that the resources will be used in the most cost-effective manner not necessarily involving conversion of the five enterprises in question, the total eligible funding level has been agreed between the World Bank and the Secretariat to be US $5,250,852. The agency support cost is calculated to be US $587,594.

58. The approval of the last five projects will lead to permanent and sustainable phase out in the commercial refrigeration sub-sector.

RECOMMENDATIONS

59. The Secretariat recommends approval of allocation of US $5,250,852 and agency support cost of US $587,594 to the World Bank for implementation of the five remaining projects in the commercial and industrial refrigeration sub-sector in China, with the proviso that, consistent with normal progress and completion reporting procedures, the World Bank be requested to indicate clearly the actual activities implemented and expenditures incurred.

PROJECT EVALUATION SHEET
CHINA

SECTOR:	Solvent	ODS use in sector (2000):	3,927 ODP tonnes
Sub-sector cost-effectiveness thresholds:		CFC-113	US $19.73/kg
		TCA	US $38.50/kg
		CTC	n.a.

Project Titles:

(a) The 2002 implementation programme of the China solvent sector plan

Project Data	**Multiple solvents**
Enterprise consumption (ODP tonnes)	
Project impact (ODP tonnes)	925.00
Project duration (months)	
Initial amount requested (US $)	6,330,000
Final project cost (US $):	
Incremental capital cost (a)	
Contingency cost (b)	
Incremental operating cost (c)	
Total project cost (a+b+c)	
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	6,330,000
Cost effectiveness (US $/kg.)	
Counterpart funding confirmed?	
National coordinating agency	SEPA
Implementing agency	UNDP

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 $)	

PROJECT DESCRIPTION

The 2002 Implementation Programme of the China Solvent Sector Plan

60. On behalf of the Government of China, UNDP has submitted for the consideration of the Executive Committee a report on implementation of the solvent sector plan for ODS phase-out in China for the period April 2000–December 2001, combined with a request for approval of the 2002 annual implementation programme (Annex III to this document).

61. The Agreement on ODS phase-out in China's solvent sector was approved at the 30th Meeting of the Executive Committee in March 2000 at a total cost of US $52 million. At the same meeting the Executive Committee approved the first implementation plan for the period April 2000-December 2001 together with funding of US $6.75 million (plus 10 percent support costs) for activities in 2000.

62. At the 32nd Meeting the Executive Committee took note that the interim report on the 2000-2001 annual programme under the China Solvent Sector Plan presented to that meeting indicated that the projected phase-out would not meet one of the phase-out targets stipulated in the Agreement.

63. At the 33rd Meeting, UNDP presented an interim progress report and a request for the second scheduled payment of US $6,955,000 (plus 10 percent support costs) for the 2000–2001 annual programme. The report indicated that remedial action had been taken to ensure that all phase-out targets would be met. In Decision 33/46, the Executive Committee approved the requested funding, on the understanding that, in relation to an amendment to the annual programme concerning funding for production of n-propyl bromide:

(a) N-propyl bromide produced by China would not be made available for export;

(b) An annual production quota would be imposed on n-propyl bromide to meet the requirement for solvent use only;

(c) China would control the sale of n-propyl bromide only to enterprises involved in the conversion projects under the China solvent sector plan;

(d) The Import and Export Office of China would monitor and ensure that no n-propyl bromide was exported by China;

(e) The implementing agency of the China solvent sector plan, UNDP, would include in its annual audit plan verification that no n-propyl bromide was exported;

(f) No further financial assistance would be sought from the Multilateral Fund for the final conversion to zero ODP alternatives.

64. At its 35th Meeting the Executive Committee considered and subsequently approved the 2002 annual implementation programme (Decision 35/51).

65. Sections B1 and B2 of the report describe the phase-out contracts entered into with enterprises, as foreshadowed in the 2000-2001 implementation programme. Part F of the report indicates the overall consumption figures for CFC-113, TCA and CTC for the year 2000 as foreshadowed in the Sector Plan Agreement.

66. It is indicated that the proposed bilateral co-operation project with Japan, provision for which was included in the Sector Plan, will not be taken up. A possible bilateral co-operation project with France, also provided for in the Sector Plan, remains under consideration (Section B3).

67. Section B4 indicates that China has implemented the requirement in the Agreement to ban the export of ODS used as cleaning solvents

68. A range of technical assistance activities consistent with those foreshadowed in the implementation programme are indicated in Section C. In particular it is advised in Section C5 that no activity has yet been initiated or expenditure incurred in the development and production of HEP-2 that contains nPB.

69. The performance indicators for the activities in the first implementation programme, together with results, are provided in a table in Appendix 1 to the report.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

70. The report on the 2000-2001 implementation programme indicates that China has concluded contracts for reduction of ODS consumption by enterprises which equal or exceed the total phase-out for each relevant ODS specified in the implementation programme.

71. On the basis of the figures provided in the report (Section F page 9), the 2000 consumption targets for CFC-113, TCA and CTC specified in the programme have been met. These figures do not result from activities under the Sector Plan, which will have an impact on the consumption targets for 2001, and thus are not subject to audit by UNDP (which will commence this year in respect of the consumption in 2001). The figures include levels of production, import and export for CFC-113, TCA and CTC. The figure for CFC-113 production, 4,371 metric tonnes, is greater than the total level of production indicated by the World Bank in its audit of CFC production in China for 2000, which was 4125 metric tonnes. Additionally the "raw material usage" of CFC-113 indicated as being 245 metric tonnes, exceeds the maximum agreed usage of CFC-113 as feedstock of 12.5 metric tonnes (10 ODP tonnes) specified in paragraph "c" of the Agreement. UNDP is investigating these apparent anomalies.

72. The Agreement also provides in paragraph (c) that China will prepare annually a list of the quantities of CFC-113 and CTC purchased by specific plants for exempted process agent and feedstock uses. This list has not been included in the report. The Secretariat raised the issue with UNDP which has undertaken to provide the information as required in the Agreement.

73. The appendix to the report contains a table on performance indicators reflecting those contained in the implementation plan. The table shows that the various performance indicators have been fulfilled.

74. Subject to the provision of satisfactory information to the Executive Committee by UNDP on the pending issues outlined above, the Executive Committee could consider approving funding of US $6,330,000 plus US $633,000 agency support costs for the 2002 annual implementation programme for the solvent sector in China, approved in Decision 35/51.

RECOMMENDATION

75. Pending

Annex I

CHINA CFC PRODUCTION PHASEOUT PROGRAM

2001 VERIFICATION REPORT

February 13, 2002

Inspection Team

F.A. Vogelsberg: Mission Leader and primary text preparation – Annex I

Hua Zhangxi: Data Summary Annex II and Annex III.

Wu Ning: Financial Verification of the CFC Production for China in 2001 – Annex IV

Assisted and Accompanied By

Tang Qingyan: State Environment Protection Administration – Beijing (January 28 - February 4)

Feng Liulei: State Environment Protection Administration – Beijing (February 4-8)

Inspection Mission Time Frame

January 27 – February 10, 2002

Plants Covered in Visitation Order

Juhua Fluoro-Chemiacal Co. Ltd – Zhejiang Province, Quzhou City

Dongyang Chemical Plant – Zhejiang Province, Dongyang City

Linhai Limin Chemcial Plant – Zhejiang Province, Linhai City

Guangdong Xiansheng Chemical Co. Ltd – Guangdong Province Zengcheng City

Jaingsu Meilan Electro-Chemical Plant – Jiangsu Province, Taihou City

Jiangsu Changsu* 3F Refrigerant Co. Ltd – Jiangsu Province, Changsu* City

* All World Bank documents spell as Changsu; while the true spelling is Changshu

Report Format and Contents

Summary of verification conclusions for CFC Production in China for year 2001.

Annex I – Complete textual description of the Missions' Verification efforts for each of the seven Enterprises' year 2001 Production.

Annex II – China CFC Production Phase out Program 2001 CFC Production Verification Report.

Annex III – China CFC Production Sector Complete Closure Project 2001 Verification Report.

Annex IV – Financial Verification of CFC Production in China in 2001.

There were seven enterprises producing CFC products in China in 2001. The verified overall national production of CFCs in 2001 is 36,196.1 tons (ODP). The following table is the breakdown in accordance with various types of product.

Type of CFC Product	Number of Producers	Total Production (in tons)	
		ODS	ODP
CFC-11	3	14,098.9	14,098.9
CFC-12	6	19,257.2	19,257.2
CFC-13	1	27.0	27.0
CFC-113	1	3,375.0	2,700.0
CFC-114	1	6.8	6.8
CFC-115	2	177.0	106.2
Overall National			36,196.1

The total consumption of CTC for the production of 14,098.9 tons of CFC-11 product is 17,426.3 tons; and the overall average CTC/ CFC-11 ratio is 1.236. Among the three CFC-11 producers, the producer that had the lowest CTC/ CFC-11 ratio (1.209) is Zhejiang Juhua Fluoro-chemical Co. Ltd.(SRI# B 14); and the highest ratio (1.271) is Jiangsu Meilan Electro-chemical Plant (SRI# A 8) .

The total consumption of HF for the production of 14,098.9 tons of CFC-11 product is 2,228.6 tons; and the overall average HF/ CFC-11 ratio is 0.158. Among the three CFC-11 producers, the producer that had the lowest HF/ CFC-11 ratio (0.156) is Zhejiang Juhua Fluoro-Chemical Co. Ltd. (SRI# B 14); and the highest ratio (0.180) is Jiangsu Meilan Electro-chemical Plant (SRI# A 8).

The total consumption of CTC for the production of 19,256.9 tons of CFC-12 product is 26,586.2 tons; and the overall average CTC/ CFC-12 ratio is 1.380. Among the six CFC-12 producers, the producer that had the lowest CTC/ CFC-12 ratio (1.357) is Zhejiang Dongyang Chemical Plant (SRI# B 12); and the highest (1.411) is Jiangsu Changsu 3 F Refrigerant Co. Ltd. (SRI# A 10)

The total consumption of HF for the production of 19,257.2 tons of CFC-12 product is 7,388.4 tons; and the overall average HF/ CFC-12 ratio is 0.384. Among the six CFC-12 producers, the producer that has the lowest HF/ CFC-12 ratio (0.354) is Zhejiang Juhua Fluoro-chemical Co. Ltd. (SRI # B 14) and the highest (0.418) is Guangdong Xiansheng Chemical Co. Ltd.(SRI# A 13).

A detailed summary of China CFC production in 2000 follows on the next page.

SUMMARY OF CHINA CFC PRODUCTION IN 2001

CFC-11

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CTC Cons'ption	HF Cons'ption	Ratio CTC/ CFC-11	Ratio HF/ CFC-11
A 8	Jiangsu Meilan Electro-chemical Plant	1,049.7	1,049.7	1,334.1	189.4	1.271	0.180
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	8,221.9	8,221.9	10,254.0	1,287.1	1.247	0.157
B 14	Zhejiang Juhua Fluoro-chemical Co. Ltd.	4,827.3	4,827.3	5,838.2	752.1	1.209	0.156
	Overall	14,098.9	14,098.9	17,426.3	2,228.6	1.236	0.158

CFC-12

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CTC Cons'ption	HF Cons'ption	Ratio CTC/ CFC-12	Ratio HF/ CFC-12
A 8	Jiangsu Meilan Electro-chemical Plant	1,792.9	1,792.9	2,439.6	711.7	1.361	0.397
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	5,075.0	5,075.0	7,163.0	2,084.8	1.411	0.411
A 13	Guangdong Xiansheng Chemical Co. Ltd.	1,099.4	1,099.4	1,507.8	459.9	1.371	0.418
B 8	Zhejiang Linhai Limin Chemical Plant	1,364.9	1,364.9	1,870.5	569.3	1.370	0.417
B 12	Zhejiang Dongyang Chemical Plant	2,218.9	2,218.9	3,010.5	835.6	1.357	0.377
B 14	Zhejiang Juhua Fluoro-chemical Co. Ltd.	7,706.1	7,706.1	10,590.7	2,727.1	1.374	0.354
	Overall	19,257.2	19,257.2	26,582.1	7,388.4	1.380	0.384

CFC-13

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CFC-12 Cons'ption	Ratio CFC-13/CFC-12
B 8	Zhejiang Linhai Limin Chemical Plant	27.0	27.0	74.8	2.771

CFC-113

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	PCE Cons'ption	HF Cons'ption	Ratio PCE/ CFC-113	Ratio HF/ CFC-113
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	3,375.0	2,700.0	3,601.2	1,601.2	1.067	0.474

CFC-114

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CFC-113 Cons'ption	HF Cons'ption	Ratio CFC-113/ CFC-114	Ratio HF/ CFC-114
B-11	Zhejiang Chemical Research Institute	6.8	6.8	8.9	2.8	1.304	0.413

CFC-115

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CFC-113 Cons'ption	HF Cons'ption	Ratio CFC-113/ CFC-115	Ratio HF/ CFC-115
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	50.0	30.0	86.0	40.2	1.720	0.803
B-11	Zhejiang Chemical Research Institute	127.0	76.2	152.1	52.950	*1.382	0.417
	Overall	177.0	106.2	238.1	93.1	*1.478	0.526

* Zhejiang Chemical Research Institute made use of 23.461 tons of CFC 113a, which is a non-ODS obtained as by-product from their HCFC 123 production unit, as part of raw material for CFC 115 production. This action has been taken into consideration in the calculation of the ratio.

Annex I: Textual Description

Tuesday, January 29 – Zhejiang Juhua (Quhua) Fluoro-Chemistry Co. Ltd.

12,000 TPA CFC-11/CRC-12
10,000 TPA AHF
30,000 TPA Chloromethanes (nominal 14,000 TPA CTC)

Background

The fiscal year 2000 data verification was conducted by Messers Vogelsberg, Hua and Wu from the World Bank and Li Zhuo from SEPA on June 4 & 5, 2001. This was the first of ten Enterprise verifications conducted using the new Ex-Com format, so considerable effort was expended in an attempt to match production plant control log sheet data to reported monthly production. This exercise proved non-productive at several locations, as explained in detail in our June 25, 2001, Mission Report Summary. Therefore, while we will examine plant-operating records to verify they are "real time" records; reconciliation of mass flow rates to reported monthly production will not be attempted.

Current Visit Purpose

Juhua, as one of the seven operating plants in 2001 operating under a quota, is required to present plant data and records for verification of key raw material consumptions and CFC-11 and CRC-12 produced in 2001.

Last years' verification work established that this Enterprise maintains very detailed and easily verifiable CFC production records and the reader of this report may want to refer to our June 25, 2001, Mission Report for specific details of records created by Juhua. The year 2001 verification, like last year, was conducted in two parts; with Mr. Wu Ning conducting a financial review and the other team members examined production plant daily and monthly records. All individual monthly records for CFC-11 and CFC-12 production (finished product packaged and passed as acceptable by quality control) were verified as accurately reported by the Enterprise to SEPA. A representative number of monthly AHF and CTC transfers into the fluorocarbon plants were verified and found to be accurate as reported to SEPA. A representative number of the plant's shift log sheets were examined to check on the Enterprise's reported operating days. We concur that their reported days of operation were correct. We also were satisfied that the shift, daily and monthly records were authentic; and as reported last year all records were done in ink and properly signed by at least two responsible personnel.

Our team is satisfied that Juhua data for CFC-11 and CFC-12 production in 2001 is correct as reported to SEPA.

Juhua produces most of their CTC needs for CFC's but require some outside purchases to meet their current demand. Juhua also sells some CTC to outside customers. The plant's total CTC balance was reconciled.

Juhua produced most of their on site AHF needs, but also purchase some AHF to meet total site needs. AHF is used on site for producing HCFC-22, CFC-11/12 and Aqueous HF. HF also is sent to commodity storage for sale to outside customers. Juhua's AHF balance was reconciled.

Reconciliation of the above CTC and AHF transactions took an inordinate amount of time and Juhua has been asked to provide clearer records for next year's verification.

For future notice, when the plant is closed permanently it is important to recognize that the way Juhua reports CFC production; i.e., material that is packaged and passed quality control tests, results in a large in process stock of abut 700 tonnes. At final shutdown this quantity must be declared as production within their final year.

Wednesday, January 30 – Zhejiang Dongyang Chemical Plant

5,000 TPA CFC-12
8,000 TPA HCFC-22
20,000 TPA AHF

Background

Our verification team last visited this site June 6, 2001, for verification of year 2000 CFC-12 production, sales and raw materials consumption.

Verification Results

As at Juhua, we split into two teams; Mr. Wu Ning examined financial records to verify raw material purchases and use as well as sales of CFC-12. Messrs Vogelsberg, Hua and Madam Tang (SEPA) examined CFC-12 plant operating records and product cylinder filling records.

All CFC cylinder filling record sheets were totaled for each operating month and verified against their official production reported to SEPA. All monthly records were accurate with the exceptions of a 50kg error (overage) in September. This small amount did not cause the Enterprise to exceed their 2001 quota to produce CFC-12. During verification of the CFC-12 cylinder record it was apparent that in 2001 they started filling several thousand 13.6kg DAC's or disposable pressure tanks, which are being exported under an export permit from SEPA.

Zhejiang Dongyang kept a daily and monthly plant log sheet showing estimated AHF and CTC fed to each of their two CFC-12 reactors. One log sheet covers a full month of daily totals from each shift as well as a monthly cumulative figure. We compared all of these figures for CTC and AHF

and found them to deviate less than 1% from official reported AHF and CTC used in each fiscal month.

All AHF is transferred to the CFC-12 plant via weigh tank that always contains exactly 1320kg making reconciliation of AHF use very easy and exact. CTC is transferred from the warehouse bulk storage and billed to the CFC-12 plant based on the tank level changes.

By examining their plant shift logs we verified their reported number of operating days as very precise.

Our team is very comfortable with its summarized results for Zhejiang Dongyang.

Thursday-Friday January 31-February 1 – Zhejiang Linhai Limin Chemical Plant

3,000 TPA CFC-12 (2 Reactors; only one operating)
100 TPA CFC-13
10,000 TPA HCFC-22 (max 13,000 TPA if standby CFC-12 reactor is utilized for HCFC-22)

Background

Last year's verification was conducted June 7,2001. We described in detail the excellent set of records maintained by Limin in our June 25, 2001 Mission Report. The reader of this report may refer to June's report if there is a need to revisit the forms and records used by Limin.

Verification Results for CFC-12

CFC-12 cylinder filling records for every day of each operating month were reconciled against the plant's official reported production and found to be correct for all months. The above covered total 2001 CFC-12 production for sales as well as for conversion to CFC-13. CFC-12 transferred to the CFC-13 plant was verified as accurate vs figures reported to SEPA. It is worth noting that the CFC-13 plant 27 tonne quota was approved by the Government to use 72.9 tonnes of CFC-12. However, due to operating problems they consumed 74 Tonnes. The 1.9 tonnes overage was purchased from an outside source since the plant's CFC-12 year 2001 quota was already committed to outside sales, at higher prices than which they could be purchased.

AHF is purchased in cylinders for the site's CFC-12 and other production units. Cylinder weights are the basis of consumption in the various plants. Prior to March it was difficult to reconcile specific use for CFC-12 and for other uses. Starting in March all AHF quantities were identified as to which plant they were used in making reconciliation for the balance of the year very easy. Reported AHF use for CFC-12 agreed with figures reported to SEPA from March through year- end 2001.

CTC is purchased primarily in bulk, and CFC-12 plant consumption is based on CTC feed tank level changes. The CTC transfers for the entire year were verified for all operating months and found to have been accurately reported.

We are very satisfied that Limin's CFC-12 production and AHF plus CTC consumptions have been accurately reported.

We checked three months of operating log sheets to verify their reported number of operating days. Examination of three months would indicate that actual operation was approximately 15 days less than reported since they do not count a day as lost unless there is one full 8- hour shift of outage.

Verification for CFC-13

Limin typically fills 35kg cylinders of CFC-13. All cylinder-filling records for the eleven months of operation were checked and each month's production was correctly reported. While they operated 282 days in 2001 they only filled cylinders on 106 days.

We raised concern about their very poor yield of CFC-13 from feedstock CFC-12 in January and February of 2001. In 39 operating days of Jan/Feb they consumed 6.306 tonnes of CFC-12 feedstock, yet recovered only 1.295 tonnes of CFC-13, 1.04 tonnes or 45% less than the 2.33 tonnes that should have been produced at their normal CFC-12/CFC-13 ratio of 2.7. Three possible reasons for the high ratio of CFC-12 are:

- CFC-12 feedstock was sold as CFC-12 product
- CFC-12 was vented from the system as unconverted feedstock
- High by product FC-14 production, which carries CFC-13 to the atmosphere were it is vented.

According to plant supervision causes of the poor yield were as follows:

- During the year-end maintenance shutdown in 2000 an oil less (non-lubricated) compressor was installed and it worked poorly allowing higher than normal CFC-13 losses in the refrigerated condenser vent stream. The person pushing the use of the non- lubricated compressor was reluctant to give up the experiment.
- They had catalyst problems that caused poor CFC-12 conversion so they generated a significant quantity of contaminated CFC-12 (contained some CFC-13) that was stored and slowly fed into the system in later months.
- The combination of their poor new compressor (did not provide the high pressure necessary to reduce CFC-13 losses in the refrigerated vent condenser) and excess FC-14 by-product caused poor yield until the compressor was changed in late February.

Yields improved by March so that the yearly yields were near normal. The above problem caused loss of production in January and February so they had to operate more days in the remainder of the year to make their 27 tonne quota since they had customers for every kg of product.

We verified each month's transfer of feedstock CFC-12 to the CFC-13 to the plant; the totals for each month were correct. We questioned why some transfer slips in about six cases were lump sum figures and did not show what cylinders were in the transfer. They produced a bound record book that showed the specific cylinder quantities, thereby removing our concern.

We were satisfied that the year 2001 CFC-13 production and CFC-12 feedstock consumed are valid as reported.

Saturday February 2 – Zhejiang Chemical Research Institute

150 TPA CFC-114/115

Background

Our year 2000 production data verification was conducted June 8, 2001. Our June 25, 2001 Mission Report provides considerable detail of the records generated and maintained by Zhejiang Chemical Research and this detail will not be repeated in our current report unless exceptions are noted.

Year 2001 Production Verification Results

There are three issues in Zhejiang's 2001 data report that need addressing.

The first concerns appearance of CFC-113a as part of the CFC-113 feedstock for conversion to CFC-114 and CFC-115. By M.P. definition CFC-113a isomer is not an ODS, hence, not controlled, (it is a solid below 15º C hence, not able to reach the upper atmosphere, hence not controlled). The China CFC-113 solvent sector plan calls for conversion of China's solvent using industries to non-ODS processes by year- end 2005.

Zhejiang produces HCFC-123 by reacting chlorine with HCFC-133a and this process creates some unavoidable by-product CFC-113a. In 2001 most of the by-product CFC-113a was used to manufacture a non-ODS pesticide. However, Zhejiang being aware that their source of feedstock CFC-113 could disappear in the 2006 to 2009 time frame, decided to determine if quality CFC-115 could be produced from CFC-113a. Since CFC-115 has no isomers this was a logical route and they started using come CFC-113a in producing their 2001 quota of CFC-115.

A second concern involved Zhejiang's report to SEPA of 2001 data showing 0.033 tones of CFC-114 as an intermediate to be used for future CFC-115 manufacture. This is not allowed and the 0.033 tonnes must be counted as part of their 2001 CFC-114 production. Therefore, their 2001 production of CFC-114 must be restated as 6.833 tonnes vs their quota of 6.8 tonnes. The overage of

0.033 tonnes turns out to negligible since figures are rounded to one decimal in the reports. However, were it 50kg it would have rounded up to 0.1 tonne and been a non-compliance issue. This is another case where Enterprises are operating too close to their quota and risking non-compliance (Zhejiang Dongyang had a 50 kg overage error in September).

The third concern involves disclosure in Zhejiang's 2001 report that they used 51.750 tonnes of CFC-113 over five-month period (Jan-May) to produce other
Non-CFC products. Examination of records in their downtown financial headquarters documented that 51.750 tonnes went to a pilot plant at the Research Center to produce trifluoracetic acid (TFA) a non – ODS pharmaceutical intermediate. In February, 500 kg went into producing pyrethrin (a pesticide intermediate). To make this intermediate they isomerize CFC-113 to CFC-113a since the "a" isomer with the three fluorine atoms on one carbon is the biologically active molecule. We concur that this activity is allowed under the feedstock provision of the MP.

The cylinder filling master record sheets for each month of CFC-115 and CFC-114 production were checked against the warehouse transfer receipts and compared to their official monthly production data. An insignificant error of 3kg in over reported production of CFC-115 was noted in June. We were satisfied that their 2001 CFC-115 production was correct as reported to SEPA and in a previous text we noted the small exception of 33 kg in CFC-114 production.

In examining CFC-115 cylinder filling records we suspected that the filling log sheet listing cylinder number, tare weight and gross weight is most likely created from some source not provided to us (we believe this because the full page of entries representing as much as full month's cylinder filling is too neat and clean and always filled in with identical handwriting). The supervisor of filling confirmed that he receives a slip of paper documenting each cylinder filling, which he accumulates in a file and transfers to a monthly report at month end. The accumulated slips are discarded at month end. The supervisor of filling showed us some original resent slips and promised that, in the future these will be saved for examination.

All AHF, CFC-113 and CFC-113a transfer receipts were checked for each month and found in agreement with reported official consumptions.

Since their CFC-114/115 reaction system contains four reactors, grouped two reactors to a set, it is necessary to look at two log sheet sets to understand operation for a specific month. Examination of these sheets prove conclusively that they are "real time" logs and we are satisfied that reported operation days are correct. For the reasons mentioned in our June 25,2001 report no attempt was made to reconcile log sheet raw material flows to actual finished product production.

As in all other verifications exercises we split into two teams, Mr. Wu Ning handling the financial data and the three other team members examining production plant records. All four team members are comfortable with the 2001 data report for Zhejiang Chemical Research Institute.

Sunday February 3 – Guangdong Xiansheng Chemical Co. Ltd

3,000 TPA CFC-12

Background

Our year 2000 data verification was conducted June 10, 2001. During last years record examination we suggested that they could and should improve some of their procedures and paperwork so future verification teams would be more satisfied that Guangdong Xiansheng's records were credible.

Verification of Year 2001 Data

We examined 2001 production records that were comparable to the prior year's verification and were pleased to learn that they had heeded our prior concerns and improved procedures in several areas:

- In late 2001 they stenciled numbers on all of their CFC-12 cylinders, and noted same on their filling log sheets.
- The filling log sheets are now signed in ink by two different people
- All receipts for raw materials are signed by the delivery and receiving persons.
- Sale quantities are tracked by paper work that has the full name of the purchasing party.

They also responded to our prior concern that their CTC to CFC-12 ratio was quite high and as such could raise concerns in future verifications. They checked the soil adjacent to their three large bulk CTC tanks and found significant CTC levels in the soil. They found three leaks in two tanks and repaired in July 2001. They also replaced a bad condenser that was venting excessive CTC vapor.

Their 2002 CTC/CFC-12 ratio improved to 1.371 from 1.402 in 2001.

All CTC and AHF consumption figures for each month were verified as accurate but required some adjustment to add AHF and CTC reported loss figures to their consumption figures. They understood why such losses could not be excluded from total consumption figures.

CFC-12 monthly filling logs were verified as accurate for all nine months of operation in 2001.

A representative number of reactor operating log sheets were examined to verify hourly weigh tank readings for CTC and AHF fed to each of their two CFC-12 reactors. There was perfect

agreement of log sheet data for monthly total (raw material usage of CTC and AHF). This exercise also allowed verification of reported operating days in 2001.

Both financial record verification and our plant record's verification went well and our team is fully satisfied that Guangdong Xiansheng's data reported to SEPA for 2001 is correct.

Tuesday February 5- Jiangsu Meilan Electro-Chemical Co. Ltd.

3,000 TPA CFC-11
3,000 TPA CFC-12
20,000 TPA HCFC-22
16,000 TPA AHF (expanded from 6000 to 10,000 in 2001)
30,000 TPA chloromethane (new methanol based plant started in 2001)

Background

Our year 2000 data verification was conducted June 14, 2001. This Enterprise had the best set of records of all seen in our June 2001 mission making verification very easy.

Verification of Year 2001 Data

Their new Chloromethane plant started up in 2001 so they now have three sources of CTC:

- Purchased drums
- Purchased bulk delivered in 50MT quantities and
- Pipe line transfers from their chloromethane plant starting in April 2001

In addition the CTC large bulk tank used by the warehouse developed a leak and was removed from service. The fluorocarbon production plant has two bulk CTC storage tanks, one has now been taken over by the warehouse to receive material from the above three CTC sources. As in the past all transfers to production are via a 6.67MT tank into the Production controlled bulk CTC tank. The fluorocarbon plant's use of CTC for the CFC-11 and CFC-12 plants are via shift weigh tanks. In verifying CTC use it became apparent that while all transfers to production are via the 6.67MT warehouse controlled tank that there is a "paper transaction" at the beginning and end of each month where unused CTC is transferred back from production to the warehouse. This transaction is reversed at the start of the next production month.

They confirmed that they are operating their new chloromethane plant to minimize CTC production hence they will continue CTC purchases until CFC production falls below on site CTC production.

All CFC-11 records pertaining to CFC-11 drums filled, AHF and CTC fed to the reactor were examined and found to be correct and support the reported values. Reported plant operating days were verified as correct.

All CFC-12 records pertaining to CFC-12 cylinders filled, cylinders transferred to the warehouse, plus AHF and CTC consumed were examined and found to support reported figures for CFC-12. CFC-12 plant reported operating days were found to be correct.

We questioned the poorer ratios for CTC/CFC in June and December and were told that there were several mechanical problems in these months.

The verification team was fully satisfied that the Jiangsu Meilan production and consumption figures reported to SEPA for the year 2001 are correct.

We also met the CFC production inspectors authorized by SEPA, who are resident at Meilan from Dongyang and Changsu 3F any time Meilan is operating any of their CFC production facilities. This accommodation by the seven operating Enterprises provides another level of assurance that each Enterprise is honestly reporting CFC production data.

Meilan export both CFC-11 and CFC-12. All exported CFC-12 is in returnable cylinders.

Thursday February 7 – Jiangsu Changsu 3F Refrigerant Co Ltd.

10,000 TPA CFC-11
5,000 TPA CFC-12
4,000 TPA CFC-113
400 TPA CFC-115

Background

We last visited Changsu 3F June 15 and 16, 2001 for verification of year 2000 CFC production and raw materials consumption data. Our June 25, 2001 Mission Report described in detail the excellent records system used by 3F and also noted that some original records generated and subsequently transferred to monthly reports are discarded. We requested that all original records be retained for future verification.

Verification Results for Year 2001 CFC Production

As in previous verification efforts Mr. Wu Ning conducted a financial review while Messrs Vogelsberg, Hua and Feng (SEPA) verified plant production records for 2001. The compilation of records generated by 3F were described in detail in our June 25, 2001 Mission Report which should be consulted by those interested in this detail; as it will not be repeated in our current report.

CFC-113

As mentioned in our June 25, 2001 Mission Report in process inventory adjustments each month caused confusion in our year 2000 data review. After our June 2001 visit they changed this procedure. However, for 2001, data it was still necessary to check these adjustment figures through May. 3F also lumped their November and December CFC-113 data together since there were only four days in fiscal December (November 27, 28, 29 & 30). The report has been adjusted to correct this.

The total CFC-113 production by 3F in 2001 is correct as reported at 4194.4MT; 819.4 MT of which were used as raw materials for chemical conversion in these applications

- Production of CFC-115 by 3F
- Production of non-CFC products within the Enterprise
- Production of CFC-114/15 by Zhejiang Chemical (SR1# B-11)
- Production of Zhejiang Chemical (SR1# B-11) other non-CFC products

All of the above mentioned applications have been verified. Therefore, the team concludes that the total CFC-113 production under quota control is 3375MT as ODS or 2700MT expressed as ODP tonnes. 3F's CFC-113 operating days as reported appear to be correct.

AHF and PCE use figures prior to June were accumulated for the month and a monthly use receipt issued; with the original daily records discarded. From June onward daily use figures were recorded in a bound notebook that has been saved for verification.

AHF plus PCE reported monthly use figures were verified as correctly reported for CFC-113 production.

CFC-113a was produced from CFC-113 for an agriculture product by isomerization on the 3F site. The activity took place in August through December and consumed 324.4 MT of CFC-113.

CFC-113 was also converted to CTFE polymer in August, September, and November and December, consuming 200.45 MT of CFC-113. In June 1.3MT of CFC-113 was used in a research project to produce a non-ODS refrigerant.

The above three activities consumed their reported 526.1 MT of CFC-113 for non-ODS production; all of which are accepted as correct.

Their CFC-113 data for year 2001 are accepted as correct.

CFC-115

CFC-115 only operated five months, June, July August, October and November in 2001. Since production occurred after our June 2001 visit, they saved the bound notebook detailing CFC-113 and AHF feedstock for CFC-115 production; making verification easy and accurate. CFC-115 production of 50MT was verified as correct.

CFC-113 and AHF consumption figures were verified as correct as reported to SEPA.

3F count any day where some CFC-113 and AHF are fed to the CFC-115 reactors as an operating day. Using this criteria their reported operating days were correctly reported.

CFC-11

While 3F have two CFC-11 reactors they operate only one on occasion. This makes operating days of questionable value since it is a very time consuming exercise to examine every shift for all days in a month. There are some cases where one reactor is down but the 2nd reactor still have feeds on, hence there should be no loss in operating days, but it does mean loss of capability. We checked operating logs for a couple of months and believe that 3F reported operating days tend to be 1-1/2 days greater than actual. Our criteria deducts time when AHF or CTC feeds were off. 3F counts any shift with feed flows for one hour an operating shift. All eleven months CFC-11 production transfer slips were examined and verify their reported production. During this exercise we noted four months where product was returned from the warehouse to Production due to potentialleakageof non-standard containers; (10MT in April, 0.81MT in June, 3MT in September and 0.25MT in October). We delved in to the 10MT in April and determined that they were attempting to reuse CTC drums for CFC-11 and noticed very small leaks in a few so they rejected the entire 40 drum (10MT) quantity and discontinued the reuse practice. There is no formal transfer slip documenting the return of the above ~13.5MT so we accept on good faith that it occurred. However, we suggested that any future returns be well described and documented to improve the credibility of their production figures. We also stressed that any significant leakage can not be claimed as a credit since any loss of finished product to the atmosphere must be counted as an ODS release, hence production. Considering that 3F report 8,221.9MT of CFC-11 production against their 8,222MT quota makes the above issue in the future a potential non-compliance issue.

CTC and AHF consumptions wee validated against their reported amounts and found to be correct.

We are satisfied that 3F's CFC-11 reported production and raw material consumptions for 2001 are correct as reported.

CFC-12

CFC-12 is produced in 3 reactors. Two respective months were examined to determine if 3F's operating days seemed reasonable as reported. While there are outages on individual reactors the only time all three were down was when there was a plant wide electrical outage. For the two months examined in detail we concur that there reported operating days are realistic.

All CFC-12 cylinder transfer slips from production to the warehouse were checked for all eleven operating months and found to be accurate. This exercise raised two issues that were resolved satisfactorily;

- One local customer uses their own cylinders and usually returns them with a measurable CFC-12 "heel". 3F "credit" them with the "heel" and deduct the "heel" quantity from the monthly production in the month the cylinders are filled. This totaled about 2MT for the year; and is considered a perfectly legitimate practice.
- On two occasions 17MT and 19.25MT of CFC-12 in cylinders were returned from the warehouse to production so they would have sufficient product to fill large orders for 13.6kg DAC's. "Heels" in the returned cylinders, after discharging the contents to the production bulk tank, were included in the "tare" weight at the next filling. This is an acceptable practice.

We suggest they keep better paper records of these transactions in the future.

All CTC and AHF monthly figures were verified as correctly reported.

CTC transfers are large quantity bulk 8-10 times per month for use in both CFC-11 and CFC-12. Records of individual transfers are kept in a bound notebook. A representative number of transfer and month were checked and we are satisfied in their accuracy.

All AHF is received in cylinders making reconciliation of all monthly data impractical since these are typically about 170 transactions per month. After verification of one month's data vs total monthly consumption are accepted monthly reported figures as accurate.

CFC-12 cylinders are filled on every shift and each shift creates a filling log slip, showing each cylinder serial number, tare, gross and net weight. At the end of each day these figures are totaled for each cylinder size and the weights listed on a daily production transfer to warehouse slip. We reconciled a few days and were satisfied that these transactions were properly documented.

Reconciliation of a full month or year's cylinder filling is not practical since up to one thousand small service cylinders and DAC's can be filled in one month.

3F vent returned cylinders into a recovery system. Prior to 2001 the recovered product was not included in the monthly production or annual quota. This is an acceptable industry practice. However, SEPA has not yet approved continuing this practice starting in 2001 so 3F has accumulated about 6MT of CFC-12 in specially identified cylinders waiting SEPA's decision on how they want such material handled.

The overall 3F verification went well, and as stated in our June 25, 2001 Mission Report 3F keep some of the best records in the industry. We are fully satisfied that 3 F's reported CFC's production report for 2001 are correct.

General Comment From Overall Verification

Four companies started exporting DAC's of CFC-12 in the year 2001; Jiangsu Meilan, Juhua, Dongyang and 3F (respective quantities were: 193.8MT, 905.3MT, 746.6MT and 846.5MT). The total of 2,692MT represents about 200 thousand DAC's into the Global Market creating a significant potential for illegal trade once the product leaves China's control.

Annex II: CFC Production Phase Out Verification (Including Gradual Closure)
January- February 2002
(A8 Jiangsu Meilan)

A. Plant identification

Name of Enterprise	:	Jiangsu Meilan Electro-chemical Plant
Plant Ref. Number	:	
Sector Plan #	:	1
SRI #	:	A8
Address of the Plant	:	No. 460 Yangzhou Lu, Taizhou City, Jiangsu Province, PC 225300
Contact person(s) and Functional Title	:	Mr. Zhang Futing, Vice General Manager
Telephone Number	:	0523-6336490
Fax Number	:	0523-6341488
E-mail Address	:	mldh.tz@public.tz.js.cn

B/ Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant, the World Bank
Date of Plant Visit	:	February 4-5
Duration of Visit	:	1.5 day

C. Plant History

Date of Construction:							
ODS Products	No. of Lines	Capacity in Baseline Year*	Production**				
			Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
CFC-11	1	3,000	1,050	2,009	1,766	1,049.8	1,049.7
CFC-12	1	3,000	1,793	1,606	1,866	1,793.0	1,792.9
CFC-13							
CFC-113							

CFC-114/115							
Raw Materials Production***							
HF	1	3,000*	7	553	3,336	4,223	4,835
CTC	1****	-	-	-	-	-	696

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated. The HF production has been expanded to 6,000. In 2001 a new HF production unit with capacity of 10,000 was built and started up.
**** A new chloromethane production unit was built and started up in 2001. The total capacity of various chloromethanes is 30,000, in which CTC shares 1,500.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N.A.

Date of CFC production ceased : N.A.

Date of dismantling completed : N.A.

Verification of destruction of key components by : [Name of certifying body] N.A.

Reactor tank(s) dismantled and destroyed : N.A.

Control and monitoring equipment dismantled and destroyed : N.A.

Pipes dismantled and destroyed : N.A.

Utilities dismantled and destroyed : N.A.

Evidence of destruction (photos or videos) : N.A.

Chance of resuming production : N.A.

Assessment by the verification team to be included in the verification report : N.A.

2. Plant for gradual closure

Annual CFC-11/12 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-11)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001**
Quota			1,766	1,050	1,050
Opening Stock at beginning of year	117	123	337	275	53.1
Production	1,050	2,009	1,766	1,049.8	1,049.7
Sales	1,044	1,795	1,828	1,271.7	947.7
Closing stock at end of year	123	337	275	53.1	155.1

CFC Products (CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001**
Quota			1,866	1,793	1,793
Opening Stock at beginning of year	133	201	54	101	138.8
Production	1,793	1,606	1,866	1,793.0	1,792.9
Sales	1,725	1,753	1,819	1,755.2	1,849.8
Closing stock at end of year	201	54	101	138.8	81.9

* The year from which the data is used to approve the ODS production phase out project.
** In May 2001, the enterprise used 0.04 tons of their own product as make-up for refrigeration system of their own production unit. The Verification categorized such product transfer as sales.

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11	1,050	2,009	1,766	1,049.8	1,049.7		
HF/CFC-11	0.174	0.181	0.177	0.180	0.180		
CTC/CFC-11	1.273	1.267	1.270	1.271	1.271		
CFC-12	1,793	1,606	1,866	1,793.0	1,792.9		
HF/CFC-12	0.377	0.403	0.391	0.388	0.397		
CTC/CFC-12	1.338	1.368	1.375	1.342	1.361		

* Till the year of the verification

Operational days per year

Type of Product	Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11		210	146	88	96		
CFC-12		217	131	152	213		

*Till the year of the verification

Monthly CFC Production and Raw Material Consumption

Notice: The Plant has separate production lines for CFC-11 and CFC-12. However, their raw material stocks are combined.
Therefore, the two tables (CTC for CFC-11 and CTC for CFC-12) are combined together here.

CFC-11 / CFC-12 Production and CTC Consumption

Month	CFC-11 and CFC-12	No. of Op'ting Days for CFC-11	No. of Opt'ing Days for CFC-12	CFC-11 Prod'n	CFC-12 Prod'n	CTC Consump-tion of CFC-11	CTC Consump-tion of CFC-12	CTC/ CFC-11 Ratio	CTC/ CFC-12 Ratio	CTC Opening Stock	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock
Jan		10	31	110.5	297.1	140.5	396.6	1.271	1.335	57.9	486.8	-	7.6
Feb		21	12	189.5	126.4	240.5	168.7	1.269	1.335	7.6	408.7	-	7.0
Mar		20	29	250.0	301.8	317.5	415.6	1.270	1.377	7.0	728.2	-	2.0
Apr		-	19	-	185.6	-	247.8	-	1.335	2.0	373.3	-	127.5
May		17	-	150.8	-	191.6	-	1.270	-	127.5	301.6	-	237.6
Jun		-	20	-	130.1	-	184.8	-	1.421	237.6	155.0	-	207.8
Jul		7	9	87.8	37.6	111.4	50.3	1.270	1.337	207.8	407.3	-	453.4
Aug		-	16	-	104.6	-	144.9	-	1.385	453.4	315.0	-	623.5
Sept		-	7	-	74.7	-	101.2	-	1.355	623.5	-	-	522.3
Oct		-	31	-	255.7	-	348.1	-	1.361	522.3	270.0	-	444.2
Nov		7	21	81.1	203.1	103.9	271.1	1.280	1.335	444.2	102.9	-	172.2
Dec		14	18	180.0	76.0	228.7	110.5	1.271	1.453	172.2	325.3	-	158.3
		96	213	1,049.7	1,792.9	1,334.1	2,439.6	1.271	1.361		3,874.0	-	

Monthly CFC Production and Raw Material Consumption

Notice: The Plant has separate production lines for CFC-11 and CFC-12. However, their raw material stocks are combined; and there other HF uses. Therefore, the two tables (HF for CFC-11 and HF for CFC-12) are combined together here.

CFC-11 / CFC-12 Production and HF Consumption

Month	CFC-11 and 12	No. Of Op'ting Days for CFC-11	No. Of Opting days for CFC-12	CFC-11 Prod'n	CFC-12 Prod'n	HF Consump-tion of CFC-11	HF Consump-tion of CFC-12	HF/ CFC-11 Ratio	HF/ CFC-12 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out & for Other Uses*	HF Closing Stock
Jan		10	31	110.5	297.1	19.9	118.2	0.180	0.398	112.8	433.6	315.1	93.1
Feb		21	12	189.5	126.4	34.1	49.7	0.180	0.393	93.1	363.2	273.6	99.0
Mar		20	29	250.0	301.8	45.0	120.7	0.180	0.400	99.0	544.0	430.7	46.6
Apr		-	19	-	185.6	-	70.7	-	0.381	46.6	578.5	547.2	7.2
May		17	-	150.8	-	27.1	-	0.180	-	7.2	528.9	505.0	4.1
Jun		-	20	-	130.1	-	51.7	-	0.397	4.1	624.2	531.1	45.4
Jul		7	9	87.8	37.6	15.8	14.4	0.180	0.382	45.4	592.3	467.4	140.2
Aug		-	16	-	104.6	-	41.4	-	0.396	140.2	393.2	310.8	181.2
Sept		-	7	-	74.7	-	28.8	-	0.385	181.2	458.7	370.7	240.4
Oct		-	31	-	255.7	-	105.4	-	0.412	240.4	524.3	525.9	133.4
Nov		7	21	81.1	203.1	14.6	77.1	0.180	0.380	133.4	366.4	351.5	56.6
Dec		14	18	180.0	76.0	33.0	33.6	0.183	0.443	56.6	646.6	562.8	73.8
		96	213	1,049.7	1,792.9	189.4	711.7	0.180	0.397		6,053.9	5,191.7	

* Refers to all HF for other non-CFC uses within the Plant and HF sold out as commodity.

CFC Production Phase Out Verification (Including Gradual Closure)
January- February 2002
(A 10 Jiangsu Changsu 3F)

A. Plant identification

Name of Enterprise	:	Jiangsu Changsu 3F Refrigerant Co. Ltd.
Plant Ref. Number	:	
Sector Plan #	:	6
SRI #	:	A10
Address of the Plant	:	Fushan, Haiyu Town; P.C. 215522
		Changsu City, Jiangsu Province
Contact person(s) and Functional Title	:	Shen Xuezhong, General Manager
Telephone Number	:	0520-2629918
Fax Number	:	0520-2621243
E-mail Address	:	

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant, The World Bank
Date of Plant Visit	:	January 6-8, 2002
Duration of Visit	:	2.5 days

C. Plant History

Date of construction:							
ODS Products	No. of Lines	Capacity in Baseline Year*	Production				
			Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
CFC-11	1	10,000	10,232	8,380	7,960	8,192	8221.9
CFC-12	1	5,000	2,739	3,452	2,780	5,019.1	5,075
CFC-13	-	-	-	-	-	-	-
CFC-113 (expressed as ODS)	1	4,000	3,858	3,470	3,542	3,445.0	3,375
CFC-114/115 (expressed as ODS)	1	400	34	8	150	150	50

Raw Materials Production***							
HF	2	6,000	4,804	5,276	7,615	7,497	10,428
CTC	-	-	-	-	-	-	-

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated. Now the HF production has been expanded to 12,000, with 3 production lines.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N.A.

Date of CFC production ceased : N.A.

Date of dismantling completed : N.A.

Verification of destruction of key components by : [Name of Certifying Body] N.A.

Reactor tank(s) dismantled and destroyed : N.A.

Control and monitoring equipment dismantled and destroyed : N.A.

Pipes dismantled and destroyed : N.A.

Utilities dismantled and destroyed : N.A.

Evidence of destruction (photos or videos) :

Chance of resuming production : N.A.

Assessment by the verification team to be included in the verification report : N.A.

2. Plant for gradual closure

Annual CFC-11/12 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-11)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			7,960	8,192	8,222****
Opening Stock at beginning of year	511	874	629	352	40.5
Production	10,232	8,380	7,960	8,192.0	8,221.9
Sales	9,869	8,625	8,237	8,503.5	8,262
Closing stock at end of year	874	629	352	40.5	0.4

CFC Products (CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			2,779	5019	5,075
Opening Stock at beginning of year	473	590	514	1	3.3
Production	2,739	3,452	2,780	5,019.1	5,075
Sales	2,622	3,528	3,293	5,016.8	5,047.3
Closing stock at end of year	590	514	1	3.3	31

CFC Products(CFC-113, ODS)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			3,542.5	3,445	3,375
Opening Stock at beginning of year	212	435	426	248	5.5
Production***	3,858	3,470	3,542	3,445.0	3,375
Sales	3,635	3,479	3,720	3,687.5	3,380
Closing stock at end of year	435	426	248	5.5	0.5

CFC Products (CFC-115, ODS)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			150	100	50****
Opening Stock at beginning of year	0	12	3	58	74.1
Production	34	8	151	100.2	50
Sales	22	17	96	84.1	79.3
Closing stock at end of year	12	3	58	74.1	44.8

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification
*** Refers to CFC-113 production for non- raw material uses. CFC-113 production for uses as intermediates for CFC-114/115 and other non-CFC products excluded.
**** In the annual Program 2001, the quota for CFC-11 is indicated as 8,192 and for CFC-115 is 100 (ODS, equivalent to 60 ODP); however, based upon the market situation, the enterprise applied and the Chinese Government approved to change the quota for CFC-11 to 8,222 and the quota for CFC-115 to 50 (ODS, equivalent to 30 ODP).

Annual HF/CFC and CTC, PCE or CFC 113/ CFC ratios

Ratio	Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11	10,232	8,380	7,960	8,192.0	8,221.9		
HF/CFC-11	0.165	0.167	0.160	0.160	0.157		
CTC/CFC-11	1.191	1.259	1.259	1.255	1.247		
CFC-12	2,739	3,452	2,780	5,019.1	5,075		
HF/CFC-12	0.38	0.409	0.401	0.409	0.411		
CTC/CFC-12	1.380	1.514	1.403	1.400	1.411		
CFC-113	3,858	3,470	3,542	3,445.0	3,375		
HF/CFC-113	0.480	0.456	0.480	0.509	0.474		
PCE/CFC-113	1.053	1.041	1.065	1.048	1.067		

CFC-115	33.6	8	151	100.2	50		
HF/CFC-115	1.122	1.678	1.138	0.886	0.803		
CFC-113/115	2.383	2.02	1.607	2.105	1.720		

* Till the year of the verification

Operational days per year

Type of Production	Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11	356	326	323	302	297		
CFC-12	357	339	250	293	307		
CFC-113	313	343	340	327	327		
CFC-115	179	86	353	246	85		

*Till the year of the verification.

Monthly CFC Production and Raw Material Consumption

CFC-11 Production and CTC Consumption

Month	CFC-11	No. of Operating days*	CFC-11 Production	CTC Consump-tion	CTC/ CFC-11 Ratio	CTC Opening Stock**	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock**
Jan		22.0	597.3	780.0	1.306	Please refer to " Monthly CTC Overall Balance"			
Feb		24.0	702.1	880.0	1.253	Table attached later.			
Mar		28.0	612.5	768.0	1.254				
Apr		29.0	845.0	1,060.0	1.254				
May		30.0	764.4	960.0	1.256				
Jun		31.0	916.4	1,157.0	1.262				
Jul		30.0	873.1	1,084.0	1.242				
Aug		21.0	476.8	598.0	1.254				
Sept		31.0	881.8	1,098.0	1.245				
Oct		30.0	902.5	1,128.0	1.250				
Nov		21.0	650.0	741.0	1.140				
Dec		-	-	-	-				
		297.0	8,221.9	10,254.0	1.247				

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days appeared in June and september

** The CTC storage is used commonly by both CFC 11 and CFC 12 production units.

CFC-11 Production and HF Consumption

Month	CFC-11	No. Of Operating days*	CFC-11 Production	HF Consump-tion	HF/ CFC-11 Ratio	HF Opening Stock**	HF Procured/ Added	HF Sold Out	HF Closing Stock**
Jan		24.0	597.3	90.6	0.152	Please refer to " Monthly HF Overall Balance"			
Feb		28.0	702.1	108.8	0.155	Table attached later.			
Mar		28.0	612.5	93.7	0.153				
Apr		29.0	845.0	132.9	0.157				

May	30.0	764.4	120.9	0.158
Jun	31.0	916.4	146.6	0.160
Jul	30.0	873.1	139.6	0.160
Aug	21.0	476.8	76.7	0.161
Sept	31.0	881.8	141.9	0.161
Oct	30.0	902.5	142.2	0.158
Nov	21.0	650.0	93.2	0.143
Dec	-	-	-	-
	303.0	8,221.9	1,287.0	0.157

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days appeared in April, June and November.
** Storage of HF is commonly used for the whole enterprise.

Monthly CFC Production and Raw Material Consumption

CFC-12 Production and CTC Consumption

Month	CFC-12	No. of Operating days*	CFC-12 Production	CTC Consump-tion	CTC/ CFC-12 Ratio	CTC Opening Stock**	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock**
Jan		25.0	224.4	314.0	1.399	Please refer to " Monthly CTC Overall Balance"			
Feb		28.0	354.4	496.0	1.399	Table attached later.			
Mar		28.0	461.5	646.0	1.400				
Apr		27.0	492.0	688.0	1.398				
May		30.0	543.7	761.0	1.400				
Jun		31.0	655.0	931.0	1.421				
Jul		30.0	579.9	820.0	1.414				
Aug		31.0	518.4	772.0	1.489				
Sept		31.0	577.5	830.0	1.437				
Oct		30.0	507.6	697.0	1.373				
Nov		16.0	160.6	208.0	1.295				
Dec		-	-	-	-				
		307.0	5,075.0	7,163.000	1.411				

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days appeared in June and September.
** The CTC storage is used commonly by both CFC 11 and CFC 12 production units.Therefore, stock figures are not recorded here.

CFC-12 Production and HF Consumption

Month	CFC-12	No. Of Operating days*	CFC-12 Production	HF Consump-tion	HF/ CFC-12 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out	HF Closing Stock
Jan		25.0	224.4	88.3	0.393	Please refer to " Monthly HF Overall Balance"			
Feb		28.0	354.4	139.7	0.394	Table attached later.			
Mar		28.0	461.5	184.6	0.400				
Apr		27.0	492.0	200.4	0.407				
May		30.0	543.7	219.7	0.404				
Jun		31.0	655.0	274.6	0.419				

Jul	30.0	579.9	243.6	0.420
Aug	31.0	518.4	226.3	0.437
Sept	31.0	577.5	246.8	0.427
Oct	30.0	507.6	202.4	0.399
Nov	16.0	160.6	58.6	0.365
Dec	-	-	-	-
	307.0	5,075.0	2,084.8	0.411

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days appeared in April and November.

Monthly CFC Production and Raw Material Consumption

CFC-113 Production and PCE Consumption

Month	CFC-113	No. of Operat-ing days*	Production I**	Production II**	Production III**	Production IV**	Production V**	PCE Consump-tion for Production I	PCE Consump-tion for Production V	PCE/ Total CFC-113 Ratio	PCE Opening Stock	PCE Procured/ Added	PCE Sold Out	PCE Closing Stock
Jan		27.0	399.0	-	25.0	-	424.0	425.7	456.1	1.076	518.5	39.9	-	102.3
Feb		28.0	443.0	-	10.0	-	453.0	472.7	476.3	1.051	102.3	996.7	0.1	622.8
Mar		28.0	319.0	-	20.0	-	339.0	340.4	364.0	1.074	622.8	-	-	258.8
Apr		29.0	266.0	-	24.0	-	290.0	283.8	312.0	1.076	258.8	724.9	0.1	671.6
May		30.0	359.8	-	5.3	-	365.0	383.9	395.0	1.082	671.6	-	0.0	276.6
Jun		31.0	375.0	27.3	-	-	402.2	400.1	432.8	1.076	276.6	968.8	-	812.6
Jul		28.0	235.5	36.0	19.0	-	290.5	251.3	309.5	1.065	812.6	1,232.0	70.0	1,665.1
Aug		31.0	281.2	8.0	46.0	57.7	392.9	300.1	418.5	1.065	1,665.1	-	-	1,246.6
Sept		31.0	313.3	-	15.0	85.1	413.4	334.3	440.2	1.065	1,246.6	853.7	-	1,660.1
Oct		30.0	202.0	7.3	15.0	138.3	362.5	215.6	386.2	1.065	1,660.1	978.7	-	2,252.6
Nov		30.0	181.3	7.5	20.0	141.1	349.8	193.4	367.3	1.050	2,252.6	-	-	1,885.3
Dec		4.0	-	-	8.0	104.1	112.1	-	117.7	1.050	1,885.3	700.0	-	2,467.6
		327.0	3,375.0	86.0	207.3	526.1	4,194.4	3,601.2	4,475.6	1.067		6,494.8	70.2	

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 op'tings days in June and September.

** Production I refers to the CFC-113 product that is not to be chemically converted. That is, to be used as ODS.
Production II refers to the CFC-113 product that is to be chemically converted to CFC-115 within the Enterprise.
Production III refers to the CFC-113 product that is to be chemically converted to CFC-114/115 and other non-CFC products by Zhejiang Chemical Industry Institute (SRI # 11).
Production IV refers to the CFC-113 product that is to be chemically conveted to non-CFC products within the Enterprise.
Production V refers to overall production of CFC-113. It is equal to I + II + III + IV.

Monthly CFC Production and Raw Material Consumption

CFC-113 Production and HF Consumption

Month	CFC-113	No. of Operating days*	Production I**	Production II**	Production III**	Production IV**	Production V**	HF Consumption	HF/ Total CFC-113 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out	HF Closing Stock
Jan		27.0	399.0	-	25.0	-	424.0	207.9	0.490	Please refer to "HF Monthly Overall Balance"			
Feb		28.0	443.0	-	10.0	-	453.0	224.2	0.495	Table attached later.			
Mar		28.0	319.0	-	20.0	-	339.0	146.6	0.432				
Apr		29.0	266.0	-	24.0	-	290.0	141.7	0.489				
May		30.0	359.8	-	5.3	-	365.0	178.8	0.490				
Jun		31.0	375.0	27.3	-	-	402.2	195.2	0.485				
Jul		28.0	235.5	36.0	19.0	-	290.5	137.9	0.475				
Aug		31.0	281.2	8.0	46.0	57.7	392.9	190.6	0.485				
Sept		31.0	313.3	-	15.0	85.1	413.4	200.4	0.485				
Oct		30.0	202.0	7.3	15.0	138.3	362.5	171.1	0.472				
Nov		30.0	181.3	7.5	20.0	141.1	349.801	148.2	0.424				
Dec		4.0	-	-	8.0	104.1	112.099	47.5	0.424				
		327.0	3,375.0	86.0	207.3	526.1	4,194.4	1,990.0	0.474			-	

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 op'tings days in June and September.

** Production I refers to the CFC-113 product that is not to be chemically converted. That is, to be used as ODS.
Production II refers to the CFC-113 product that is chemically converted to CFC-115 within the Enterprise.
Production III refers to the CFC-113 product that is to be chemically converted to CFC-114/115 and other non-CFC products by Zhejiang Chemical Industry Institute (SRI# B11)
Production IV refers to the CFC-113 product that is to be chemically conveted to Non-CFC product within the Enterprise.

Monthly CFC Production and Raw Material Consumption

CFC-115 Production and CFC-113 Consumption

Month	CFC-115	No. of Operat-ing days	CFC-115 Prod'n (ODS)	CFC-113 Consump'n for Internal CFC-115 Prod'n	CFC113 /CFC115 Ratio	CFC-113 Opening Stock	CFC-113 Procured/ Added	CFC-113 Comsump'n for Internal Non-CFC Prod'n*	CFC-113 Consump'n of ZCR** for Conver'n Prod'n	CFC-113 Sold Out (ZCR** Excluded)	CFC-113 Closing Stock
Jan			-	-	-	5.5	424.0	-	25.0	338.1	66.4
Feb			-	-	-	66.4	453.0	-	10.0	309.0	200.4
Mar			-	-	-	200.4	339.0	-	20.0	366.5	152.9
Apr			-	-	-	152.9	290.0	-	24.0	300.5	118.4
May			-	-	-	118.4	365.0	-	5.3	386.5	91.6
Jun			15.7	27.3	1.732	91.6	402.2	-	-	319.9	146.7
Jul			20.0	36.0	1.800	146.7	290.5	-	19.0	352.7	29.5
Aug			6.5	8.0	1.231	29.5	392.9	57.7	46.0	269.4	41.4
Sept			-	-	-	41.4	413.4	85.1	15.0	212.9	141.8
Oct			4.0	7.3	1.813	141.8	362.5	138.3	15.0	199.5	144.3
Nov			3.8	7.5	1.989	144.3	349.8	141.1	20.0	262.0	63.5
Dec			-	-	-	63.5	112.1	104.1	8.0	63.0	0.5
			50.0	86.0	1.720		4,194.4	526.1	207.3	3,380.0	

* Refers to the CFC-113 chemically converted to non CFC product(s) within the Enterprise.

** Refers to Zhejiang Chemical Industry Research Institute (SRI# B 8) that converted CFC 113 to CFC 114/115 and other non-CFC products.

CFC-115 Production and HF Consumption

Month	CFC-115	No. 0f Op'ting days*	CFC-115 Production	HF Consump-tion	HF/ CFC-115 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out	HF Closing Stock
Jan			-	-	-	Please refer to "Monthly HF Overall Balance"			
Feb			-	-	-	Table attached later.			
Mar			-	-	-				

Apr		-	-	-
May		-	-	
Jun	25	15.7	13.9	0.884
Jul	30	20.0	15.7	0.783
Aug	6	6.5	2.8	0.431
Sept	-	-	-	-
Oct	10	4.0	4.0	1.000
Nov	14	3.8	3.8	1.008
Dec	-	-	-	-
	85	50.0	40.2	0.803

Monthly CFC Production and Raw Material Consumption

Monthly CTC Overall Balance

Month	CTC Consumption for CFC-11	CTC Consumption for CFC-12	CTC Consumption Total	CTC Opening Stock	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock
Jan	780.0	314.0	1,094.0	4,236.3	300.0	29.4	3,412.9
Feb	880.0	496.0	1,376.0	3,412.9	2,662.4	4.3	4,695.0
Mar	768.0	646.0	1,414.0	4,695.0	1,135.7	-	4,416.7
Apr	1,060.0	688.0	1,748.0	4,416.7	1,435.3	0.1	4,104.0
May	960.0	761.0	1,721.0	4,104.0	1,093.6	5.4	3,471.2
Jun	1,157.0	931.0	2,088.0	3,471.2	1,171.6	2.0	2,552.8
Jul	1,084.0	820.0	1,904.0	2,552.8	1,879.7	34.2	2,494.3
Aug	598.0	772.0	1,370.0	2,494.3	1,501.0	0.1	2,625.2
Sept	1,098.0	830.0	1,928.0	2,625.2	322.1	31.5	987.8
Oct	1,128.0	697.0	1,825.0	987.8	1,557.2	0.1	719.9
Nov	741.0	208.0	949.0	719.9	908.1	37.4	641.7
Dec	-	-	-	641.7	3,112.8	3.9	3,750.6
	10,254.0	7,163.0	17,417.0		17,079.5	148.2	

Monthly CFC Production and Raw Material Consumption

Monthly HF Overall Balance

Month	HF Consumpt'n for CFC-11	HF Consumpt'n for CFC-12	HF Consumpt'n for CFC-113	HF Consumpt'n for CFC-115	HF Total Consumpt'n for CFCs	HF Opening Stock	HF Procured/ Added	HF for Other Uses*	HF Closing Stock
Jan	90.6	88.3	207.9	-	386.8	129.0	688.8	26.3	404.8
Feb	108.8	139.7	224.2	-	472.7	404.8	404.0	100.7	235.4
Mar	93.7	184.6	146.6	-	424.9	235.4	1,320.3	775.0	355.9
Apr	132.9	200.4	141.7	-	475.0	355.9	1,027.0	539.7	368.2
May	120.9	219.7	178.8	-	519.4	368.2	1,211.0	662.3	397.4
Jun	146.6	274.6	195.2	13.9	630.3	397.4	1,148.7	559.9	356.0
Jul	139.6	243.6	137.9	15.7	536.7	356.0	1,161.6	665.5	315.4
Aug	76.7	226.3	190.6	2.8	496.4	315.4	1,043.6	766.5	96.3
Sept	141.9	246.8	200.4	-	589.1	96.3	1,137.3	392.4	252.1
Oct	142.2	202.4	171.1	4.0	519.7	252.1	942.4	400.7	274.1
Nov	93.2	58.6	148.2	3.8	303.8	274.1	596.9	330.0	237.3
Dec	-	-	47.5	-	47.5	237.3	-	29.7	160.2
	1,287.1	2,084.8	1,990.0	40.2	5,402.1		10,681.8	5,248.6	

* Including HF consummed for all non CFC production within the Enterprise and HF sold out as commodity .

CFC Production Phase Out Verification (Including Gradual Closure)

January- February 2002

(A 13 Guangdong Xiansheng)

A. Plant identification

Name of Enterprise	:	Guangdong Zengcheng Xiangsheng Chemical Co. Ltd**.**
Plant Ref. No.		
Sector Plan #	:	36
SRI #	:	A 13
Address of the Plant	:	Zhuchun Farm, P.C. 511370, Zengcheng City, Guangdong Province
Contact person(s) and Functional Title	:	Mr. Ouyang Shiming, General Manager
Telephone Number	:	020-82854060
Fax Number	:	020-82852815
E-mail Address	:	

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant, The World Bank
Date of Plant Visit	:	February 3, 2002
Duration of Visit	:	1 day

C. Plant History

Date of Construction	1994						
ODS Products	No. of Lines	Capacity in Baseline Year	Production**				
			Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
CFC 11							
CFC 12	1	3,000	1,100	1,834	1,601	1,098	1,099.4
CFC 113							
CFC 114/115							

Raw Materials Production**							
HF							
CTC							

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N A

Date of CFC production ceased : N A

Date of dismantling completed : N A

Verification of destruction of key components by : [Name of certifying body] N A

Reactor tank(s) dismantled and destroyed : N A

Control and monitoring equipment dismantled and destroyed : N A

Pipes dismantled and destroyed : N A

Utilities dismantled and destroyed : N A

Evidence of destruction (photos or videos) : N A

Chance of resuming production : N A

Assessment by the verification team to be included in the verification report : N A

2. Plant for gradual closure

Annual CFC-11/12 quotas, production, sales and stocks since the baseline year*

CFC Products: CFC-12	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			1,603	1,100	1,100
Opening Stock at beginning of year	0	0	20	0	169.3
Production	1,100	1,834	1,601	1,098	1,099.4
Sales	1,100	1,814	1,621	928.7	878.2
Closing stock at end of year	0	20	0	169.3	390.5

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11							
HF/CFC-11							
CTC/CFC-11							
CFC-12	1,100	1,834	1,601	1,098	1,099.4		
HF/CFC-12	0.360	0.423	0.410	0.415	0.418		
CTC/CFC-12	1.390	1.343	1.330	1.402	1.371		

* Till the year of the verification

Operational days per year

Type of Production	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-12	177	230	193	149	141		

*Till the year of the verification.

Monthly CFC Production and Raw Material Consumption

CFC-12 Production and CTC Consumption

Month	CFC-12	No. of Operating days	CFC-12 Production	CTC Consump-tion	CTC/ CFC-12 Ratio	CTC Opening Stock	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock
Jan		-	-	0.0	-	40.1	194.8	-	235.0
Feb		18	141.0	198.8	1.410	235.0	-	-	36.2
Mar		21	161.4	227.6	1.410	36.2	222.1	-	30.8
Apr		20	154.0	211.9	1.376	30.8	274.7	-	93.6
May		17	127.4	175.8	1.380	93.6	221.8	-	139.6
Jun		12	92.0	126.1	1.370	139.6	169.3	-	182.9
Jul		-	-	-	-	182.9	-	-	182.9
Aug		14	110.0	148.9	1.353	182.9	-	-	34.0
Sept		15	121.0	161.9	1.338	34.0	323.7	-	195.7
Oct		12	94.0	125.2	1.332	195.7	111.2	-	181.7
Nov		-	-	-	-	181.7	-	-	181.7
Dec		12	98.6	131.7	1.336	181.7	-	-	50.0
		141	1,099.4	1,507.8	1.372		1,517.7	-	

CFC-12 Production and HF Consumption

Month	CFC-12	No. Of Operating days	CFC-12 Production	HF Consump-tion	HF/ CFC-12 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out	HF Closing Stock
Jan		-	-	-	-	9.9	-	-	9.9
Feb		18	141.0	59.2	-	9.9	60.2	-	10.9
Mar		21	161.4	68.0	0.421	10.9	66.6	-	9.5
Apr		20	154.0	63.5	0.412	9.5	59.3	-	5.3
May		17	127.4	52.8	0.414	5.3	58.5	-	11.0

Jun	12	92.0	37.8	0.411	11.0	38.8	-	11.9
Jul	-	-	-	-	11.9	-	-	11.9
Aug	14	110.0	44.3	0.402	11.9	38.9	-	6.6
Sept	15	121.0	48.6	0.402	6.6	55.0	-	13.0
Oct	12	94.0	37.6	0.400	13.0	34.0	-	9.4
Nov	-	-	-	-	9.4	-	-	9.4
Dec	12	98.6	48.3	0.490	9.4	48.3	-	9.4
	141	1,099.4	459.9	0.418		459.5	-	

CFC Production Phase Out Verification (Including Gradual Closure)

January- February 2002

(B 8 Zhejiang Linhai Limin)

A. Plant identification

Name of Enterprise : Zhejiang Linhai Limin Chemical Plant

Plant Ref. Number :

Sector Plan # : 22

SRI # : B8

Address of the Plant : Zhenxing Jie, P.C.317000, Linhai City, Zhejiang Province

Contact person(s) and Functional Title : Mr. He Geping, Vice General Manager

Telephone Number : 0576-5177088

Fax Number : 0576-5178055

E-mail Address : IHLM@mail.tzptl.zj.cn

B. Verification

Team Composition : 3

Leader : 1

Name : F.A. Vogelsberg

Functional Title : Consultant, The World Bank

Member(s) : 2

Name : Wu Ning/ Hua Zhangxi

Functional Title : Financial Analyst/ Technical Consultant, The World Bank

Date of Plant Visit : January 31 – February 1, 2001

Duration of Visit : 1.5 day

C. Plant History

Date of Construction	1983						
ODS Products	No. of Lines	Capacity in Baseline Year	Production**				
			Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
CFC 11							
CFC 12	2	3,000	1,365	1,658	1,188	1,364.7	1,364.9
CFC 13	1	50	27	26	27	27	27
CFC 114/115							

Raw Materials Production**							
CTC	No						
HF	No						

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N.A.

Date of CFC production ceased : N.A.

Date of dismantling completed : N.A.

Verification of destruction of key components by : [Name of certifying body] N.A.

Reactor tank(s) dismantled and destroyed : N.A.

Control and monitoring equipment dismantled and destroyed : N.A.

Pipes dismantled and destroyed : N.A.

Utilities dismantled and destroyed : N.A.

Evidence of destruction (photos or videos) : N.A.

Chance of resuming production : N.A.

Assessment by the verification team to be included in the verification report : N.A.

2. Plant for gradual closure

Annual CFC-12/13 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
Quota			1,189	1,365	1,365
Opening Stock at beginning of year	125	125	151	126	143.3
Production	1,365	1,658	1,188	1,364.7	1,364.9
Sales	1,365	1,632	1,213	1,347.4	1,338.5***
Closing stock at end of year	125	151	126	143.3	169.7

CFC Products (CFC-13)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
Quota			27	27	27

Opening Stock at beginning of year	0.91	7.91	7.34	2.6	7.9
Production	27.00	26.40	26.95	27	27
Sales	20.00	26.97	31.72	21.7	29.8
Closing stock at end of year	7.91	7.34	2.57	7.9	5.1

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification
*** Financially, the total CFC-12 sales is 1343.33; however, the enterprise has purchased in 4.854 tons and sold to the client. therefore, the net sales become 1,338.5.

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-12	1,365	1,658	1,188	1,364.7	1,364.9		
HF/CFC-12	0.418	0.408	0.408	0.415	0.417		
CTC/CFC-12	1.339	1.346	1.343	1.373	1.370		
CFC-13	27.00	26.40	26.95	27.0	27		
HF/CFC-13	0.888	1.098	1.073	1.122**	1.155		
CTC/CFC-13	2.843	3.623	3.360	3.713***	3.796		

* Till the year of the verification
** Obtained indirectly by (ratio CFC-12/CFC-13) × (ratio HF/ CFC-12)
*** Obtained indirectly by (ratio CFC-12/CFC-13) × (ratio CTC/ CFC-12)

Operational days per year

Type of Production	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4	Year 5	Year 6*
CFC-12	290	356	255	252	242		
CFC-13	135	157	173	228	277		

Monthly CFC Production and Raw Material Consumption

CFC-12 Production and CTC Consumption*

Month	CFC-12	No. Of Operating days*	CFC-12 Production as Product	CFC-12 Production for CFC-13	CFC-12 Production Total	CTC Used for CFC-12 as Product	CTC Consump-tion**	CTC/ CFC-12 Ratio**	CTC Opening Stock***	CTC Procured/ Added*	CTC Sold Out	CTC Closing Stock***
Jan		18.0	90.6	2.5	93.0	121.7	125.0	1.343	227.4	166.5	-	268.9
Feb		20.0	106.9	3.8	110.7	148.2	153.5	1.387	268.9	111.7	5.1	222.1
Mar		28.0	149.5	6.5	156.0	206.3	215.3	1.380	222.1	53.2	5.0	55.0
Apr		31.0	185.1	8.5	193.6	246.5	257.8	1.332	55.0	436.1	10.0	223.3
May		27.0	159.3	7.9	167.3	221.1	232.1	1.388	223.3	176.1	10.3	157.1
Jun		30.0	160.5	9.7	170.2	223.7	237.2	1.394	157.1	203.4	-	123.3
Jul		30.0	218.1	8.5	226.6	299.2	310.9	1.372	123.3	139.8	6.0	-53.8
Aug		28.0	150.6	9.0	159.6	207.3	219.7	1.377	-53.8	301.4	5.0	22.9
Sept		-	-	-	-	-	-	-	22.9	-	0.1	22.8
Oct		15.0	72.5	5.3	77.8	98.6	105.7	1.359	22.8	28.3	0.3	-55.0
Nov		15.0	71.8	11.3	83.1	97.8	113.2	1.362	-55.0	287.4	-	119.2
Dec		-	-	-	-	-	-		119.2	106.3	8.7	216.9
		242.0	1,364.9	72.9	1,437.8	1,870.5	1,970.4	1.370		2,010.3	50.4	

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days in April. In case there is one (or more) shift that has reactor operation with a clender day, this clender day is considered as one operating day.

**The Plant produces CFC-13 by disproportioning of CFC-12. All data concerning CTC consumption refer to total CFC-12 production, including CFC-12 production as products and CFC-12 production for CF-13.

*** Negative stock figures are caused by delay of financial documentation.

Monthly CFC Production and Raw Material Consumption

CFC-12 Production and HF Consumption*

Month	CFC-12	No. Of Operating days	CFC-12 Production as Product	CFC-12 Production for CFC-13	CFC-12 Production Total	HF Used for CFC-12 as Product	Total HF Consump-tion**	HF/ CFC-12 Ratio**	HF Openning Stock****	HF Procured/ Added	HF Sold Out***	HF Closing Stock****
Jan		18.0	90.6	2.5	93.0	38.0	39.0	0.420	11.0	105.1	130.8	-53.7
Feb		20.0	106.9	3.8	110.7	44.0	45.6	0.412	-53.7	311.1	201.4	10.4

Mar	28.0	149.5	6.5	156.0	65.4	68.2	0.437	10.4	358.8	247.5	53.4
Apr	31.0	185.1	8.5	193.6	74.6	78.0	0.403	53.4	238.2	203.5	10.2
May	27.0	159.3	7.9	167.3	70.6	74.1	0.443	10.2	259.1	237.3	-42.1
Jun	30.0	160.5	9.7	170.2	67.6	71.7	0.421	-42.1	584.6	455.7	15.1
Jul	30.0	218.1	8.5	226.6	88.4	91.9	0.406	15.1	439.8	414.4	-51.4
Aug	28.0	150.6	9.0	159.6	63.6	67.3	0.422	-51.4	479.8	377.4	-16.4
Sept	-	-	-	-	-	-	-	-16.4	71.0	139.5	-84.9
Oct	15.0	72.5	5.3	77.8	28.9	31.0	0.398	-84.9	318.0	166.9	35.2
Nov	15.0	71.8	11.3	83.1	28.5	33.0	0.397	35.2	243.8	173.1	73.0
Dec	-	-	-	-		-		73.0	205.1	242.9	35.2
	242.0	1,364.9	72.9	1,437.8	569.3	599.8	0.417		3,614.4	2,990.4	

* Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days in April. In case there is one (or more) shift that has reactor operation with a clender day, this clender day is considered as one operating day.

**The Plant produces CFC-13 by disproportioning of CFC-12. All data concerning HF consumption refer to total CFC-12 production, including CFC-12 production as products and CFC-12 production for CF-13.

*** Here, the HF sold out refers to the amount of HF used by other non-CFC production.

**** Negative stock figures are caused by delay of financial documentation.

Monthly CFC Production and Raw Material Consumption

CFC-13 Production and CFC-12 Consumption*

Month	CFC-13	No. Of Operating days**	CFC-13 Production	CFC-12 Consump-tion***	CFC-12/ CFC-13 Ratio***	CFC-12 Opening Stock	CFC-12 Procured/ Added	CFC-12 Sold Out	CFC-12 Closing Stock
Jan		15	0.350	2.460	7.029	-	2.460	-	-
Feb		19	0.945	3.846	4.070	-	3.846	-	-
Mar		28	2.425	6.533	2.694	-	6.533	-	-
Apr		31	3.255	8.467	2.601	-	8.467	-	-
May		29	3.010	7.912	2.629	-	7.912	-	-
Jun		31	3.640	9.668	2.656	-	9.668	-	-
Jul		30	3.150	8.503	2.699	-	8.503	-	-
Aug		31	3.360	8.982	2.673	-	8.982	-	-
Sept		-	-	-	-	-	-	-	-
Oct		23	1.960	5.252	2.680	-	5.252	-	-
Nov		30	3.850	10.416	2.705	-	10.416	-	-
Dec		10	1.050	2.757	2.626	-	2.757	-	-
		277	26.995	74.796	2.771		74.796	-	

*The Plant produces CFC-13 by disproportioning of CFC-12. CTC and HF are used indirectly, and described in previous sheets (the CFC-12 Prouction and CTC/HF Consumption).

** Operating days of a month is recorded from the 26th day of the previous month to 25th day of the month. This is the reason for 31 operating days appeared in April and June.
In case there is one (or more) shift that has reactor operation within a clender day, this clender day is considered as one operating day.

*** The CFC-12/CFC-13 ratio in Jan and Feb were extremely higher than normal practice. The reasons have been assessed and identified as due to abormal performance of the catalyst purchased which caused the convesion of of CFC-12 partly to carbon tetra fluoride; and the abnormal of a new installed compressor which caused the lower recovery of CFC-13 product. The problems were fixed since late Feb. During the mentioned abnormal period the enterprise has changed the reactor inventory many times; and the reactionmixtu mixture that containing containminated CFC-12 was stored and used graduatly in the production after March.Therefore the ratio after March was lower and th yearly average approached 2.771 that is a little higher than that in 2000.
Consequently, the total consumption of CFC-12 for production of CFC-13 in 2001 is 1.896 ton higher than 72.9 tons that was approved by the Chinese government. The enterprise made up this gap by purchasing such amount of CFC-12 from outside as ODS.

CFC Production Phase Out Verification (Including Gradual Closure)

January- February 2001

(B 11 Zhejiang Chemical Institute)

A. Plant identification

	:	
Plant Ref. Number		
Sector Plan #	:	10
SRI #	:	B11
Address of the Plant	:	No. 926, Xixi Lu, P.C. 310023, Hangzhou City, Zhejiang Province
Contact person(s) and Functional Title	:	Mr. Zhang Jianjun, Deputy Director
Telephone Number	:	0517-5229414
Fax Number	:	0517-5221129
E-mail Address	:	

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant, The World Bank
Date of Plant Visit	:	February1- 2 2002
Duration of Visit	:	1.5 day

C. Plant History

Date of Construction 1990							
ODS Products (Expresed in ODS)	No. of Lines	Capacity in Baseline Year	Production**				
			Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
CFC 11							
CFC 12							
CFC 113							
CFC 114/115	1	100	10.6/120.3	20.7/102.2	0./120	7.33/119.6	6.8/127

Raw Materials Production**							
CTC							
HF							

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N.A.

Date of CFC production ceased : N.A.

Date of dismantling completed : N.A.

Verification of destruction of key components by : [Name of certifying body] N.A.

Reactor tank(s) dismantled and destroyed : N.A.

Control and monitoring equipment dismantled and destroyed : N.A.

Pipes dismantled and destroyed : N.A.

Utilities dismantled and destroyed : N.A.

Evidence of destruction (photos or videos) :

Chance of resuming production : N.A.

Assessment by the verification team to be included in the verification report : N.A.

2. Plant for Complete Closure

Annual CFC-114/115 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-114)	Baseline Year*	Year 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			11	11	6.8***
Opening Stock at beginning of year	7.96	15.25	20.60	17.52	20.74
Production	10.60	20.70	0	7.33	6.83
Sales	3.31	15.35	3.08	4.11	4.01
Closing stock at end of year	15.25	20.60	17.52	20.74	23.56

CFC Products (CFC-115, expressed as ODS)	Baseline Year*	Year 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			120	120	127***
Opening Stock at beginning of year	3.64	40.27	74.81	49.45	79.21
Production	120.30	102.20	119.98	119.64	127
Sales	83.67	67.66	145.34	89.88	121.3
Closing stock at end of year	40.27	74.81	49.45	79.21	84.9

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification
*** In the Annual Program 2001, the quota for CFC-114 is indicated as 11 and for CFC-115 is 120 (ODS, equivalent to 72 ODP); However, based upon the market situation, the enterprise applied and the Chinese Government approved to change the quota for CFC-114 to 6.8 and the quota for CFC-115 to 127 (ODS, equivalent to 76.2 ODP).

Annual HF/CFC-114 (CFC 115) and CFC-113/CFC-114 (CFC-115) ratios

Ratio	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-114	10.60	20.70	0	7.33	6.83		
HF/CFC-114		0.41	0	0.337	0.413		
CFC-113/CFC-114		1.200	0	1.207	1.304		
CFC-115	120.30	102.20	119.98	119.64	127		
HF/CFC-115		0.569	0.479	0.482	0.417		
CFC-113/CFC-115		1.549	1.665	1.564	1.387		

* Till the year of the verification

Operational days per year

Type of Production	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-114	**	**	**	**	**		
CFC-115	330	248	266	303	249		

*Till the year of the verification.
** The CFC-114 production uses the same production unit as the CFC-115 production. In 2000, among the total 303 operating days, 20 days have the CFC-114 production. In 2001, among the total 249 operating days, 8 day have the co-production of CFC-114.

Monthly CFC Production and Raw Material Consumption

CFC-114/115 Production and CFC-113 Consumption **(Expressed in ODS)**

Month	CFC-114/115	No. of Operating days*	CFC-114 Prod'n	CFC-115 Prod'n	CFC-113 consumption for CFC-114	CFC-113 Consumption for CFC-115	CFC-113a Consumption for CFC-115**	CFC-113 /CFC-114 Ratio	CFC-113 /CFC-115 Ratio***	CFC-113 Opening Stock	CFC-113 Procured/ Added	CFC-113 for Other Non-CFC Products****	CFC-113 Closing Stock
Jan		-	-	-	-	-	-	-	-	5.5	25.0	19.00	11.50
Feb		-	-	-	-	-	-	-	-	11.5	10.0	4.50	17.00
Mar		29	-	8.94	-	16.25	-	-	1.817	17.0	10.0	10.00	0.75
Apr		13	2.976	4.23	3.819	5.43	-	1.283	1.283	0.8	17.0	7.00	1.50
May		15	3.857	5.04	5.093	6.66	-	1.320	1.321	1.5	22.3	11.25	0.75
Jun		31	-	14.66	-	-	20.5	-	1.395	0.8	-	-	0.75
Jul		30	-	14.91	-	19.75	-	-	1.325	0.8	19.0	-	-
Aug		31	-	16.29	-	18.75	3.0	-	1.335	-	46.0	-	27.25
Sept		31	-	23.10	-	30.75	-	-	1.331	27.3	15.0	-	11.50
Oct		30	-	12.45	-	16.75	-	-	1.345	11.5	15.0	-	9.75
Nov		24	-	20.64	-	29.00	-	-	1.405	9.8	20.0	-	0.75
Dec		15	-	6.71	-	8.75	-	-	1.304	0.8	8.0	-	-
		249	6.833	126.99	8.912	152.09	23.5	1.304	1.382		207.3	51.75	

* The operating day are recorded from the 26th of previous month to the 25th of the month. This he reason for 31 days in June.
CFC-114 was co-produced by the same production line for 3 days in April and 5 days in May.
CFC 114 production uses the same production unit as the CFC 115. It carried out during three days in April and five days in May.

** CFC-113a, a non -ODS, was a by product from the production of HCFC-123 in the Enterprise.It has been used as part of the raw material for CFC 115 in 2001.

*** Here refers to the ratio of the sum of CFC-113 and CFC-113a consumed to the production of CFC-115.

**** In February, 0.5 ton was used for the production of pyrethrin (a pesticide) and 4 tons for TFA (trifluoro acetic acid). In other months, all were used forTFA.

Monthly CFC Production and Raw Material Consumption

CFC-114/CFC-115 Production (expressed in ODS) and HF Consumption

Month	CFC-114 /CFC-115	No. Of Operating days*	CFC-114 Production	CFC-115 Production	HF Consump-tion for CFC-114	HF Consump-tion for CFC-115	HF/ CFC-114 Ratio	HF/ CFC-115 Ratio	HF Opening Stock	HF Procured/ Added	HF for Other Uses**	HF Closing Stock***
Jan		-	-	-	-	-	-	-	9.095	12.870	10.890	11.075
Feb		-	-	-	-	-	-	-	11.075	20.460	16.170	15.365
Mar		29	-	8.94	-	5.280	-	0.590	15.365	13.860	17.160	6.785
Apr		13	2.976	4.23	0.817	1.163	0.275	0.275	6.785	42.900	34.320	13.385
May		15	3.857	5.04	2.003	2.617	0.519	0.519	13.385	32.670	30.690	10.745
Jun		31	-	14.66	-	6.600	-	0.450	10.745	34.650	28.710	10.085
Jul		30	-	14.91	-	5.940	-	0.399	10.085	23.100	25.740	1.505
Aug		31	-	16.29	-	7.920	-	0.486	1.505	41.250	27.390	7.445
Sept		31	-	23.10	-	7.260	-	0.314	7.445	26.730	21.120	5.795
Oct		30	-	12.45	-	5.280	-	0.424	5.795	25.740	24.420	1.835
Nov		24	-	20.64	-	7.920	-	0.384	1.835	40.920	31.350	3.485
Dec		15	-	6.71	-	2.970	-	-	3.485	27.060	27.575	-
		249	6.833	126.99	2.820	52.950	0.413	0.417		342.210	295.535	

* The operating day are recorded from the 26th of previous month to the 25th of the month. This he reason for 31 days in June.
CFC 114 production uses the same production unit as the CFC 115. It carried out during three days in April and five days in May.

** Means HF used for other non CFC products within the enterprise..

*** Negative stock figure was caused by delay of financial documentation.

CFC Production Phase Out Verification (Including Gradual Closure)

January- Februarry 2002

(B12 Zhejiang Donyang)

A. Plant identification

Name of Enterprise	:	Zhejiang Dongyang Chemical Plant
Plant Ref. Number	:	
Sector Plan #	:	7
SRI #	:	B12
Address of the Plant	:	Wunning Dong Lu, P.C. 322100, Dongyang City, Zhejiang Province
Contact person(s) and Functional Title	:	Mr. Wang Tian'e, Deputy Director
Telephone Number	:	0759-6623201
Fax Number	:	0759-6632697
E-mail Address	:	Zjfcc@public.dy.jhptt.zj.cn

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F. A. Vogelsberg
Functional Title	:	Consultant, The World bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant, The World Bank
Date of Plant Visit	:	January 30 2002
Duration of Visit	:	1 day

C. Plant History

Date of Construction	1979						
ODS Products	No. of Lines	Capacity in Baseline Year	Production**				
			Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001
CFC 11							
CFC 12	1	5,000	2,219	2,751	2,063	2218.5	2218.9
CFC 113							
CFC 114/115							

Raw Materials Production**							
CTC	No	0	0	0	0	0	0
HF	3	15,000	10,872	11,065	10,415	11,744	13,862

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N.A.

Date of CFC production ceased : N.A.

Date of dismantling completed : N.A.

Verification of destruction of key components by : [Name of certifying body] N.A.

Reactor tank(s) dismantled and destroyed : N.A.

Control and monitoring equipment dismantled and destroyed : N.A.

Pipes dismantled and destroyed : N.A.

Utilities dismantled and destroyed : N.A.

Evidence of destruction (photos or videos) : N.A.

Chance of resuming production : N.A.

Assessment by the verification team to be included in the verification report : N.A.

2. Plant for gradual closure

Annual CFC-12 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-11, CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			2,053	2,219	2,219
Opening Stock at beginning of year	259	202	1,120	836	1,631.9
Production	2,219	2,751	2,053	2,218.5	2,218.9
Sales	2,276	1,833	2,337	1,422.6	2,799
Closing stock at end of year	202	1,120	836	1,631.9	1,051.8

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-12	2,219	2,715	2,053	2,218.5	2,218.9		
HF/CFC-12	0.342	0.365	0.367	0.375	0.377		
CTC/CFC-12	1.325	1.368	1.367	1.357	1.357		

* Till the year of the verification

Operational days per year

Type of Production	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-12	319	277	229	235	242.5		

*Till the year of the verification

Monthly CFC Production and Raw Material Consumption

CFC-12 Production and CTC Consumption

Month	CFC-12	No. Of Operating days	CFC-12 Production	CTC Consump-tion	CTC/ CFC-12 Ratio	CTC Opening Stock	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock
Jan		-	-	-	-	16.8	-	-	16.8
Feb		-	-	-	-	16.8	360.1	-	376.9
Mar		18.5	174.9	236.1	1.350	376.9	498.6	-	639.4
Apr		27.0	251.3	341.3	1.358	639.4	625.6	-	923.6
May		28.0	282.3	383.4	1.358	923.6	417.3	-	957.5
Jun		24.0	222.5	302.1	1.358	957.5	274.1	-	929.4
Jul		28.5	294.6	399.4	1.356	929.4	57.5	-	587.5
Aug		23.0	196.9	266.4	1.353	587.5	-	-	321.1
Sept		17.0	141.3	191.5	1.356	321.1	165.1	-	294.7
Oct		23.0	192.3	261.3	1.359	294.7	-	-	33.4
Nov		29.0	252.9	343.7	1.359	33.4	372.0	-	61.7
Dec		24.5	209.9	285.3	1.359	61.7	425.9	-	202.3
		242.5	2,218.9	3,010.5	1.357		3,196.0	-	

CFC-12 Production and HF Consumption

Month	CFC-12	No. Of Operating days	CFC-12 Production	HF Consump-tion	HF/ CFC-12 Ratio	HF Opening Stock*	HF Procured/ Added	HF Sold Out and Others**	HF Closing Stock*
Jan		-	-	-	-	47.5	940.6	920.1	68.0
Feb		-	-	-	-	68.0	874.5	966.4	-23.9
Mar		18.5	174.9	64.7	0.370	-23.9	1,294.1	1,155.9	49.6
Apr		27.0	251.3	95.0	0.378	49.6	1,338.3	1,227.3	65.6
May		28.0	282.3	103.0	0.365	65.6	1,331.0	1,182.9	110.8
Jun		24.0	222.5	84.5	0.380	110.8	1,360.9	1,346.3	40.9
Jul		28.5	294.6	112.2	0.381	40.9	1,174.8	1,071.6	31.9

Aug	23.0	196.9	72.6	0.369	31.9	1,280.4	1,210.2	29.6
Sept	17.0	141.3	54.1	0.383	29.6	1,142.8	1,081.1	37.2
Oct	23.0	192.3	72.6	0.378	37.2	1,024.0	876.1	112.5
Nov	29.0	252.9	96.4	0.381	112.5	1,109.8	1,018.6	107.4
Dec	24.5	209.9	80.5	0.384	107.4	990.4	934.3	83.0
	242.5	2,218.9	835.6	0.377		13,861.7	12,990.6	

* Negative stock number is due to delay of financial documentation.

** Including HF for all other non-CFC uses within the Plant and HF sold out as commodity.

Production CFC Phase Out Verification (Including Gradual Closure)

January- February 2002
(B 14 Zhejiang Juhua)

A. Plant identification

Name of Enterprise	:	Zhejiang Juhua Fluoro-chemical Co. Ltd.
Plant Ref. Number	:	
Sector Plan #	:	3
SRI #	:	B14
Address of the Plant	:	Kecheng Qu, P.C. 324004, Guzhou City, Zhejiang Province
Contact person(s) and Functional Title	:	Mr. Cai Jian Qun, Acting General Manager
Telephone Number	:	0570-3097543
Fax Number	:	0570-3098687
E-mail Address	:	Qzfh@ppp.qzptt.zj.cn

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant, The World Bank
Date of Plant Visit	:	January 28-29 2002
Duration of Visit	:	1.5 day

C. Plant History

Date of Construction	1993						
ODS Products	No. of Lines	Capacity in Baseline Year	Production**				
			Baseline Year	Year 1 1998	Year 2 1999	Year 3	Year 4
CFC 11/12 (Combined)	1	4,000/ 8,000	4,339/ 7,760	4,121/ 7,632	3,376/ 6325	4,339/ 7,759	4,827.3/ 7,706.1
CFC 113							
CFC 114/115							
Raw Materials Production							
CTC	1	12,000***	11,659	10,751	13,140	13,479	15,697

HF	1	10,000****	8,929	10,614	11,361	13,290	14,994

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
*** The capacity of total chloromethanes is 30,000. Now, CTC capacity has been adjusted to 14,700.
**** Has been expanded to 15,000

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : N.A.

Date of CFC production ceased : N.A.

Date of dismantling completed : N.A.

Verification of destruction of key components by : [Name of certifying body] N.A.

Reactor tank(s) dismantled and destroyed : N.A.

Control and monitoring equipment dismantlec and destroyed : N.A.

Pipes dismantled and destroyed : N.A.

Utilities dismantled and destroyed : N.A.

Evidence of destruction (photos or videos) : N.A.

Chance of resuming production : N.A.

Assessment by the verification team to be included in the verification report : N.A.

2. Plant for gradual closure

Annual CFC-11/12 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-11)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			3,375	4,339	4,827.5***
Opening Stock at beginning of year	85	15	419	0	0
Production	4,339	4,121	3,376	4,339	4,827.3
Sales	4,409	3,717	3,599	4,339	4,827.3
Closing stock at end of year	15	419	0	0	0

CFC Products (CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000	Year 4** 2001
Quota			6,325	7,760	7,706.5***

Opening Stock at beginning of year	20	2	420	4	6
Production	7,760	7,632	6,325	7,759	7,706.1
Sales	7,778	7,214	6,741	7,757	7,706.4
Closing stock at end of year	2	420	4	6	5.7

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification
*** In the annual Program 2001, the quota for CFC-11 is indicated as 4,629 and for CFC-12 is 7,905; however, based upon the market situation, the enterprise applied and the Chinese Government approved to change the quota for CFC-11 to 4827.5 and the quota for CFC-12 to 7,706.5.

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11	4,339	4,121	3,376	4,339	4,827.3		
HF/CFC-11	0.150	0.151	0.150	0.157	0.156		
CTC/CFC-11	1.151	1.152	1.150	1.215	1.209		
CFC-12	7,760	7,632	6,325	7759	7,706.1		
HF/CFC-12	0.340	0.341	0.341	0.357	0.354		
CTC/CFC-12	1.304	1.309	1.304	1.381	1.374		

* Till the year of the verification

Operational days per year

Type of Production	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4 2001	Year 5	Year 6*
CFC-11	341	347	335	346	319		
CFC-12	(341)**	(347)**	(335)**	(346)**	(319)**		

*Till the year of the verification.
** Operated together with CFC-11 in a same production line.

Monthly CFC Production and Raw Material Consumption

CFC-11 and CFC 12 Production and CTC Consumption

Month	CFC-11 and CFC-12	No. Of Operat-ing days	CFC-11 Prod'tion	CFC-12 Prod'tion	CTC Consump-tion for CFC-11	CTC Consump-tion for CFC-12	CTC/ CFC-11 Ratio	CTC/ CFC-12 Ratio	CTC Opening Stock	CTC I*	CTC II*	CTC III*	CTC Procured/ Added**	CTC Sold Out***	CTC Closing Stock
Jan		29.0	400.0	708.7	484.3	975.0	1.211	1.376	1,667.3	1,184.6		222.4	1,407.0	-	1,615.0
Feb		28.0	401.8	640.5	487.1	880.7	1.212	1.375	1,615.0	1,361.0	18.5		1,379.5	18.5	1,608.3
Mar		30.0	406.0	782.1	499.4	1,092.3	1.230	1.397	1,608.3	1,338.0			1,338.0	-	1,354.6
Apr		27.0	494.0	806.8	587.4	1,089.8	1.189	1.351	1,354.6	1,370.0	28.5		1,398.5	28.5	1,047.5
May		31.0	522.4	857.2	625.4	1,166.0	1.197	1.360	1,047.5	1,522.0	40.0		1,562.0	27.5	790.6
Jun		29.0	443.1	656.6	536.4	903.5	1.211	1.376	790.6	1,281.0	30.0		1,311.0	18.0	643.7
Jul		30.0	405.4	574.4	486.3	782.8	1.200	1.363	643.7	1,320.6		109.4	1,430.0	2.0	802.6
Aug		29.0	407.8	564.5	498.0	781.9	1.221	1.385	802.6	1,376.5		219.5	1,596.0	20.5	1,098.2
Sept		29.0	350.0	659.1	422.9	904.3	1.208	1.372	1,098.2	1,238.6		275.4	1,514.0	0.8	1,284.2
Oct		23.0	320.0	630.3	390.6	873.3	1.221	1.386	1,284.2	984.0		113.0	1,097.0	-	1,117.3
Nov		29.0	346.0	492.9	428.0	692.7	1.237	1.405	1,117.3	1,273.0	5.0	167.4	1,445.5	3.8	1,438.4
Dec		5.0	331.0	333.0	392.5	448.4	1.186	1.347	1,438.4	179.5	1,146.0		1,325.5	0.3	1,922.8
		319.0	4,827.3	7,706.1	5,838.2	10,590.6	1.209	1.374		14,428.9	1,268.0	1,107.1	16,804.0	119.8	

* CTC I refers to CTC in-house produced and transferred to CFC production unit.
CTC II refers to CTC in-house produced and transferred to CTC commodity inventory.
CTC III refers to CTC purchased from outside.

** CTC Procured/ Added is the summation of CTC I, II and III.

*** CTC Sold Out refers to CTC sold to outside as commodity and that for other non-CFC uses within the Company.

CFC-11 and CFC 12 Production and HF Consumption

Month	CFC-11 and CFC-12	No. of Operating days	CFC-11 Production	CFC-12 Production	HF Consump-tion for CFC-11	HF Consump-tion for CFC-12	HF Consump-tion for CFC-11 and CFC-12	HF/ CFC-11 Ratio	HF/ CFC-12 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out*	HF Closing Stock
Jan		29.0	400.0	708.7	61.6	248.1	309.7	0.154	0.350	722.2	1,174.8	774.9	812.4
Feb		28.0	401.8	640.5	61.5	222.6	284.2	0.153	0.348	812.4	1,227.2	906.4	849.0
Mar		30.0	406.0	782.1	64.4	281.8	346.2	0.159	0.360	849.0	1,260.0	1,207.5	555.3
Apr		27.0	494.0	806.8	74.8	277.9	352.7	0.151	0.344	555.3	1,158.1	928.9	431.8
May		31.0	522.4	857.2	81.1	302.7	383.8	0.155	0.353	431.8	1,586.7	1,082.9	551.8
Jun		29.0	443.1	656.6	70.2	236.8	307.0	0.159	0.361	551.8	1,409.7	1,076.7	577.6
Jul		30.0	405.4	574.4	63.9	206.0	269.9	0.158	0.359	577.6	1,536.7	1,233.5	610.9
Aug		29.0	407.8	564.5	63.4	199.3	262.7	0.156	0.353	610.9	1,499.5	1,186.8	660.8
Sept		29.0	350.0	659.1	54.3	232.5	286.8	0.155	0.353	660.8	1,412.4	931.0	855.5
Oct		23.0	320.0	630.3	49.3	220.7	270.1	0.154	0.350	855.5	922.9	925.8	582.6
Nov		29.0	346.0	492.9	55.5	179.8	235.3	0.160	0.365	582.6	1,151.0	936.8	561.5
Dec		5.0	331.0	333.0	52.0	118.8	170.8	0.157	0.357	561.5	1,492.6	1,091.5	791.8
		319.0	4,827.3	7,706.1	752.1	2,727.1	3,479.2	0.156	0.354		15,831.5	12,282.7	

* Including HF sold out as commodity and all other non-CFC uses within the company.

CFC-11 and CFC 12 Production and HF Consumption

Month	CFC-11 and CFC-12	No. of Operating days	CFC-11 Production	CFC-12 Production	HF Consump-tion for CFC-11	HF Consump-tion for CFC-12	HF Consump-tion for CFC-11 and CFC-12	HF/ CFC-11 Ratio	HF/ CFC-12 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out*	HF Closing Stock
Jan		29.0	400.0	708.7	61.6	248.1	309.7	0.154	0.350	722.2	1,174.8	774.9	812.4
Feb		28.0	401.8	640.5	61.5	222.6	284.2	0.153	0.348	812.4	1,227.2	906.4	849.0
Mar		30.0	406.0	782.1	64.4	281.8	346.2	0.159	0.360	849.0	1,260.0	1,207.5	555.3
Apr		27.0	494.0	806.8	74.8	277.9	352.7	0.151	0.344	555.3	1,158.1	928.9	431.8
May		31.0	522.4	857.2	81.1	302.7	383.8	0.155	0.353	431.8	1,586.7	1,082.9	551.8
Jun		29.0	443.1	656.6	70.2	236.8	307.0	0.159	0.361	551.8	1,409.7	1,076.7	577.6
Jul		30.0	405.4	574.4	63.9	206.0	269.9	0.158	0.359	577.6	1,536.7	1,233.5	610.9
Aug		29.0	407.8	564.5	63.4	199.3	262.7	0.156	0.353	610.9	1,499.5	1,186.8	660.8
Sept		29.0	350.0	659.1	54.3	232.5	286.8	0.155	0.353	660.8	1,412.4	931.0	855.5

Oct	23.0	320.0	630.3	49.3	220.7	270.1	0.154	0.350	855.5	922.9	925.8	582.6
Nov	29.0	346.0	492.9	55.5	179.8	235.3	0.160	0.365	582.6	1,151.0	936.8	561.5
Dec	5.0	331.0	333.0	52.0	118.8	170.8	0.157	0.357	561.5	1,492.6	1,091.5	791.8
	319.0	4,827.3	7,706.1	752.1	2,727.1	3,479.2	0.156	0.354		15,831.5	12,282.7	

* Including HF sold out as commodity and all other non-CFC uses within the company.

Annex III. CHINA CFC PRODUCTION SECTOR COMPLETE CLOSURE PROJECT 2001

In accordance with China CFC Production Sector Plan and the Annual Program 2001, three CFC production units in three corresponding China enterprises have been closed. The enterprises are:

A 7	Suzhou Xinye Chemical Co. Ltd.	1 CFC-11 unit
A 11	Jiangsu Changsu Yudong Chemical Plant	1 CFC-113 unit
B 15	Fujian Shaowu Fluoro-Chemical Plant	1 CFC-12 unit

The concerning enterprises reported on their completion of closure. In June of 2001, A World Bank Verification Team, consisting of Messrs. F. A. Vogelsberg, consultant, Hua Zhangxi, consultant, and Wu Ning, financial analyst, conducted verification activities for the total closure of the three CFC production units in the three corresponding enterprises. At the same time, the Team also verified the CFC production of those enterprises in 2000.

Before the Verification Team visited the plant sites, the World Bank provided the Terms of Reference for the task . The Verification Team proceeded with its mission after fully familiarizing itself with the scope of the required work contained in these terms of reference. The concerned enterprises have provided information and evidences with respect to their closure and dismantling activities. The enterprises also provided the information with respect to their production, consumption of raw materials, and sales of the product(s) in 2000. The Verification Team studied and reviewed this information and prepared questions for clarification and data sheets for verification.

At the field sites of the three closed enterprises, the necessary documents needed for the 2000 production verification, such as production logs, sales records, material transfer records were made available to the Verification Team. All evidence of the dismantling and disposal of the equipment mentioned in the Agreement were also made available.

Based upon the inspection and examination of all information as well as the observation on field sites, the Verification Team concluded that **a**ll the three CFC production units in the three corresponding enterprises have been closed completely. The dismantling and disposal of key equipment meets the requirement specified in the Agreement. All the evidence as well as the remaining plant sites have been reviewed and inspected by the Verification Team. Those three enterprises will not be able to resume CFC production.

For the three closed enterprises, verification of year 2000 production was done as follows:

- Examination of year 2000 starting CFC stock
- Examination of year 2000 CFCs produced and sold
- Examination of year 2000 raw materials consumed
- Examination of year 2000 end CFC stock

So, the Verification Team concluded that the total CFC production of the three closed enterprises in 2000 was 4,235.2 tons (ODP).

CFC Production Phase Out Verification (Including Gradual Closure)

June 2001

(Suzhou Xinye)

A. Plant identification

Name of Enterprise	:	Suzhou Xinye Chemical Co. Ltd.
Plant Ref. Number	:	
Sector Plan #	:	34
SRI #	:	A7
Address of the Plant	:	Caihong Building, Sanxiang Lu, PC 215004
Contact person(s) and Functional Title	:	Mrs Song Renqi, Manager of Finance dept.
Telephone Number	:	0512-8281388
Fax Number	:	0512-8281988
E-mail Address	:	zgsnc@Public1.sz.js.cn

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant
Date of Plant Visit	:	June 18 2001
Duration of Visit	:	1 day

C. Plant History

Date of construction: 1993						
ODS Products	No. of Lines	Capacity in Baseline Year*	Production**			
			Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000
CFC-11	2	7,000	2,532	5,042	7,408	2,532
CFC-12	-	-	-	-	-	-
CFC-13	-	-	-	-	-	
CFC-113	-	-	-	-	-	-
CFC-114/115	-	-	-	-	-	-
Raw Materials Production**						

HF	-	-	-	-	-	-
CTC	-	-	-	-	-	-

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed	:	2
Date of CFC production ceased	:	December 26 2000
Date of dismantling completed	:	January 02 2001
Verification of destruction of key components by	:	[Name of certifying body] Suzhou Wuxian EPB
Reactor tank(s) dismantled and destroyed	:	Yes
Control and monitoring equipment dismantled and destroyed	:	Yes
Pipes dismantled and destroyed	:	Yes
Utilities dismantled and destroyed	:	Yes
Evidence of destruction (photos or videos)	:	Yes, available
Chance of resuming production	:	No
Assessment by the verification team to be included in the verification report	:	The closure is complete. All concerning equipment has been dismantled. The evacuated building has been used for other non-ODS chemical production.

2. Plant for gradual closure

Annual CFC-11/12 quotas, production, sales and stocks since the baseline year*

(Please use one table for each CFC product)

CFC Products (CFC-11, CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3** 2000
Quota			7,408	2,532
Opening Stock at beginning of year	0	8	912	462
Production	2,532	5,042	7,408	2,532
Sales	2,524	4,138	7,858	1,201
Closing stock at end of year	8	912	462	1,793

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline Year 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4	Year 5	Year 6*
CFC-11	2,532	5,042	7,408	2,532			
HF/CFC-11	0.174	0.177	0.166	0.167			
CTC/CFC-11	1.136	1.250	1.214	1.209			
CFC-12							
HF/CFC-12							
CTC/CFC-12							

* Till the year of the verification

Operational days per year

Type of Production	Baseline Year 1997	Year 1 1998	Year 2 1999	Year 3* 2000	Year 4	Year 5	Year 6
CFC-11	256	312	226	141			

*Till the year of the verification.

Monthly CFC Production and Raw Material Consumption

CFC-11 Production and CTC Consumption

Month	CFC-11	No. of Operating days*	CFC-11 Production	CTC Consump-tion	CTC/ CFC-11 Ratio	CTC Opening Stock	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock
Jan		5	89.6	107.9	1.204	3,450.7	-	10.8	3,332.0
Feb		0	-	-	-	3,332.0	-	3,023.4	308.6
Mar		0	-	-	-	308.6	6,630.1	54.4	6,884.3
Apr		31	506.0	607.8	1.201	6,884.3	-	2,606.1	3,670.4
May		19	318.0	381.6	1.200	3,670.4	-	0.3	3,288.5
Jun		31	686.0	839.3	1.223	3,288.5	-	3.0	2,446.2
Jul		0	-	-	-	2,446.2	-	3.0	2,443.2
Aug		0	-	-	-	2,443.2	-	1,215.0	1,228.2
Sept		0	-	-	-	1,228.2	-	-	1,228.2
Oct		11	179.5	217.3	1.211	1,228.2	-	-	1,010.9
Nov		25	423.0	510.4	1.207	1,010.9	-	-	500.5
Dec		19	329.9	397.5	1.205	500.5	-	1.5	101.5
		141	2,532.0	3,061.8	1.209		6,630.1	6,917.5	

* Operating days of a month is recorded from the 26 th of the previous month to the 25th of the month. This is the reason for 31 operating days appeared in April and June.

CFC-11 Production and HF Consumption

Month	CFC-11	No of Operating Days*	CFC-Production	HF Consump-tion	HF/CFC Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out	HF Closing Stock
Jan		5	89.6	14.8	0.165	11.0	23.0	-	19.2
Feb		0	-	-	-	19.2	-	-	19.2
Mar		0	-	-	-	19.2	22.8	-	42.0

Apr	31	506.0	85.1	0.168	42.0	87.7	-	44.6
May	19	318.0	53.2	0.167	44.6	5.8	-	-2.8
Jun	31	686.0	110.4	0.161	-2.8	84.6	-	-28.6
Jul	0	-	-	-	-28.6	25.3	-	-3.3
Aug	0	-	-	-	-3.3	-	-	-3.3
Sept	0	-	-	-	-3.3	-	-	-3.3
Oct	11	179.5	32.2	0.179	-3.3	27.5	-	-8.0
Nov	25	423.0	71.3	0.169	-8.0	101.5	-	22.2
Dec	19	329.9	55.4	0.168	22.2	34.0	0.8	-
	141	2,532.0	422.4	0.167		412.2	0.8	

* Operating days of a month is recorded from the 26th of the previous month to the 25th of the month. This is the reason for 31 operating days appeared in April and June.

CFC Production Phase Out Verification (Including Gradual Closure)

June 2001

(Jiangsu Changsu Yudong)

A. Plant identification

Name of Enterprise	:	Jiangsu Changsu Yudong Chemical Plan
Plant Ref. Number	:	
Sector Plan #	:	24
SRI #	:	A 11
Address of the Plant	:	Haiyu Town, Wangshi, Yinbing Lu,
Contact person(s) and Functional Title	:	Mr. Yan Weiliang, Deputy Director
Telephone Number	:	0520-2561256
Fax Number	:	0520-2561808
E-mail Address	:	Yonglida@public.sz.js.cn

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The world Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Financial Analyst/ Technical Consultant
Date of Plant Visit	:	June 17 2001
Duration of Visit	:	1 day

C. Plant History

Date of construction:						
ODS Products	No. of Lines	Capacity in Baseline Year*	Production**			
			Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000
CFC-11						
CFC-12						
CFC-13						
CFC-113 (expressed in ODS)	2	1,000	681	658	681	680.7
CFC-114/115						

Raw Materials Production***						
HF						
CTC						

*The year from which data is used for approving the ODS production phase out project.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed	:	2
Date of CFC production ceased	:	December 10 2000
Date of dismantling completed	:	January 16 2001
Verification of destruction of key components by	:	[Name of certifying body] EPB Changsu City Government
Reactor tank(s) dismantled and destroyed	:	Yes
Control and monitoring equipment dismantled and destroyed	:	Yes
Pipes dismantled and destroyed	:	Yes
Utilities dismantled and destroyed	:	No
Evidence of destruction (photos or videos)	:	Yes, available
Chance of resuming production	:	No
Assessment by the verification team to be included in the verification report	:	The CFC production facility has been diamantled completely. The building was evacuated and used for other non-ODS production

2. Plant for gradual closure

Annual CFC-113 quotas, production, sales and stocks since the baseline year* (expressed in ODS)

CFC Products (CFC-113 expressed as ODS)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3 2000
Quota			680 (Issued)	680
Opening Stock at beginning of year	119	48	11	15
Production	681	658	681	680.7
Sales	752	695	677	695.7
Closing stock at end of year	48	11	15	0

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000	Year 4	Year 5	Year 6*
CFC-113	681	658	681	680.7			
HF/CFC-113	0.541	0.565	0.504	0.545			
PCE/CFC-113	1.537	1.111	1.143	1.146			

* Till the year of the verification

Operational days per year

Type of Production	Baseline Year 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4	Year 5	Year 6*
CFC-113	255	260	270	252			

*Till the year of the verification.

Monthly CFC-113 production and raw material consumption*

CFC-113 Production and PCE Consumption:

Month	CFC-113	No. of Operating days	CFC-113 Production	PCE Consump-tion*	PCE/ CFC-113 Ratio	PCE Opening Stock	PCE Procured/ Added	PCE Sold Out*	PCE Closing Stock
Jan		0	-	-		77.3	19.2	37.0	59.5
Feb		12	33.0	47.3	1.433	59.5	-	9.1	3.1
Mar		30	70.0	83.8	1.197	3.1	166.1	18.5	66.9
Apr		30	80.5	92.8	1.153	66.9	86.5	28.9	31.7
May		30	90.6	100.7	1.111	31.7	105.9	28.5	8.4
Jun		30	85.6	102.7	1.200	8.4	140.7	24.0	22.4
Jul		21	40.0	44.0	1.100	22.4	83.1	21.7	39.8
Aug		0	-	-	-	39.8	10.0	41.7	8.1
Sept		26	105.0	117.5	1.119	8.1	166.9	22.1	35.4
Oct		28	90.0	101.0	1.122	35.4	308.5	228.1	14.8
Nov		30	72.0	81.2	1.128	14.8	193.4	113.6	13.4
Dec		15	14.0	17.0	1.214	13.4	144.7	3.2	137.9
		252	680.7	788.0	1.146		1,425.0	576.4	

* Including other non- CFC uses in the Plant.

CFC-113 Production and HF Consumption

Month	CFC-113	No. of Operating days	CFC-113 Production	HF Consump-tion*	HF/ CFC-113 Ratio	HF Opening Stock*	HF Procured/ Added*	HF Sold Out	HF Closing Stock*
Jan		0	-	-	-	-	-	-	-
Feb		12	33.0	21.9	0.664	-	21.9	-	-
Mar		30	70.0	48.1	0.687	-	48.1	-	-

Apr	30	80.5	43.4	0.539	-	43.4	-	-
May	30	90.6	47.2	0.521	-	47.2	-	-
Jun	30	85.6	45.3	0.529	-	45.3	-	-
Jul	21	40.0	20.4	0.510	-	20.4	-	-
Aug	0	-	-	-	-	-	-	-
Sept	26	105.0	53.6	0.510	-	53.6	-	-
Oct	28	90.0	45.9	0.510	-	45.9	-	-
Nov	30	72.0	36.7	0.510	-	36.7	-	-
Dec	15	14.0	8.7	0.621	-	8.7	-	
	252	680.7	371.2	0.545		371.2	-	

* The Plant has a toll agreement with Fugang Chemical Comical Company which specified that all CFC-113 product would be purchased by the latter with all raw materials provided in accordance with the consumption. Therefore, the Plant does not have the HF stock.

CFC Production Phase Out Verification (Including Gradual Closure

June 2001

(Fujian Shaowu)

A. Plant identification

Name of Enterprise	:	Fujian Shaowu Fluoro-chemical Plant
Plant Ref. Number	:	
Sector Plan #	:	29
SRI #	:	B15
Address of the Plant	:	No. 18, Ximg'an Lu, Saikou, P.C. 354001, Shaowu City Fujian Province
Contact person(s) and Functional Title	:	Mr. Wan Heping, Acting Director Mr. Wang Shenghe, Chief of Administration Office
Telephone Number	:	0599-6655091
Fax Number	:	0599-6655091
E-mail Address	:	SWFHGC@public.nppee.fj.cn

B. Verification

Team Composition	:	3
Leader	:	1
Name	:	F.A. Vogelsberg
Functional Title	:	Consultant, The World Bank
Member(s)	:	2
Name	:	Wu Ning/ Hua Zhangxi
Functional Title	:	Finacial Analyst/ Technical Consultant
Date of Plant Visit	:	June 12 – 13 2001
Duration of Visit	:	1.5 day

C. Plant History

Date of Construction	1989					
ODS Products	No. of Lines	Capacity in Baseline Year	Production**			
			Baseline Year	Year 1 1998	Year 2 1999	Year 3 2000
CFC 11						
CFC 12	1	3,500	1,159	1,170	979	1,158.6
CFC 113						
CFC 114/115						

Raw Materials Production**						
HF	1	3,000*	1,160	992	2,135	5,379

*The year from which data is used for approving the ODS production phase out project. Now, expanded to 15,000 with 4 production lines.
**Till the year prior to the verification.
***This applies to plants where production of either HF or CTC or both is integrated.

D. Plant Activity in the Year Verified

1. Plant for Complete Closure

No. of CFC-11/12 lines closed : 1

Date of CFC production ceased : December 28 2000

Date of dismantling completed : February 11 2001

Verification of destruction of key components by : [Name of certifying body] EPB, Shaowu City, Economic Commission, Shaowu City

Reactor tank(s) dismantled and destroyed : Yes

Control and monitoring equipment dismantled and destroyed : Yes

Pipes dismantled and destroyed : Yes

Utilities dismantled and destroyed : Yes

Evidence of destruction (photos or videos) : Yes , Available

Chance of resuming production : No

Assessment by the verification team to be included in the verification report : Closed completely. All the building in which the CFC production unit was installed has been evacuated and used for new non CFC production.

2. Plant for gradual closure

Annual CFC-11/12 quotas, production, sales and stocks since the baseline year*

CFC Products (CFC-12)	Baseline Year*	Year 1 1998	Year 2 1999	Year 3** 2000
Quota			979	1,159
Opening Stock at beginning of year	136	103	140	178
Production	1,159	1,170	979	1,158.6
Sales	1,192	865	940	989.1
Closing stock at end of year	103	140	178	347.5

*The year from which data is used to approve the ODS production phase out project.
**Till the year of the verification

Annual HF/CFC and CTC/CFC ratios

Ratio	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4	Year 5	Year 6*
CFC-12	1,159	1,170	979	1,158.6			
HF/CFC-12	0.380	0.367	0.369	0.381			
CTC/CFC-12	1.371	1.339	1.346	1.333			

* Till the year of the verification

Operational days per year

Type of Production	Baseline 1997	Year 1 1998	Year 2 1999	Year 3 2000	Year 4	Year 5	Year 6*
CFC-12	159	153	133	148			

*Till the year of the verification.

Monthly CFC-11/12 production and raw material consumption*

CFC-12 Production and CTC Consumption

Month	CFC-12 No. of Operating days	CFC-12 Production	CTC Consump-tion	CTC/ CFC-12 Ratio	CTC Opening Stock	CTC Procured/ Added	CTC Sold Out	CTC Closing Stock
Jan	0	-	-	-	72.8	93.0	-	165.8
Feb	16	97.3	116.4	1.196	165.7	146.5	-	195.8
Mar	10	71.2	101.8	1.430	195.8	152.7	-	246.7
Apr	19	175.0	234.9	1.342	246.7	103.4	-	115.2
May	8	76.8	103.9	1.353	115.2	102.0	-	113.3
Jun	14	128.5	170.0	1.323	113.3	97.5	-	40.8
Jul	0	-	-	-	40.8	51.9	-	92.7
Aug	10	70.6	91.8	1.300	92.7	129.6	-	130.5
Sept	0	-	-	-	130.5	51.6	-	182.1
Oct	13	119.5	157.7	1.320	182.1	107.7	-	132.1
Nov	30	177.8	231.6	1.303	132.1	114.6	-	15.1
Dec	28	241.9	336.8	1.392	15.1	321.7	-	-
	148	1,158.6	1,544.9	1.333		1,472.2	-	

CFC-12 Production and HF Consumption

Month	CFC-12	No. Of Operating days	CFC-12 Production	HF Consump-tion	HF/ CFC-12 Ratio	HF Opening Stock	HF Procured/ Added	HF Sold Out*	HF Closing Stock
Jan		0	-	-	-	** 72.8	304.1	337.6	39.3
Feb		16	97.3	34.4	0.354	39.3	244.2	217.8	31.3
Mar		10	71.2	29.4	0.413	31.3	277.9	279.8	-
Apr		19	175.0	65.0	0.371	-	370.6	260.7	44.9
May		8	76.8	27.6	0.359	44.9	373.6	332.1	58.8
Jun		14	128.5	48.2	0.375	58.8	396.5	392.2	13.9
Jul		0	-	-	-	13.9	335.5	267.8	81.6
Aug		10	70.6	27.9	0.395	81.6	560.4	601.9	12.2
Sept		0	-	-	-	12.2	620.2	530.4	102.0
Oct		13	119.5	45.0	0.377	102.0	587.6	545.2	99.4
Nov		30	177.8	70.0	0.394	99.4	612.2	649.0	*** -7.4
Dec		28	241.9	93.8	0.388	*** -7.4	697.0	523.9	71.8
		148	1,158.6	441.3	0.381		5,378.9	4938.6	

* Including HF sold as commodity and used for other non-CFC production within the plant.
** The stock at the closing of 1999 is "0". It referred to the stock of the CFC production unit. In this table, the overall balance of HF of the whole plant is shown; and the stock at the beginning of 2000 becomes 72.8.
*** Negative figure is due to financial recording formality.

Annex IV: Financial Verification of 2001 CFC production in China

From January 28th, 2002 to February 10th, 2002, I joined a mission comprising Messrs. Anthony Vogelsberg (team leader/technical expert) and Hua Zhangxi (HZX, technical expert) to carry out the verification of CFC production in China in 2001 in accordance with the CFC Production Sector 2001 annual programme. The mission was accompanied by the representatives from SEPA, Ms. Tang Qinyuan (from January 28th, 2002 to February 4th, 2000) and Mr. Feng Liulei (from February 4th, 2002 to February 8th, 2002). The mission visited the following plants/companies:

Zhejiang Juhua Fluoro-Chemical Co. Ltd. (CFC 11, CFC 12),
Zhejiang Dongyang Chemical Plant (CFC 12),
Zhejiang Linhai Limin Chemical Plant (CFC 12, CFC 13),
Zhejiang Chemical Industry Research Institute (CFC 114, CFC 115),
Guangdong Zengcheng Xiangsheng Co.Ltd. (CFC 11),
Jiangsu Meilan Electro-Chemical Plant. (CFC 11, CFC 12), and
Jiangsu Changsu Ref. Plant–Changsu 3F (CFC11, CFC12, CFC113 & CFC115).

Based on the experience gained from the previous verification in 2001, the mission also split into technical group and financial group to hold discussions with each CFC production plant/company in parallel during the visit. I took the lead in financial discussions with each plant/company. Therefore, this report only covers the financial discussions with and financial verification of each CFC production plant/company, which follows the Guidelines and Standard Format for Verification of ODS Production Phase-out [1] (Guidelines).

In addition to the Guidelines, the financial verification was done under the following assumptions due to the tight schedule of the mission agreed by Ms. Helen Chan, Task Team Leader, EASES, the World Bank:

The plants/companies understood the importance of this verification, and
The plants/companies provided completed materials and information needed for this verification.

[1] UNDP/Ozl.Pro/Excom/32/33 of October 24, 2000, adopted as Decision 32/70 at the 32nd Excom Meeting.

Unlike the verification in 2001, this verification exercise was conducted ahead of the annual national (CNAO) audit of the CFC production sector. The mission havs no CNAO's documentation and reporting as reference to follow. Therefore, I checked all necessary financial records and the original documents covering the following aspects:

Production of each CFC,
Procurement and production of raw materials for CFC (CTC, AHF and PCE)[2], and
Consumption of raw materials (CTC, AHF and PCE).

Before the visit of the mission, each plant/company filled in questionnaires and submitted them to HZX through SEPA. Necessary clarifications were requested by HZX and feedbacks were given by relevant plants/companies.

The findings of my discussion were summarized as follows:

Production of CFC

I checked the financial records of CFC production in each plant/company. The financial records were made from the Product Receipt Sheets which were prepared throughout the month. The Product Receipt Sheet is a general name of the document of product acceptance by the warehouse of the plants/companies. Different plants/companies have different names for this kind of sheet. These sheets contained the names and the quantities of CFC products and they were confirmed by the signatures of statisticians from CFC production facilities and warehouse keepers. The financial records of CFC production were made on the last day of each month based on the Product Receipt Sheets provided by warehouse keepers.

Procurement of raw materials for CFC production

I checked the financial records of procurement of CTC, AHF and PCE in each plant/company. CTC, AHF and PCE were procured from time to time according to the need of the production of CFC. The financial records were made mainly on the basis of invoices issued by suppliers of CTC, AHF and PCE and Raw Materials Receipt Sheets at least signed by one person, the procurement personnel, in Juhua (B14), Dongyang (B12), Limin (B8), Xiangsheng (A13), and Changsu-3F (A10), while in other plants/companies, like Zhejiang Chemical Institute (B11) and Meilan (A8) the sheets were signed by both procurement personnel and warehouse keepers. The Raw Materials Receipt Sheet is a general name of raw materials acceptance documents. Different plants/companies have different names for this kind of sheet. In case the invoices were not received by financial staff at the end of each month, the raw materials accepted by warehouses were temporarily debited according to the Raw Materials Receipt Sheets. When the invoices were received, the previous entries were written in red and new entries made according to the invoices. This is normal practice in China and it makes the financial records consistent with real inventory at the end of each month. If the beginning stock of raw materials at the start of each month is negative, it means the plant/company does not strictly follow the sound accounting practice in China. However, in Changsu-3F I found that the invoices often reached the company before the raw materials. The financial records were made according to invoices and the quantities recorded were the quantities receivable. No adjustments were made when the raw materials arrived and there were differences with the recorded quantities. Changsu-3F made a comprehensive adjustment at the last day of year 2001 to keep consistency between real inventory and financial records.

Production of raw materials for CFC production

Except Zhejiang Chemical Institute (B11), Limin (B8) and Xiangsheng (A13), all plants/companies produced raw materials (CTC or AHF or both) for CFC production in 2001 in addition to their procurement of raw materials. I checked the financial records production of CTC and AHF, which based on Product Receipt Sheets or Production and Raw Materials Consumption Calculation Sheets or Production Sheets. Theses sheets were signed by statisticians from CTC/AHF production facilities and warehouse keepers in Juhua (B14) and Meilan (A8) while in Dongyang (B12) and Changsu-3F theses sheets were signed by heads of CTC/AHF production facilities and statisticians.

Consumption of raw materials

I checked the financial records for consumption of CTC, AHF and PCE, mainly for CFC production. Usually the consumption of CTC, AHF and PCE was totalled at the end of each month. CFC production facilities finalized the data of CTC, AHF and PCE consumption at the last day of each production month (25th of each month) according to their

[2] Raw materials also includes CFC 12 for CFC 13, CFC 113 for CFC 114 & CFC 115.

production logs. Monthly Production and Raw Materials Consumption Sheets (in Juhua (B14, Dongyang (B12) and Changsu-3F (A10)) and Raw Materials Delivered Sheets (in Limin (B8), Zhejiang Chemical Institute (B11), Xiangsheng (A13) and Meilan (A8)) were prepared by CFC production facilities and submitted to accounting offices. The monthly financial records were made on the basis of these sheets bearing the signatures of warehouse keepers (in Limin (B8), Zhejiang Chemical Institute (B11), Xiangsheng (A13)), or statisticians of CFC production facilities (in Juhua (B14), Zhejiang Chemical Institute (B11) and Changsu-3F (A10)) or heads of CFC production facilities (in Dongyang (B12), Zhejiang Chemical Institute (B11), Xiangsheng (A13), Meilan (A8) and Changsu-3F (A10)).

Besides Juhua (B14) all raw materials received by CFC production facilities equalled the consumption of raw materials. In Juhua (B14) CFC production facilities received the raw materials for CFC production from warehouse and consumed part of them. Therefore, at the end of each month the CFC production facility had unused raw materials which were also included in the company stocks.

Changsu-3F has two AHF production facilities. Unlike our last verification, the mission was informed that both AHF production facilities involved in CFC production in 2001. Therefore, I checked the production data of both AHF production facilities and consumption data of all AHF in Changsu-3F.

Sales of CFC

I checked the financial records of CFC sales. As the time left for me in each plant was not enough to check the detailed evidences of sales and taking into account the less importance of sales in the verification of CFC production, I only noted down the data of CFC sales. Another reason for simple verification of CFC sales is that there was no error found during the last verification in 2001. For the purpose of reducing the risk in this aspect, I checked the inventory records confirmed by relevant personnel. At the last month of year 2001, SEPA encouraged the plants/companies to send inspectors to other plants/companies. The inspectors obtained training from SEPA and made physical inventory of CFC products and raw materials at the last day of year 2001. Therefore, I checked the inventory documents signed by the inspectors and found they were consistent with the financial records of the plants/companies.

* * * * *

After the financial verification in each plant/company I prepared spreadsheets with corrections to the tables submitted by plants/companies before the mission departure.

As this financial verification was made on the basis of two assumptions mentioned above, I recommend again that financial audit should include examinations of the plants/companies Balance Sheet and Income Statement because with the audited Balance Sheet and Income Statement, the verification mission for next year can understand the whole picture of the plants/companies they visit and satisfy themselves that the plants/companies provided the complete information covering CFC production. For example, from the note of sales income, the verification mission could understand the composition of sales income of the plants/companies and sales of CFC product. From the note of inventory, the verification mission could understand the inventory of CFC product.

Wu Ning
Financial Analyst
Verification Team of CFC Production in China in 2001
February 9, 2002

Annex II

国 家 环 境 保 护 总 局
CHINA STATE ENVIRONMENTAL PROTECTION ADMINISTRATION
115 Nanxiaojie, Xizhimennei, Beijing 100035, The People's Republic of China

FACSIMILE COVER SHEET AND MESSAGE

Date: Nov. 12, 2001

No. of Pages: 2
(Including this sheet)

To:
Name: Erik Pedersen
Organization: World Bank, ENVGM
City/Country: Washington, D.C., USA
Fax No.: 001-202-5223256

From:
Name: Liu Yi
Dept.: FECO
Fax Tel. No.: (86-10)66151776
Telephone: (86-10) 66153366 Ext. 5508

MESSAGE: Endorsement of Use of HCFC as a Transitional Substance by the Five I&C Enterprises

Dear Erik,

Regarding Industrial and Commercial refrigeration projects, which had been submitted to the MLF secretariat, SEPA endorses related issues as follows:

1. SEPA has reviewed the proposal for the conversion to HCFC for the compressor production at the five I&C refrigeration companies:

- Dalian #2 Refrigeration Machinery Factory
- Zhejiang Beifeng Refrigeration Machinery Company Co. Ltd.
- Zhejiang Chulian Refrigeration Machinery Co. Ltd.
- Zhejiang Yuhuan Refirgeration Machinery Co. Ltd.
- Shanghai Minhang Refrigeration Factory

and has agreed that HCFC can be used as a transitional substance by the five companies. This agreement also takes into account the strategy for the industrial and commercial refrigeration sector, where the second conversion would be facilitated through the technical upgrade of the compressor production facilities at the companies.

2. SEPA also agrees that no further funding will be requested on behalf of the companies for the conversion to a none ODS substsance in the future if the forthcoming project including above mentioned five enterprises were approved by the ExCom.

Regrads,

Xiong Kang

for Liu Yi
Director General
FECO/SEPA
P. R. China

cc: Helen Chan

Annex III

ANNUAL PROGRESS REPORT ON THE IMPLEMENTATION OF SOLVENT SECTOR PLAN FOR ODS PHASEOUT IN CHINA FOR THE PERIOD APRIL 2000 – DECEMBER 2001 AND REQUEST FOR RELEASE OF FUND FOR THE IMPLEMENTATION OF THE 2002 ANNUAL IMPLEMENTATION PROGRAMME

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

A. BACKGROUND

At its 30th Meeting held in Montreal 29-31 March 2000, the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol (ExCom), by Decision 30/56, approved the "Agreement for ODS Phase out in China's Solvent Sector" (Agreement) on the phase out of ozone-depleting substances (ODS) in China's solvent sector at a total cost of $52 million to the Multilateral Fund (MLF).

The Agreement is for the phased reduction and complete phase out of 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.

The $52 million would be paid out in instalments over an eleven-year period in the exact amount of US dollars as specified in the Agreement, starting in the year 2000 and ending in 2010. By the approval of the Agreement, China committed that in exchange for the funding level specified, it will eliminate its total non-exempt CFC-113 and TCA consumption, as well as its total CTC consumption for solvent use in accordance with an agreed schedule. China further agreed that total non-exempt CFC-113 and TCA consumption in China, as well as the total consumption of CTC in the solvent sector in China will not exceed the levels agreed for specific chemicals in each year up to 2010.

China will phase out its CFC-113 consumption by 1 January 2006 and its CTC consumption by 1 January 2004, save for consumption of these two ODS for feedstock and process agent uses, and for CFC-113 consumption and CTC solvent consumption that may be agreed by the Parties to be essential for China after 2010. TCA will be totally phased out by 1 January 2010, save for any TCA solvent consumption that may be agreed by the Parties to be essential for China after 2015.

The United Nations Development Programme (UNDP) has agreed to be the implementing agency for this project for the first three years at a fee of 10% of funds allocated during that

period. The fees for future years will be agreed between the Executive Committee and the implementing agency for the project.

B. PHASEOUT ACTIVITIES

Immediately after the approval of the Agreement in March 2000, the State Environmental Protection Administration of China (SEPA) and UNDP held many discussions on implementation arrangements and preparation of workplans. The project document was signed by SEPA and UNDP in June 2000. The draft Project Implementation Manual (PIM) was reviewed, finalized and agreed by SEPA and UNDP in June 2000.

In August 2000, A Domestic Implementing Agency (DIA) was selected, through international competitive bidding, to assist SEPA in undertaking the day-to-day operational activities to facilitate enterprise level phase out.

Since June 2000, SEPA, the Special Working Group for Solvent (SWG), and the DIA had conducted seminars, workshops and national conferences for solvent consuming enterprises, industrial associations and national experts to introduce and publicize the Solvent Sector Plan, to initiate action to organize the Alternative Technology Support System (ATSS), to discuss the operational mechanism, to obtain updated information on current cleaning technologies and trends in each industrial sector, and to identify and assess alternative solvents and conversion technologies for different ODS solvent consuming sub-sectors.

In July 2000, international and national experts met to further develop the sector phase out plan in defining the phase out priorities, set time schedules, identify technical options and funding level for phase out in each sub-sector. National experts gained experience through exchanges with UNDP international experts. Phase out schedules were refined and preparation for the first bidding of ODS Reduction Contacts were carried out.

1. 2000 ODS Reduction Contracts

Due to the time required to complete some of the preparatory works that are critical to the successful initiation of enterprise level phase out activities, the initiation of the first year bidding process was delayed for about two months. Bidding documents for ODS Reduction Contracts to phase out the amount of ODP required to meet the 2001 targets were sent out in September 2000 to 30 large and medium ODS solvent consuming enterprises in liquid crystal display (LCD) manufacture, compressor, electric vacuum and electronic component identified as priority subsectors for early phase out. All these enterprises have pre-registered their interest in converting to non-ODS cleaning technologies.

20 out of the 30 enterprises submitted their bids by the closing date of 6 November 2000. The DIA organized bid evaluation by a Bid Evaluation Committee comprising representatives from the SWG, technical experts and DIA. A two-stage evaluation was utilized to evaluate the documentation. 19 out of the 20 bids were qualified for the next stage of technical evaluation utilizing the following six criteria:

- priority of subsector;
- mature and advance alternative technology;
- reasonable and executable implementation plan;
- quality of documentation;
- management and financial condition of enterprise; and
- price.

The bid evaluation recommended 15 enterprises for the award of ODS Reduction Contracts that would phase out 473.169 tons of CFC-113, 15.6 tons of TCA and 7.6 tons of CTC. ODS Reduction Contracts for these 15 enterprises were signed on 27 November 2000. With the ODS to be phased out by these reduction contracts, even though the aggregate 2000 phase out targets in the 2000 – 2001 First Annual Programme would be exceeded, there was still a shortfall of 84.6 tons in the phase out of TCA that China had to meet.

Subsequent to the report to the 32nd Executive Committee Meeting in December 2000 on the results of the 2000 bidding, the Government of China undertook necessary action to make up the shortfall in TCA phase out. One more ODS Reduction Contract was signed on 21 February 2001 to phase out an additional 86 tons of TCA to meet all the phase out targets of each of the three solvents stipulated in the 2000 – 2001 First Annual Programme.

The 16 ODS Reduction Contracts signed would therefore phase out 473.169 tons of CFC-113, 101.6 tons of TCA and 7.6 tons of CTC. Total bid price for the 16 winning bids is RMB 58,799,444, counterpart funding by the enterprises amounted to RMB 24,641,414, total phase out cost for the ODS Reduction Contracts awarded is RMB 34,158,030, equivalent to US$ 4,132,353.

The implementation of the 2000 ODS Reduction Contracts is well underway. In April 2001, international competitive bidding for the equipment required for the 2000 ODS Reduction Contracts was advertised in newspapers in China and international website. By the closing date of 13 June 2001, 15 domestic equipment manufacturers purchased the bidding document, 12 of them submitted bids. A Bid Evaluation Committee of five, consisting of three technical experts, one representative from the DIA and one representative from the procurement agency, carried out the bid evaluation. A Bid Evaluation Report and the recommendation of award were submitted to the Contracts Committee of the Foreign Economic Cooperation Office (FECO) of SEPA for review and approval. Contracts for the procurement of equipment were subsequently awarded to two lowest bidders.

2. 2001 ODS Reduction Contracts

According to the 2000 – 2001 First Annual Programme, the phase out of 655 tons of CFC-113 and 100 tons of TCA were to be achieved with the 2001 ODS Reduction Contracts and Voucher System.

Preparation for the 2001 bidding was initiated in February 2001. DIA issued bidding documents on 2 April 2001 to 23 enterprises in the LCD, compressor, electronic vacuum, electronic

components and mechanical processing subsectors. 21 of the 23 enterprises submitted their bid by the closing date of 12 June 2001. Bid evaluation was carried out by a Bid Evaluation Committee utilizing the same evaluation criteria as applied to the 2000 bidding. The Bid Evaluation Committee recommended the award of contract to 19 successful bidding enterprises to phase out 676.978 tons of CFC-113, 27.973 tons of TCA. The Bid Evaluation Report was reviewed and approved by the Contracts Committee of FECO. ODS Reduction Contracts with the 19 winning enterprises were signed on 5 July, 2001

The phase out amount of TCA again fell short of the required phase out target by 72.027 tons. The Contracts Committee of FECO requested the DIA to secure additional contract(s) by 31 October 2001, to phase out at least 72.1 tons of TCA.

SWG and DIA therefore investigated nearly 20 TCA consuming enterprises and identified 5 enterprises with higher consumption as potential candidates for phase out. Technical discussions were carried out with these enterprises. DIA and national experts then carried out site visits and completed negotiations and finalized the technical schemes with two enterprises to phase out an additional 78 tons of TCA. ODS Reduction Contracts were signed with these two enterprises in September 2001.

The 21 ODS Reduction Contracts signed in 2001 would therefore phase out 676.978 tons of CFC-113, 105.973 tons of TCA. Total bid price for the 21 winning bids was RMB 56,050,140, counterpart funding by the enterprises amounted to RMB 20,003,300, total phase out cost for the 21 ODS Reduction Contracts awarded is RMB 36,046,840, equivalent to US$ 4,360,857.

With the guidance of national experts, the 21 winning enterprises are currently preparing the technical specifications for the equipment required.

As a result of the 2000 and 2001 biddings, the status of ODS Reduction Contracts can be summarized as follows:

	CFC-113 (ODS tons)		**TCA (ODS tons)**		**CTC (ODS tons)**		**No. of Enterprises**		**Funding (US$)**	
	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed
2000 Bidding	466	473	100	101	0	7.6	10-20	16	$5 million	$4.132 million
2001 Bidding	655	677	100	105.9	0	0	10-20	21	$5.5 million	$4.361 million

3. Bilateral Project Preparation Activities

Project preparation funds were approved at the 29th Executive Committee Meeting for Japanese and French bilateral investment projects to reduce ODS solvent consumption. These investment projects would be the total involvement of bilaterals in the China Solvent Sector Plan covered by the Agreement

UNDP was designated by the Government of Japan as the implementing agency of the bilateral project preparation. A project preparation mission was carried out in July 2000, with the participation of Japanese experts and UNDP sector expert. Based on the mission and inputs provided by the experts, a project proposal for the elimination of CFC-113 used in six enterprises was finalized. The six enterprises manufacture liquid crystal display (LCD) in Guangdong province, China. The project proposal reflected the alternative technologies recommended and discussed between the experts and the six enterprises.

The overall cost effectiveness of the Japanese bilateral investment project proposal, calculated on eligible consumption for each enterprise, was $19.60/kg ODP. As China agrees that the overall cost-effectiveness of the Agreement of US$12.90/kg will be equal to, or better than, the cost-effectiveness without any bilateral involvement, China did not feel that it can maintain the overall cost-effectiveness with the implementation of the bilateral project proposal at the cost-effectiveness reflected in the project proposal, as it may not be able to make up the difference with low cost-effectiveness projects. China therefore decided that it could not accept the submission of the bilateral investment project proposal to the Executive Committee for consideration.

The French bilateral investment project is still under consideration. The submission of this bilateral project proposal must be endorsed by SEPA. France is requested to coordinate its submission of the investment project with SEPA and UNDP.

4. Relevant Policies

Paragraph j of the Agreement stipulated that 12 months after approval of the Agreement China shall ban the export of ozone-depleting substances used as cleaning solvents (CFC-113, TCA and CTC). SWG started to report or apply to the State Management Office of Import and Export of ODS (hereinafter referred as to the Office) for formulating relative policies through FECO/SEPA.

The Office is a managing office jointly established by the National Customs Administration, the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) and SEPA. The Office is dedicated to make, promulgate and execute policies on controlling the import and export of ODS. Regarding the regulations of the Agreement and relative requirements of execution of the Solvent Sector Plan, the Office promulgated the "Second Export Banning List of ODS" on 18 January 2001 and ordered to execute it formally effective 1 February 2001. The specific regulations relating to ODS solvent are as follows:

1. An export license management system will be used for CTC and TCA exported as raw materials or reagent. A quota license management system will be used for the import of TCA as cleaning solvent. The export of CTC and TCA as cleaning solvent and the import or export of CFC-113 as cleaning solvent is banned.

2. The enterprise who needs to import or export TCA and export CTC as raw material or reagent shall make application to the Office as per regulation and procedures specified in "The Notice of Issuing About Strengthening the

Regulations on Importing or Exporting ODS" and shall obtain approval by the Office and get the import or export license issued by authorities authorized by the MOFTEC. Then the customs house can release the import or export against such license.

C. TECHNICAL ASSISTANCE ACTIVITIES

1. Training Activities

Training activities were conducted in August 2000 and April 2001 for 120 and 100 participants from the candidate enterprises for the 2000 and 2001 bidding respectively. Training programme includes:

- Introduction of Solvent Sector Plan and its execution modality;
- Preparation of bid proposal and how the bidding will be executed;
- Introduction by technical experts on alternative technologies;
- Exchange and discussion between technical experts and enterprises.

Training during pre-bid meeting conducted for 60 participants to provide the participants with:

- Introduction of basic requirements of the bid proposal and related forms;
- Technical specification requirements and related forms;
- Clarifications on technical aspects and on alternative technologies.

2. Public Awareness & Promotion

Mass media promotions were carried out during a National Solvent Working Conference held in August 2000. Periodic articles are published in the electronic sector's regular publications and in countrywide newspapers and magazines. Public awareness campaign on the Solvent Sector Plan has also been launched.

3. Strengthening of Alternative Technology Support System (ATSS)

The special characteristic of the China Solvent Sector Plan is the sheer number of enterprises and the wide usage of ODS in different subsectors and regions. To better resolve the alternative technology issues, to provide enough alternative technology options and support for ODS consumers to meet their production demand during the process of ODS solvent phase out, an Alternative Technology Support System (ATSS) has been established to serve all users, with primary focus to service the small-scale users and to provide technical support to the SWG and DIA.

ATSS is composed of such members as national expert group, relevant industrial associations, three technical support centers, alternative solvent or equipment dealers or manufacturers. A total of 10 national experts have joined the national expert group. Exchange with and technical training by international experts were carried out. The national expert group provided training to

enterprises on alternative technologies and carried out technical exchanges and discussions. With the assistance of the industrial associations, SWG and national expert group carried out on-the-spot investigation on enterprises producing LCD, compressor and electric vacuum and provided the enterprises with information on alternative technologies and other support services. They also assisted the enterprises in determining the technical scheme and preparing technical specifications. In addition to sector experts, technical experts from alternative equipment manufacturers were also included in the national expert group.

As members of the ATSS, industrial associations mobilize the relevant enterprises to participate in the ODS phase out activities, popularize the Solvent Sector Plan and coordinate activities during implementation of the phase out projects.

In addition, the three Alternative Technology Support Centers took an active role in various phase out activities, providing candidate enterprises with consulting, testing and measuring services.

4. Solvent Sector Management Information System (SSMIS)

With the approval of several sector plans for China, it is now necessary to redesign and further develop the ODS Management Information System (MIS) by FECO. The SSMIS would be readjusted and developed so as to meet the overall MIS requirements of FECO as an integrated system for the ODS MIS, so that it will present an integrated and coordinated database for the management and monitoring of all the sector plans.

Project contractor has been selected through competitive bidding process and the Terms of Reference for the SSMIS has now been finalized. Activities and development work have been initiated in August 2001.

5. Development and Investment of Alternative Solvents Production

During preparation for the implementation of the Solvent Sector Plan, China realizes that the most important challenge for a successful and smooth phase out in the solvent sector is the sufficient availability of good quality alternatives at reasonable low price. At present, China imports most of the alternative solvents at a very high price which is a major obstacle to getting the interest of enterprises to participate in phase out activities. Some local enterprises have embarked on the development and production of alternative solvents and equipment. SEPA strongly believes that one important activity in the successful implementation of the Solvent Sector Plan is to assist these local enterprises in the development of these alternative solvents that are identified to be of good potential substitutes and to provide investment in building up their production capacity in order to provide sufficient local supply to current ODS solvent consumers.

Two locally developed alternative solvents, HEP-2 (containing nPB) and HT-1 have been evaluated by Chinese industries and found to be economically and technically acceptable alternative solvents. Testing and pilot production in some sub-sectors have proven to be effective and their use being accepted by those enterprises.

To meet the requirement of the development and production of alternative solvents, a total of $2 million was reduced from the ODS Reduction Contracts and Voucher System in 2000 and 2001, as a result of savings achieved through the bidding process, to be reallocated to the development and production of alternative solvents. SEPA has revised the 2000 – 2001 Annual Programme to include this support. The amended 2000 – 2001 First Annual Programme was submitted to and reviewed at the 33rd ExCom Meeting.

While $2 million will be deployed from the ODS Reduction Contracts and Voucher Systems of CFC-113 and TCA in 2000 and 2001 to provide for the development cost and investment capital for alternative solvents, even with the $2 million reduction, China was able to sign sufficient ODS Reduction Contracts to phase out the level of consumption required to meet the 2001 and 2002 control targets, as stipulated in the Agreement. This was achieved through the bidding system which resulted in a lower phase out cost per ODP tonne, therefore the reduced allocation was still sufficient to cover the cost of the 2000 and 2001 ODS Reduction Contracts.

Up to the end of December 2001, while no activity has yet been initiated or expenditure incurred in the development and production of HEP-2 that contains nPB, China has actively carried out alternative technology studies in the following sectors:

- Experiments and study on alternative LCD cleaning solvent;
- Experiments and study on electric vacuum sector;
- Strategy on alternative technologies development.

D. FUNDING

In approving the Agreement at its 30th Executive Committee Meeting, the ExCom approved the release of the 2000 funding level of $6.75 million in March 2000 to facilitate China's initiation of activities to meet the 2001 reduction target levels as well as work towards achieving future years' reduction targets. The ExCom also release the 2001 funding in the amount of $6.955 million in March 2001 to initiate activities for the year 2001.

E. SUBMISSION OF REPORTS

At the 32nd ExCom Meeting, China and UNDP presented the "Interim Report and Request for Second Payment on the Implementation of the 2000 – 2001 Annual Programme Under the China Solvent Sector Plan" (UNEP/OzL.Pro/ExCom/32/30/China). An Addendum to the Interim Report was also submitted shortly prior to the 32nd ExCom Meeting. After considering the recommendations of the Sub-Committee on Project Review (UNEP/OzL.Pro/ExCom/32/21, para. 96), the Executive Committee "took note of the interim report on the 2000 – 2001 Annual Programme under the China Solvent Sector Plan indicated that the projected phase out would not meet one of the phase out targets stipulated in the Agreement." (UNEP/OzL.Pro/ExCom/32/44, para. 79)

At the 33rd ExCom Meeting, China and UNDP submitted the "Report and Request for Second Payment on the Implementation of the 2000 – 2001 Annual Programme under the China Solvent Sector Plan." After consideration of the report, the ExCom approved the release of the 2001 funding in the amount of $6.955 million for the 2001 phase out activities.

The 2002 Annual Implementation Programme was submitted to the 35th Executive Committee for review and approval of the Executive Committee. The 2002 Annual Implementation Programme in the amount of $6,330,000, covering the period of January – December 2002, includes enterprise-level phase out activities, policy actions and technical assistance activities to phase out 625 MT of CFC-113, 250 MT of TCA and 50 MT of CTC (500 ODP tonnes of CFC-113, 25 ODP tonnes of TCA and 55 ODP tonnes of CTC) with ODS phase out results being achieved by the end of 2003, to enable China to meet its 2004 phase out targets. The Executive Committee, having considered the recommendation of the Sub-Committee on Project Review, decided at its 35th Executive Committee Meeting to approve the 2002 Annual Implementation Programme of the solvent sector in China, as the basis for considering funding of the programme at a future meeting (ExCom Decision 35/51).

F. 2000 CONTROL TARGETS OF SOLVENTS CONSUMPTION

The Solvent Sector Plan for ODS Phase out in China was approved at the 30th Executive Committee Meeting in March 2000. As phase out projects at the enterprise level will take at least 12 – 18 months to complete implementation, any project activities initiated under the China Solvent Sector Plan in 2000 will not result in any consumption phase out at the end of 2000. The annual performance verification as required in the Agreement will be conducted only starting with the production and consumption level of 2001, to be carried out after the first quarter of 2002, when official data and records of production and consumption become available for the preceding year.

Based on official data and statistics on China chemical production, import and export obtained by SEPA, the total domestic consumption of CFC-113 and TCA has met the relevant targets specified in the Agreement signed between MLF and China. While the annual usage of CTC in China is around 60,000 to 70,000 MT, 100 MT was used as cleaning solvents. The balance was used as feedstock. The following table indicated that China did not exceed the 2000 consumption levels for specific chemicals.

	CFC-113		TCA		CTC	
	ODS	ODP	ODS	ODP	ODS	ODP
Consumption Target	4,125	3,300	6,212	621	100	110
Production	4,371		809			
Import	19		6,796			
Export	88		29			
Raw Material Usage	245		1,863			
Solvent Consumption	4,057	3,246	5,713	571	100	110

G. ACHIEVEMENT OF PERFORMANCE INDICATORS

As reflected in Appendix 1 to this Report, in implementing the ODS Reductions Contracts and technical assistance activities, China has been able to achieve the performance indicators stipulated in Table 5 of the Amended 2000 – 2001 First Implementation Programme.

H. ACTION CURRENTLY UNDERWAY

1. Voucher System

The SWG is currently reviewing the regulations on the execution of the Voucher System and thinks that it still need further study and development on the relative appendix tables and forms, the basic design of the voucher, as well as the contents of information packages to be provided to the small OD solvent consumers.

The DIA is currently completing the review and approval of the final version of the regulations. It is planned that the Voucher System will be introduced in the first quarter of 2002, to a small group of small users and then to proceed with the promotion and registration.

3. Audit

Under the Agreement, two audits are to be carried out, one financial audit and one performance audit, starting with the phase out that would be achieved at the end of 2001. UNDP will include the Solvent Sector Plan project in its annual audit exercise, which will be conducted in the first quarter of 2002, on management and financial matters. Special emphasis will be placed on the management and financial issues of phase out activities at the enterprise level, and on technical assistance and other administrative matters at UNDP, DIA, SWG and FECO.

UNDP is currently under discussion with SEPA and the National Audit Board to carry out a performance audit starting after the first quarter of 2002, on the performance of the ODS

Reduction Contracts, the verification of national level of solvent consumption, in coordination with the audit on the production level (of CFC-113, TCA and CTC) under the China CFC Production Plan , when official data and records on ODS production and consumption in China will become available.

Verification of import and export of OD solvents will also be verified during the performance audit so as to arrive at a credible national solvents consumption level, in order to verify that the 2001 phase out targets stipulated in the Agreement have been achieved. The performance verification report for 2001, will be submitted to the last Executive Committee Meeting of 2002.

I. REQUEST FOR THE RELEASE OF 2002 FUNDING

At its 35th Executive Committee Meeting, the Executive Committee, by Decision 35/51, decided to approve the 2002 Annual Implementation Programme of the solvent sector in China, as the basis for considering funding of the programme at a future meeting. In accordance with the terms of the Agreement, China and UNDP request the Executive Committee to release the 2002 funding in the amount of $6,330,000, and the 10% fee to enable China and UNDP to initiate the 2002 phase out activities, as contained in the approved 2002 Annual Implementation Programme.

Appendix 1

Implementation Programme (2000 - 2001)
Performance Indicators

Solvent Phase out Targets					
Solvent Sub-sector	Start of programme (MT)	Reduction Target (MT)	End of programme (MT)	Indicators to be reported on in Semi-Annual Progress Reports. Verified in Annual Performance Audits	Achievement
CFC-113 Imports / Exports	149	0	0	Ban on exports and imports effective January 1, 2001	Promulgated 18 January 2001, effective 1 February 2001
Domestic Consumption and Phase out Target	4,441	466 (plus 600 from on-going MLF projects)	3,375 (in 2001) 2750 (in 2002)	Consumption levels (production plus imports minus exports)	No impact on 2000 Consumption and Phase out Targets ODS Reduction Contracts signed to meet 2001 and 2002 Phase Out Targets
TCA Supplement	-	>100	-	Included in ODS reduction contracts	
Number of ODS Reduction Contracts (inclusive of TCA supplement) Voucher Redeem		L/M 20-40 S 100 (2001)		Number of contract signed (sum of ODS reduction in the contracts) Progress under contracts Number of voucher redeemed	16 ODS Reduction Contracts signed in 2000 to phase out 473 MT of CFC-113, 101 MT of TCA and 7.6 MT of CTC; 21 ODS Reduction Contracts signed in 2001 to phase out 677 MT of CFC-113, 105.9 Mt of TCA
Policy and TA Initiatives					
Initiatives	Indicators to be reported on in semi-annual progress reports	Achievements			
1. Bidding System	Bidding system's operating procedures finalized. Winning enterprises for 2000 –2001 selected. Enterprises trained for bid preparation for 2000 and 2001bidding.	Project Implementation Manual finalized June 2000 and bidding took place in September 2000 and April 2001. 16 and 21 enterprises selected to participate in 2000 and 2001 phase out activities respectively. Training took place prior to each year's bidding.			
2. Public Awareness	Introduce Solvent Sector Plan and phase out schedule on two newspapers Invite ODS solvent users to take part in the reduction bidding and promote the enterprises to participate 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. 30 and 23 enterprises were invited to participate in the 2000 and 2001 bidding.			
3. Training	Provide personal training courses to ODS users, EPBs and local line ministries	Trainings and seminars on ODS phase out conducted during 2000 and 2001.			
4. Notice on banning newly-built enterprise which produces or uses ODS solvent	Promotional campaigns on the ban; Local Electronic Bureaus and EPBs engaged in overseeing ban enforcement.	Second Export Banning List of ODS promulgated on 18 January 2001 and became formally effective 1 February 2001.			
5. Developing ATSS	Contracts issued, progress reports	ATSS composed of national expert group, relevant industrial associations, three technical support centers, alternative solvent or equipment dealers or manufacturers			