



**United Nations
Environment
Programme**



Distr.
Limited

UNEP/OzL.Pro/ExCom/30/28
29 February 2000

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirtieth Meeting
Montreal, 29-31 March 2000

PROJECT PROPOSAL: CHINA

This document includes the comments and recommendations of the Fund Secretariat on the following project proposal:

- Year 2000 Annual Plan for the China CFC Production Sector World Bank

Year 2000 Annual Plan for the China CFC Production Sector

DESCRIPTION

1. It is recalled that the World Bank submitted to the 29th Meeting of the Executive Committee in 1999, the year 2000 annual plan for the China production sector and was requested to “include in its inspection report on the implementation of component 2 of the 1999 programme: the name of the plant and the plant identification number used in the SRIC audit report; CFCs produced; capacity; production level of the year preceding closure (CFC-1, CFC-12 and CFC-113 reported separately); production to be closed/reduced; balance to remain in production” (Decision 29/27)

Part A: 1999 Annual Programme Implementation Status

2. Accordingly the World Bank has resubmitted the 2000 annual plan to the 30th Meeting, with a request for disbursing the 2000 tranche of US\$13 million as included in the approved sector plan. The submission consists of the following: Part A which includes:

1. Inspection report on the implementation of component 2 of the 1999 programme: 7 permanent plant closures to implement the 1999 ODS reduction target. The inspection report (table A3) included names of producers, the identification number used in SRI's audit report, date of verification, CFCs, plant capacity, production levels in 1998 and 1999. The report (table A4) also included the production levels of the plants still remaining in production in 1999 for confirming the achievement of the reduction target as specified in the sector plan. Annexed to the submission was the inspection report by the audit team, with names of the members, time of the inspection, and plant-by-plant report on the result of the audit.
2. The resubmission also included a list of HCFC-22 producing plants in China, as requested in the sector plan.

Part B: 2000 Annual Programme

3. There was no significant change on this submission from its earlier version in September 1999.

4. The target set in the sector plan for 2000 is to reduce 4,931 ODP tonnes from the 44,931 ODP tonnes in 1999 to 40,000 ODP tonnes in 2000. The plan of action includes policy actions, enterprise activities and technical assistance activities. Under the policy actions, China intends to continue using tradable production quotas to achieve the reduction by enterprises, and put in place the import/export control mechanism.

5. Under the enterprise activities, China intends to close 5-8 production lines and reduce the total number of lines from the existing 26 to 18-21. The requested US \$ 13 million will be spent on enterprise closures (US \$12 million) and technical assistance (US \$1 million).

COMMENTS

Implementation of 1999 work programme

6. Table 4 provided a list of plants which were producing in 1999, with approved production quota. This list included, however two plants which were included in Table A.1, the list of 14 plants which were not supposed to have any production in 1997 and had been verified by the World Bank as totally dismantled in their inspection report submitted in September 1999. These two plants were listed in Table A.1 as A3, Shandong Dongyue Chemical Co. Ltd (CFC-12, 5,000 ODP tonnes) and C4, Guizhou Wuling Chemical Plant (CFC-12, 1,500 ODP tonnes, CFC-13, 50 ODP tonnes). The inspection report in September 1999 described the status of the two plants as follows:

A3

“This plant conducted the dismantling program strictly in accordance with the Executive Committee requirements and the closure contract signed with SEPA. The following equipment was dismantled; the two reactors, three product receivers, distillation column, and de-gassing column. It also has removed the reactor gas feed lines to the reactor gas holder. The reactors and distillation column were cut up and sold as scrap per the contractual agreement. The dismantling of the plant was supervised by local EPB and the enterprise has a certificate from the Huantai County EPB as well as a certificate from Shandong waste material company for 16.58 tonnes of scrap at a value of 650 RMB yuan/tonne.”

C4

“The CFC-12 plant was dismantled in April 1999, and the dismantling included the CFC-13 production production equipment at the new location. Video tapes showing before, during, and after dismantling are available.”

7. However, at the bottom of Table A4, Shandong Dongyue Chemical Co. Ltd was listed as producing 1,042 ODP tonnes of CFC-12 and Guizhou Wuling Chemical plant was listed as producing 18.2 ODP tonnes CFC-13 in 1999.

8. Inquiry by the Secretariat on these points did not receive satisfactory reply from the World Bank.

RECOMMENDATIONS

9. The Executive Committee may wish to consider the request of the World Bank to release US \$13 million for the implementation of the 2000 work plan in light of the above comments.

THE CFC PRODUCTION SECTOR
CHINA

2000 ANNUAL PROGRAM

AUGUST 4, 1999
Revised January/February 2000



TABLE OF CONTENTS

INTRODUCTION..... 2

PART A: 1999 ANNUAL PROGRAM IMPLEMENTATION STATUS (JANUARY 2000)..... 4

PART B:2000 ANNUAL PROGRAM..... 13

TABLE I: 2000 ANNUAL PROGRAM 15

INTRODUCTION

1 In accordance with the Executive Committee's approval of "The Sector Plan for CFC Production Phaseout in China (Closure Part)" (UNEP/OzL.Pro/ExCom/27/45/Corr.2), China is hereby requesting release of the **second tranche of US\$13 million** for the implementation of the 2000 Annual Program. With this funding, China's CFC production will be reduced to a **maximum of 40,000 MT** in 2000. Details of the annual program are in Section B.

2 Since the approval of the China CFC Sector Plan at the 27th Meeting of the ExCom in March 1999 and the release of funds for the 1999 Annual Program, China has begun to implement the project according to the agreed phaseout plan. In accordance with the 1999 Annual Program, China has taken the following actions:

- a) promulgated the "Circular on Implementing the Quota System for CFC Production" on May 31, 1999;
- b) completed closures of 14 CFC plants as required in the approval conditions for the China CFC Sector Phaseout Plan. The reduction of production capacity resulting from the 14 enterprises totaled 22,630 MT (see table A:1);
- c) closed production lines at additional 3 plants in accordance with the quota regulation. These lines did not produce in 1997 and therefore did not qualify for 1999 production quotas. The reduction of production capacity resulting from the 3 closures totaled 4,000 MT (See table A:2);
- d) completed bidding by CFC plants which had production in 1997. The agreed target for the 1999 production is 44,931 MT, a reduction of 5,420 MT from 50,351 MT, the baseline production level at the start of phaseout plan. Closure activities of these plants/production lines have started; and
- e) initiated all technical assistance activities in the respective Annual Programs.

Detailed implementation status is described in Section A.

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

CFC Production Phaseout Schedule and Annual Grant

Year	Agreed schedule		Planned		Annual funding level (US\$ million)
	Phaseout amount (MT in terms of ODP)	CFC production not exceeding (MT in terms of ODP)	Phaseout Amount (MT in terms of ODP)	CFC production not exceeding (MT in terms of ODP)	
1999	5,420	44,931	5,420 1/	44,931 1/	20.00
2000	4,931	40,000			13.00
2001	3,800	36,200			13.00
2002	3,300	32,900			13.00
2003	2,900	30,000			13.00
2004	4,700	25,300			13.00
2005	6,550	18,750			13.00
2006	5,250	13,500			13.00
2007	3,900	9,600			13.00
2008	2,200	7,400			13.00
2009	4,200	3,200			13.00
2010	3,200	0			0.00 2/
Total funding					150.00

1/ CFC Production and CFC production reduction is provided as per the agreement. The actual reductions and actual production figures will be provided here in the annual plans for year 2001 and the following years' APs.

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

4. In accordance with the CFC Production Sector Plan, China will have reduced CFC production, by the end of 2000, to an annual level of 40,000 MT and will have phased out during 2000, 4,931 MT in ODP terms, compared to the 1999 quota.

PART A

1999 ANNUAL PROGRAM IMPLEMENTATION STATUS

(As of January, 2000)

Phaseout Target

5. The phaseout target for 1999 was to reduce national CFC production, measured in ODP, to **44,931 MT**, and thus to phase out **5,420 MT** compared to the baseline production of **50,351 MT** in 1997. Following the completion of the bidding process, quotas were issued to allow a total national production of only **44,853 MT¹** were issued to the 15 CFC plants that remained in production after the bidding. Actual production for the year 1999 was reported even lower, at **44,835 MT** (see attached table A.4).

Enterprise Phaseout Activities

6. Under the 1999 Annual Program, China committed to close and dismantle production facilities at 14 enterprises that had not been in production in 1997. Between April 22 and May 12, SEPA signed closure contracts with these 14 enterprises² listed in the approval condition for the CFC sector phaseout plan. Moreover, contracts were also signed with another 3 enterprises for closing down production lines that had no production in 1997. These are all permanent closures. The total production capacity dismantled amounted to 26,630 MT ODS. By the end of June, all production lines and plant facilities had been dismantled and their primary CFC production equipment destroyed in accordance with the "Agreement for the China Production Sector".

7. As a result of the national quota regulation and bidding system (see below), and the 1999 bidding, contracts were signed in June 1999 with 7 enterprises which would otherwise have been eligible for 1999 quotas (based on 1997 production), to enable a national phase out of production totaling 5,498 MT of CFCs. All the enterprises awarded closure grants have completed dismantling of their facilities; the production lines at each location have been verified by a World Bank team that visited the sites and confirmed that these facilities are no longer capable of producing CFCs and their primary production equipment has been fully dismantled. The date of inspection and production data for these plants for 1998 and 1999 is provided in table A.3 below.

Implementation of Policy Instruments

¹ To achieve a maximum annual production in 1999 of 44,931 MT, the quotas for the 15 CFC plants were adjusted for any CFC produced by the 17 closed enterprises during the period January 1 to April 30, 1999.

² In addition to the plants listed in the "Agreement for the China Production Sector" between China and the Multilateral Fund. China also signed a plant closure contract with (1) Liaoning Chemical Group: Chlor-Alkali Plant, and production line closure contracts with (2) Fujian Shaowu Fluorochemical Plant and (3) Shangdong Jinan 3F Chemical Company, both of which had no production on their CFC-11 production lines in 1997. Thus, a total of 17 plants/production lines were closed under this category of the program.

8. The State Environmental Protection Administration (SEPA), in collaboration with the State Administration of Petroleum and Chemical Industry (SAPCI), promulgated the regulations for the introduction and implementation of a tradable quota system, entitled “Circular on Implementing the Quota System for CFC Production”, on May 31, 1999. A bidding system was also introduced together with the promulgation of the trading production quota. After conclusion of the bidding process, 7 producers were awarded grants to close their production facilities; this was implemented along with a national CFC production quota which was issued in June to the 15 remaining CFC producers, and these two instruments enabled China to ensure a national production for 1999 of 44,853 MT, below the agreed target of 44,931 MT for the year.

9. Preparations for introduction of an export and import control mechanism, which would help China to monitor trade in CFCs and eliminate illegal CFC trade, are underway. A study on options for export/import management for halons and CFCs was completed in July 1999, and is under discussion within Government.

Technical Assistance Activities

10. There are ten technical assistance activities in the 1999 Annual Program. Some activities have already started and the rest will start in 1999/2000. All are expected to be completed within two calendar years. The status of activities are summarized below:

- a) *Production of an ODS phaseout video.* An ODS Phaseout video was completed and broadcast for public information during the 11th meeting of the Parties in Beijing in November 1999. The video, as well as several short advertisements prepared under the activity, will also be broadcast on national TV to raise awareness of the general public and authorities in China concerning the necessity for ODS phaseout and the urgency of phaseout activities.
- b) *Development of a Management Information System (MIS).* A Management Information System has been established and is now in place, and has been used to generate the final 1999 production data. The system will be reviewed based on the experience of the first year to refine the reporting process.
- c) *Development of a substitute strategy.* TORS have been agreed for this activity, which will be contracted through bidding, are under preparation.
- d) *Formulation of Standards for Cyclopentane, HCFC 141b, and HFC 134a.* TORs have been reviewed with the World Bank, and steps are underway to sign a contract with Shanghai Institute on a sole-source basis.
- e) *HFC 134a feasibility studies.* Discussions have been held with the World Bank on the process for selecting candidates for carrying out, with grant assistance, feasibility studies for commercially viable production of HFC 134a. Agreement has been reached on pre-qualification processes, criteria and timetables, with a view to selecting winning candidates in early 2000.

- f) *Training of personnel involved in phaseout implementation activities.* TORs have been agreed with the World Bank. Two workshops were conducted in 1999 for CFC producers, and a further training workshop is planned for February/March 2000.
- g) *An ODS export/import management and monitoring study.* TORs for this study have been prepared. Decisions on the scope of work in this activity await finalization of comments on the study conducted on export/import management under the Halon Sector Plan and determination of any additional work required for implementation of the findings of the study.
- h) *Studies on market prospects for closure enterprises.* TORs have been prepared and reviewed with the World Bank. Agreement to start implementation has been reached. A draft invitation letter will be submitted to the bank for endorsement. All enterprises that closed in 1999 will be invited by letter in early August to submit proposals for TA support to find new business opportunities. It has been agreed that each enterprise can request a maximum of 50% of costs incurred, up to a limit of \$10,000, against a signed contract or invoices.
 - i) *National Workshops.* Agreement has been reached to proceed with activities as proposed in the TORs.
 - j) *Recruitment of International Technical Consultants.* Will be done when the TORs for the requested support are done and relevant experts have been identified.

Plants producing HCFC-22 in China

As required, a table indicating the plants that are producing HCFC-22 in China has been provided by the Chinese authorities, and is attached at Table A.5.

Table A.1: Closures of 14 Non-producing plants, per Sector plan Approval Conditions

SRI ref.	CFC producers (with Sector Plan ref. #)	CFCs	Capacity (MT/Y)	Dismantling verification date in 1999³
A1	Henan Hebi Chemical Plant #1. 1 CFC-12 production line. Ref #: (25)	CFC-12	1,500 MT	Aug 16-20
A3	Shangdong Dongyue Chemical Co. Ltd. 1 CFC-12 production line, Ref. #: (9)	CFC-12	5,000 MT	Aug 16-20
A12	Shanghai Shuguang Chemical Plant 1 CFC-12 production line and 1 CFC-113 production line. Ref #: (32)	CFC-12 CFC113	1,000 MT	August 8-13
A14	Guangdong Huiyang Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line. Ref #: (23)	CFC-11 CFC-12	1,000 MT 3,000 MT	August 8-13
A15	Guangdong Zhaoqing Chemical Plant. 1 CFC-12 production line. Ref #: (28)	CFC-12	500 MT	August 8-13
B4	Sichuan Zigong Fujiang Chemical Plant 1 CFC-11 production line and 1 CFC-12 production line. Ref #: (19)	CFC-11 CFC-12	1,500 MT 1,000 MT	August 8-13
B9	Zhejiang Linhai Jianxin Chemical Plant 1 CFC-12 production line. Ref #: (20)	CFC-12	800 MT	SRI report + August 16
B10	Zhejiang Linhai Shiyang Chemical Plant 1 CFC-12 production line. Ref #: (35)	CFC-12	500 MT	SRI report + August 8-13
C2	Hunan Yiyang Chlor-Alkali Chemical Co. Ltd. 1 CFC 12 production line. Ref. #: (16)	CFC-12	1,000 MT	SRI report + Aug 16-20
C1	Jiansu Jianhu Phosphate Fertilizer Plant 1 CFC-12 production line. Ref #: (18)	CFC-12	500 MT	August 8-13
C3	Hebei Longwei Fluorochemical Plant #1 2 CFC-12 production lines. Ref #: (26)	CFC-12	1,080 MT	SRI report + Aug 16-20
C4	Guizhou Wuling Chemical Plant. 1 CFC-12 production line and 1 CFC-13 production line. Ref #: (27)	CFC-12 CFC113	1,500 MT 50 MT	SRI report + August 8-13
C5	Inner Mongolia Baotou Chemical Plant #1. 1 CFC-12 production line. Ref. #: (17), (C5)	CFC-12	700 MT	Aug 23-27
C6	Shanxi Shangzhou Chemical Plant	CFC-12	2,000 MT	Aug 16-20
		CFC-11 CFC-12 CFC-113 Total	2,500 MT 19,080MT 1,050MT 22,630MT	

³ Exact date of verification visit to plant by the Bank team. Any reference made to the SRI report in the final column indicates that, according to SRI, the plant had already been dismantled .

Table A.2: Production line closures in accordance with the quota regulation.

Enterprise name		CFC	Annual capacity	Dismantling verification date in 1999 ⁴
A2	Shangdong Jinan 3F Chemical Co. Ltd. 1 CFC-11 production line closed; Ref #: (5)	CFC-11	1,500 MT	Aug 16-20*
Not in list	Liaoning Chemical Group Chlor-Alkali Plant. 1 CFC-12 production line.	CFC-12	1,000 MT	Aug 16-20
B15	Fujian Shaowu Fluorochemical Plant. 1 CFC-11 production line closed; Ref #: (29)	CFC-11	1,500 MT	Aug 16-20*
	Total	CFC-11 CFC-12 Total	3,000 MT <u>1,000 MT</u> 4,000 MT	

Dismantling verification reports for the two plants are attached.

⁴ Exact date of verification visit to plant by the Bank team. Any reference made to the SRI report in the final column indicates that, according to SRI, the plant had already been dismantled .

Table A.3: Permanent plant closures as result of the 1999 annual quota bidding

SRI #	CFC producers	Date of verification ⁵	CFCs	Capacity	"1997 annual production"	1998 actual production	1999 actual production
A2	Shangdong Jinan 3F Chemical Co. Ltd. Ref # (05).	August 17, 1999	CFC-11 CFC-12	1,500 MT 3,500 MT	0 MT 1,244 MT	0 MT 329 MT	0 MT 0 MT
A5	Jiangsu Wuxian Juxing Chemical Plant. Ref #: (12).	January 14, 2000	CFC-11	2,000 MT	370.4 MT	0 MT	0 MT
A6	Jiangsu Wuxian Union (City Link) Chemical Plant. Ref #: (31).	January 14, 2000	CFC-11	1,800 MT	4 MT	431.4 MT	0 MT
B1	Jiangxi De'an Refrigeration Plant. Ref #: (02).	January 12, 2000	CFC-12	3,000 MT	42 MT	46 MT	0 MT
B2	Chongqing Tianyuan Chemical Plant. Ref #: (21)	January 16, 2000	CFC-11 CFC-12	500 MT *	48.9 MT 116.2 MT	16 MT 40 MT	14 MT 0 MT
B5	Hubei Wuhan Changjiang Chemical Plant Ref#(13).	January 15, 2000	CFC-11 CFC-12	1,500 MT 4,500 MT	100.5 MT 928.5 MT	0 MT 0 MT	0 MT 0 MT
B6	Shanghai Chlor-Alkali Chemical Plant Co. Ltd. Ref #: (04).	January 13, 2000	CFC-12	7,000 MT	2,215.7 MT	2911 MT	687 MT
	Total		CFC-11 CFC-12 Total:	7,300 MT 18,000 MT 25,300 MT	951.2 MT 4,546.4 MT 5,497.6 MT	20 MT 3,326 MT 3,346 MT	14 MT 687 MT 701 MT

⁵ Exact date of verification by Bank team.

Table A.4: CFC Production in 1999 (Figures in MT ODP) – Approved Phaseout Target 44,931 MT

SRI #.	CFC producers	1997 Production			Quota			Production						
		CFC-11	CFC-12	Others (ODS MT)	Assigned	Sold (-) / purchased	Net	CFC 11	CFC 12	CFC 113	CFC 114	CFC 115	CFC 13	Total Produced
A. PLANTS REMAINING IN 2000														
A4	Shangdong Zhaozhuang Xuecheng Xinxing Chemical Plant		139.9		110	-62	48		48.0					48.0
A7	Suzhou Xinye Chemical Co. Ltd.	2532			5809	1599	7408	7,408.0						7,408.0
A8	Jiangsu Meilan Electric Chemical Plant	1049.9	1793.2		3203	429	3632	1,765.5	1,865.0					3,630.5
A9	Jiangsu Wuxi Hushan Refrigerant Plant	1120.1			1003	-443	560	560.0						560.0
A10	Jiangsu Changsu Refrigerant Plant (Changsu 3F)	10232.2	2739.3	3891.6	13663	0	13663	7,960.0	2,780.0	2,834.0		90.0		13,664.0
A11	Jiangsu Changsu Yudong Chemical Plant			680.6	544	0	544			544.0				544.0
A13	Guangdong Zengchen Xiangshen Chemical Co. Ltd.		1100		1487	116	1603		1,601.0					1,601.0
B3	Sicuan Zigong Refrigerant Plant	446.4	121.6		463	-263	200	200.0						200.0
B7	Zhejiang Rui'an Haitian Chemical Co. Ltd.	1082			1122	-505	617	617.0						617.0
B8	Zhejiang Linhai Limin Chemical Plant		1365	27	1216	0	1216		1,189.0				27.0	1,216.0
B11	Zhejiang Chemical Research Institute			130.9	83	0	83					72.0		72.0
B12	Zhejiang Dongyang Chemical Plant		2218.5		2053	0	2053		2,051.0					2,051.0
B13	Zhejiang Lanxi Refrigerant Plant	1894.1			1670	-885	785	785.0						785.0
B14	Zhejiang Juhua Florochemical Company, Ltd.	4339	7760		9700	0	9700	3,374.0	6,324.0					9,698.0
B15	Fujian Shaowu Fluoro-Chemical Plant		1159.4		979	0	979		979.0					979.0
B. PLANTS CLOSED AFTER 1999 BIDDING														
<i>Plants with Production in 1999 (before bidding closures)</i>														
B2	Chongqing Tianyuan Huagong Chemical Plant General	48.9	116.2		0	14	14	14.0						14.0
B6	Shanghai Chlor-Alkali Chemical Co. Ltd.		2215.7		687	0	687		687.0					687.0
<i>Plants with No Production in 1999</i>														
A2	Shangdong Jinan 3F Chemical Company Ltd.		1244											
A5	Jiangsu Wuxian Juxing Chemical Plant	370.4												
A6	Jiangsu Wuxian Union (Link) Chemical Plant	431.4												
B1	Jianxi De'an Refrigeration Plant		42											
B5	Hubei Wuhan Changjiang Chemical Plant	100.5	928.5											
C. OTHER PLANTS CLOSED IN 1999														
A3	Shandong Dongyue Chemical Co. Ltd.				1042	0	1042		1,042.0					1,042.0
C4	Guizhou Wuling Chemical Plant				18.2	0	18.2						18.0	18.0
	Totals	23,646.9	22,943.3	4,730.10⁶	44,852.2	0.0	44,852.2	22,683.5	18,566.0	3,378.0	0.0	162.0	45.0	44,834.5

⁶ ODS Tons; this represents total 1997 production of 51,320 MT, equal to 50,351 MT of ODP. See Table 1 of Sector Plan for CFC Production Phaseout in China (Closure Part), August 1998 for details.

Table A:5: List of HCFC-22 producing plants in China

1. Fujian Shaowu Fluro-Chemical Plant
 2. Guangdong Huiyang Chemical Plant
 3. Hunan Zhuzhou Chemical Corporation (Group)
 4. Jiangsu Changshu Refrig. Plant
 5. Jiangsu Changshu Elf Atochem 3F Co., Ltd.
 6. Jiangsu Meilan Electric Chemical Plant
 7. Liaoning Fuxin Floro-chemical Plant
 8. Shanghai Chlor-Alkali Chemical Co. Ltd.
 9. Sichuan Chenguang Chemical Research Institute Plant No.2
 10. Sichuan Zigong Refrig. Plant
 11. Shandong Jinan 3F Chemical Co. Ltd.
 12. Shandong Dongyue Chemical Co. Ltd.
 13. Shandong Fire Extinguishing Agent Plant Shouguang Division
 14. Sichuan Zigong Fujiang Chemical Plant
 15. Wuhan Changjiang Chemical Plant
 16. Zhejiang Juhua Floro-chemical Co. Ltd.
 17. Zhejiang Dongyang Chemical Plant
 18. Zhejiang Linhai Limin Chemical Plant
 19. Zhejiang Yingpeng Chemical Co. Ltd.
-

PART B

2000 ANNUAL PROGRAM

Phaseout Objectives and Initial Grant Allocation

11. The phaseout objective of the 2000 Annual Program is to ensure that CFC production at a maximum of 40,000 MT is met. China is requesting the release of the second annual tranche of **US\$ 13 million** to achieve this objective.
12. It is envisaged that the US\$ 13 million will be allocated to the following categories of activities:
 - a) US\$12.0 million will be used for closing CFC production lines or reducing production levels in some CFC enterprises which received production quota in 1999; and
 - b) US\$1.0 million will be used for technical assistance activities.

Program Activities During the Year

13. **Policy actions.** The Government will continue to implement the *tradable production quota* combined with the *bidding mechanism*. During the year, the Government will promulgate and implement an *export and import control mechanism*.
14. **Enterprise activities.** Through the production quota and bidding systems, bid winners would be granted funds for closure. All contracts are expected to be signed by the end of 1999, but in any case will be signed no later than the first quarter of 2000. Closure projects are expected to be completed by the end of June 2000.
15. **Technical assistance (TA) activities.** TA activities envisaged under the Sector Plan concentrate on strengthening: (a) the overall institutional framework for phaseout; (b) substitute chemical development; (c) management, monitoring & evaluation capabilities of participating institutions; (d) skills of enterprise managers involved in CFC production phaseout activities; and (e) information exchange. These are all essential to the success of the phaseout. All terms of references and detailed work programs will be agreed with the World Bank before implementation. Most of the these activities are expected to be completed within two years. Proposed 2000 TA activities include:
 - a) *Formulation of standards for HFC-152a, and isobutane.* The objective is to formulate standards for these mature substitutes that are produced in China and used widely to replace CFCs. Setting up standards is necessary to ensure substitute quality. Standards for other substitutes will be developed in subsequent years.
 - b) *Training of personnel involved in implementation of phaseout activities.* To implement the phaseout plan effectively, it is necessary to train staff in: (i) local

environmental protection bureaus; (ii) local bureaus of Petroleum and Chemical Industry; (iii) CFC producers; (iv) Customs and (v) audit agencies. Training is needed to prepare enterprises to bid in the following year, to train government officials to properly supervise CFC production, and to learn operating procedures of the CFC production sector phaseout approach. This type of training will need to be repeated every year in the first few years of implementation. For the 2000 Annual Program, a workshop to evaluate progress in the phaseout program, including ODS production phaseout, consumption demand and substitute supply, is included.

- c) *Studies of market prospects for closure enterprises*– This TA activity requests US\$ 100,000 for a continuation of the TA activity started during 1999, whereby funds are made available for enterprises to finance investigation of market possibilities when they completely close down CFC production facilities.
- d) *Recruitment of international technical consultants*. Consultants will be recruited, where and when necessary, to assist in the formulation of terms of reference and implementation of the above technical assistance activities.
- e) *Performance audit training*. Performance audits constitute an important part of the program. It has been agreed to provide training to the audit team through training workshops in Beijing using foreign consultants familiar with performance audits. In addition, the audit training will include on-site training with experienced performance audit teams in Hong Kong or Singapore
- f) Other TA activities that are necessary for effective phaseout may be developed during the year.

16. The above policy initiatives, enterprise-level and technical assistance activities are summarized in Table 1 below.

**TABLE I: 2000 ANNUAL PROGRAM
(AMOUNT IN US\$ MILLION)**

CFC production phaseout targets & policy initiatives						
	Funding (US\$mill.)	1999 Quota ⁷ (MT)	Phaseout in 2000 (MT)	Allowed Production in 2000 ⁸ (MT)	Performance Indicators	Key Dates
CFC in terms of ODP	13	44,931	4,931	40,000	1. Closures of current producers and reduction in production in remaining producers 2. Implementation of TA activities to help phaseout. 3. Production level not more than 40,000 MT	1. Dec. 1999-June 2000 2. Dec. 1999-Dec. 2000 3. Dec.31, 2000
Policy Initiatives						
Initiatives	Funding	Performance Indicators			Key Dates	
1. Bidding system	incl.in TA n.a. n.a. n.a. incl. in TA	1. Training enterprises for bid preparation in the 2000 bidding 2. Determine winning enterprises for 2000 3. Sign closure contracts with bid winners 4. Implement closure contracts 5. Train enterprises for bid preparation for 2001 bidding			1. Oct. 1999 2. Nov. 1999 3. Dec. 1999 4. Dec. 1999-June 2000 5. Oct. 2000	
2. Tradable production quota for CFC producers	n.a.	1. Establish 2000 annual CFC production quota 2. Issue annual production quota to CFC producers for 2000			1. Feb. 2000 2. Feb. 2000	
3. Import/export trade management	n.a.	1. Establish the export/import licensing system			1. January 2000	
Enterprise Activities						
	Funding (US\$ million)	Existing lines	# of lines targeted	# of lines at end of 2000	Performance Indicators	Key Dates
Closure of CFC11/12/113 production lines	12.00	26	5-8	18-21	1. Training of bidders 2. Bidding for grant funds 3. Selection of bid winners 4. Contracts signed 5. Facilities dismantled	1. Oct. 1999 2. Oct. 1999 3. end Nov. 1999 4. end-Dec. 1999 5. no later than June 2000

⁷ Total quota issued for 1999, compared with the amount allowed under the Phaseout Plan of 44,931 MT.

⁸ Maximum production quota that can be allocated for calendar 2000.

**TABLE I: 2000 ANNUAL PROGRAM (CONT.)
 (AMOUNT IN US\$ MILLION)**

Technical assistance activities			
Activities	Funding 1/ (US\$ Million)	Performance Indicators	Key Dates
1. Formulation of standards for HFC-152a and isobutane	0.10	1. TOR to be agreed with the Bank 2. Contract signing 3. Basic information gathering on substitute standards and test methods in China 4. Draft standards prepared 5. Draft standard seminar 6. Draft standard ready to be submitted to National Standard Committee in charge of approvals of standards	1. March 2000 2. May 2000 3. Jan – June 2000 4. no later than Dec. 2000 5. no later than Jan. 2001 6. no later than June 2001
2. Training	0.09	1. TOR to be agreed with World Bank 2. Training on supervision and evaluation of CFC production, bidding system, management of CFC production quota system, and CFC production operating manual 3. Seminar on review of ODS production phaseout	1. Oct. 1999 2. Start in Jan. 2000. Specific schedules to be detailed in TORs 3. Sept. 2000
3. Studies of the market prospect for closure enterprises	0.10	1. Invitation of applications 2. Bid evaluation 3. Bid award 4. Contract signing 5. Contracts signing between bid winners and their contractors 6. SEPA receipt of progress reports from bid winners 7. Completion of projects by individual bid winners 8. SEPA completion report for the project	1. No later than Feb.2000 2. March 2000 3. March 2000 4. April 2000 5. May-June 2000 6. Throughout the year 7. Throughout the years of 2000 and 2001 8. End of 2001
7. Recruitment of international consultants	0.10	1. Finalization of TORs for consultant assignments 2. Signing of contracts 3. Completion of work and submission of reports by consultants	1. Throughout 2000 2. Throughout 2000 3. Throughout 2000
8. Performance audit training	0.10	1. Finalization of TORs for performance audit training and on-site training abroad. 2. Signature of training contracts 3. Completion of training and reporting	1. Nov 1999 2. Feb 2000 3. April 2000
Other TA to be identified during the year	0.61	1. Identification of needs and preparations of TORs (data collection activities for CTC, TCA and process agents are under consideration).	1. Throughout 2000
Subtotal	1.00		
TOTAL for phaseout activities	13.00		

1/ These are estimated costs. After bidding for TA contractors, these costs will be adjusted to reflect contractual amounts for each TA. All TA activities are to be completed in two years from January 2000.

CHINA CFC PRODUCTION SECTOR

Verification Report For The Closure of Seven CFC Plants That Were Successful Bidders in China's 2nd Phase Reduction Plan

Inspection Team members

F. A. Vogelsberg: Consultant, World Bank

Hua Zhangxi: Consultant, World Bank

Li Zhu: State Environmental Protection Administration (SEPA), Beijing

Inspection Trip Period

January 12 - 16, 2000

Summary of Observations

Seven CFC facilities are covered by this note; of these, one (Jinan 3F Fluorochemicals Plant) was visited in August 1999, while the remaining six were visited in January, 2000. All the seven facilities have been dismantled, key equipment destroyed and critical activity verified by appropriate government organizations (Environment Protection Bureaus). Except for the De'an Refrigerant plant, all the other facilities have been fully physically demolished; De'an is also clearly inoperable, but was not dismantled because of resource constraints. Photographic and video records have been prepared showing the plants before, during and after the dismantling. Detailed information obtained during the World Bank mission visit to each of the plants is provided in the attached annex.

CFC PLANT CLOSURE VERIFICATION

Shandong Jinan 3F Chemical Co. Ltd.

Date Visited: August 17, 1999

A: Plant identification

Name of enterprise: Shandong Jinan 3F Chemical Co. Ltd.
Plant Ref. Number: Sector Plan: #2
SRI ref. A2

Closure contract Number: CFC 99014 for CFC-11 Production
CFC 99022 for CFC-12 Production
Date signed: CFC-11: April 29 1999
CFC-12: June 4, 1999

Address: 130, Ji Luo Road, PC 250031
City: Jinan
Province: Shandong

Contact person: Name Yu Shuixin Designation General Manager

Telephone number: (0351) 5947406

B: Plant Activities:

Production:		<i>Capacity</i>
	CFC	11/12 1500/3500 tpa
Other activities:	HCFC 22	(9,000 tpa)
	HF	(10,000 tpa)

C: Plant dismantling verification

Plant dismantled: **Yes**
Status of dismantling: **Total.**

Will the plant be able to resume production? **No.**
Has documentation of destruction of key components been verified by EPB? **Yes**

Comments

A video record is available of the dismantlement activity of the CFC-11 plant (part of the first 14 non-producing plants dismantled) from May, 1999 when all equipment was intact, confirmed that the enterprise used their own personnel to cut up and remove all process equipment, and it has been sold as scrap metal. The local EPB were present and saw them cut up all key equipment before taken from site to be sold as scrap. Most of the control valves and pumps were badly corroded. Nothing was unbolted but instead cut apart with an acetylene/oxygen torch.

The CFC-12 plant had operated continuously since 1960. Production in 1998 was 29 MT, well below the plan of 2,400 tons, and no CFC-12 was produced in 1999 and all inventory has been sold. The CFC-12 plant, while not part of the "14" original plant shutdown compensation package was a successful bidder for the next phase of capacity reduction and it was dismantled between July 10 and 27, 1999. A Video record in the presence of government officials at the site, was documented in the same manner as CFC-11 plant. Personnel from these units have been reallocated.

During the field inspection of the CFC-11/12 lines, the Bank mission confirmed what is seen in the video and collected some additional details. The three refrigerant compressors remain intact but all piping is removed. The CTC tank is still in place and could be put to other uses in the future. The tank is blocked in at this time and expensive to move. The CFC-12 reaction gas holder is still in place but all piping is cut away. A scrap dealer has been contracted to cut it up and remove it for scrap value. The PVC aqueous HCL tanks and related scrubbers are in place but disassembled and also will be removed later. The CFC drumming and cylinder filling warehouse has been converted to HCFC-22 use and all useable CFC-12 MT cylinders will be put into HCFC-22 service.

The plant has north and south campuses. The South plant is located in the center of Jinan City and is most likely going to be sold for high land value in the future and most former operations are already discontinued. Only HCFC-22, TFE monomer, and PTFE polymer are still manufactured at this site. Recently, HCFC-22 capacity at this site was expanded by debottlenecking from 6,000 to 9,000 MT. About 60% of the HCFC-22 produced is used on site for PTFE production and the balance sold for refrigerants or Halon 1211 feedstock. The plant is concentrating future production activities at their North plant outside of the city where they are not under the safety and environmental constraints of a crowded city location. Their 10,000 tonne HF plant is at the North site.

The enterprise had long term plans for one line designed for 12,000 TPA of CFC-11/12 that could be reconfigured to produce 12,000 TPA of HCFC-22 (It was designed for 12 bar operation pressure not the 6 bar typically used for CFC-12). A second line was designed as a 12,000 TPA HCFC-22 plant. Hence, with both plants they would be able to produce 24,000 TPA of HCFC-22. Because of the Montreal Protocol and shortage of capital, the company did not go ahead with completing these units, though both building structures were erected. No CFC-11/12 equipment was installed, and the HCFC-22 plant is partially complete. Clearly the 9,000 TPA current HCFC-22 plant will meet needs in near term.

CFC PLANT CLOSURE VERIFICATION

Jiangxi De'an Refrigerant Plant

Date Visited: January 12, 2000

A: Plant identification

Name of enterprise: Jiangxi De'an Refrigerant Plant

Plant Ref Number: Sector Plan: #2
SRI ref. B2

Closure contract Number: CFC 99021

Date signed: June 4, 1999

Address: He Dong PC 330400

City: De'an Xian

Province: Jiangxi

Contact person: Name Designation
Lu Zhengzong General Manager

Telephone number: (0792) 4330109

B: Plant Activities:

Production:			<i>Capacity</i>
	CFC	12	3000 tpa

Other activities:	HF	(2,000 tpa)
	Fluorobenzene	(300 tpa)

C: Plant dismantling verification

Plant dismantled: **Yes**

Status of dismantling: key components dismantled only*

***Key components:** Reactors, Distillation Columns, Product Receivers, controls and monitoring equipment.

Will the plant be able to resume production? **No.**

Has documentation of destruction of key components been verified by EPB? **Yes**

Comments

After the highest recorded plant production of 600 MT in 1996, production in 1997 fell to 42 MT as a result of company reorganization. In 1998 the plant did not operate at all as the plant site was an island surrounded by floodwaters from April through October, the primary refrigeration business season. They had a production quota of 42 MT in 1999, but did not produce any CFC, and chose instead to bid for retirement of their quota.

The enterprise signed a plant closure and dismantling agreement on June 4, 1999, and completed dismantling of contractual equipment items in October, 1999. The reactor, product receiver and final product distillation column were cut into scrap pieces and sold. This activity was photographed and pictures supplied to SEPA and the Bank. Physical plant inspection by the Bank mission confirms that:

- The product receiver has been cut into pieces.
- The product distillation column and reactor have been demolished.
- CTC was imported from Shanghai Port in drums and fed directly to the reactor. The feed system is gone.
- HF was fed from 3 weigh tanks, which are disconnected and badly rusted.
- There is no CFC-12 inventory, and the 400 L. cylinders are being used for HF sales.
- The CFC-12 compressors are present but not connected, and the room used for storage of dry bagged CaF_2 .
- The cylinder loading building has been gutted of equipment and converted to fluorospar storage for the HF plant.

This facility is fully disabled and would require significant investment to restore any CFC-12 capability; and what remains of this plant is in very poor condition and unlikely to attract any investment.

The company still operates a 3000 TPA HF plant at about 2000 TPA, supplying anhydrous and aqueous(50%) HF, primarily for high value metal extraction, and a fluorobenzene line. It would like to make small quantities of HFC-134a and HFC-227, but are highly unlikely to succeed since they have high debts and their economic future seems very bleak.

Of the 167 people directly (93 production personnel) or indirectly associated with CFC-12 manufacture, 21 were reassigned to HF and 32 to fluorobenzene. The remaining 114 people were laid off.

CFC PLANT CLOSURE VERIFICATION

Shanghai Chlor-Alkali Chemical Co. Ltd.

Date Visited: January 13, 2000

A: Plant identification

Name of enterprise: Shanghai Chlor-Alkali Chemical Co. Ltd.

Plant Ref Number: Sector Plan: #4
SRI ref. B6

Closure contract Number: CFC 99018

Date signed:

Address: 4747 Long Wu Road P.C. 200241

City: Shanghai Municipality

Province:

Contact person: Name Designation
Yu Zhanchang Vice Manager (Technical)

Telephone number: (021) 64341701

B: Plant Activities:

Production:			Capacity
	CFC	12	7,000 tpa

Other activities:	HCFC 22	(7,000 tpa)
	HF	(6,000 tpa)
	CTC	

C: Plant dismantling verification

Plant dismantled: **Yes**

Status of dismantling: **Total**

Will the plant be able to resume production? **No.**

Has documentation of destruction of key components been verified by EPB? **Yes**

Comments

In 1997 Shanghai Chlor-Alkali Chemical and Shanghai Tian Yuan combined as the Shanghai Tian Yuan Group which represented 50% of Shanghai Chlor-Alkali and 100% of Shanghai Tian Yuan. The new company has 12,000 employees and is a very large chemical

complex with impressive organization and physical facilities. Caustic/ Chlorine, polyvinyl chloride monomer, PVC resins, Fluorochemicals and Fluoropolymers (PTFE) are their main products.

The original CFC-12 facility constructed in 1967 was a 300 TPA unit that was shutdown and dismantled when the new 7000 TPA plant came on-line in 1990. The current plant's best year was 1991, at just over 5000 tonnes. Production in 1998 was 2911 tonnes and 687 tonnes was produced in 1999, in three months of operation (March, April and May).

On June 4, 1999, they signed a contract with SEPA for plant closure and established a closure team. Plant decontamination and dismantling was carried out over 19 days, and all scrap materials were removed and sold to a scrap dealer in the presence of SEPA and other government officials present. Video and still pictures documenting removal and destruction of all key equipment were provided. The dismantling was officially confirmed in August and December 1999 (local EPB and SEPA respectively). All 43 personnel from the CFC12 unit were reassigned within the plants. The Bank mission's inspection verified, as depicted in the video, that all process equipment, piping, instrumentation and electrical were removed from the building shell. The CFC-12 plant relied on in house supply of CTC and HF, hence only minimum storage was provided.

They are currently installing a large number of small glass lined vessels in the former CFC building for production of new chemicals. Work to-date seems to suggest they plan to make specialty or fine chemicals in the facility when completed.

A 3000 Tonne HCFC-22 plant was installed with the original 300 Tonne CFC-12 unit in 1967. It was dismantled in 1998 when their new 7000 Tonne HCFC22 plant became operational. Most of the HCFC-22 is feedstock for their PTFE business, the balance is sold as refrigerant in tonne cylinders. The signed contract with SEPA precludes CFC production and it is very unlikely that this company would ever return to CFC-12 production.

CFC PLANT CLOSURE VERIFICATION

Jiangsu Wuxian Union Chemical plant

Date Visited: January 14, 2000

A: Plant identification

Name of enterprise: Jiangsu Wuxian Union Chemical plant

Plant Ref Number: Sector Plan: #31
SRI ref. A6

Closure contract Number: CFC 99024

Date signed: June 4, 1999

Address: No. 1 Link Road, Dong Qiao Town, P.C. 215152

City: **Wuxian**

Province: **Jiangsu**

Contact person: Name Designation
Xi Zhongmin Chairman of the Board/General Manager

Telephone number: (0512) 5372645

B: Plant Activities:

Production: CFC 11 *Capacity*
1,500 tpa

Other activities: Pesticides and herbicides

C: Plant dismantling verification

Plant dismantled: **Yes**
Status of dismantling: **Total**

Will the plant be able to resume production? **No.**

Have documentation of destruction of key components been verified by EPB? **Yes**

Comments

The company was founded in 1984 to produce HF, CFC-11 and CFC-12. Operations started in April 1985 as a 300 tonne HF unit, 200 tonnes CFC-12 unit and a 1500 tonne CFC-11 plant. They started pesticide production on site in 1990 and at the same time closed

production of HF and CFC-12. The close proximity of farming neighbors made continued HF production unfeasible. In November, 1997 they decided to cease CFC production all together and establish production for a rice fungicide with an investment of 4,000,000 RMB of their own capital for this highly successful product that is primarily exported to Japan. They dismantled the CFC-11 plant in 1999 and used 3.9 million RMB Yuan of the MLF grant to establish a herbicide production facility in the same structure. All 50 employees deployed in the CFC plant were internally allocated to other units. The company is currently conducting R&D to produce other fine chemicals, such as synthetic perfumes.

Business turnover for the site was greater than 50 million RMB in 1999; their very best CFC production year of 1100 tonnes in 1988 would have provided only about 15% of this value. In 1997 they produced 431.4 MT of CFC-11, and 6 MT in 1998. They have no inventories of CTC, HF or CFCs. The new products do not utilize CTC or HF in their manufacture. They recognized earlier than most CFC producers that CFC-11 would unlikely remain profitable and thus accelerated their efforts toward new business opportunities. The current plant site and business has been bought out by top staff employees as a result of a MBO (management buyout).

A Plant Inspection by the Bank mission confirmed that all CFC equipment has been removed from the production building, and the only remnants of CFC production are a few rusted one-half tonne cylinders formerly used in CFC-11 service; and they will be sold as scrap. The building has been expanded to accommodate their Agricultural Products production. MLF grant resources have been invested to construct an impressive three level enclosed building to house their growing fine chemicals business. One quarter of the building is already occupied with high pressure autoclaves and glass lined vessels.

CFC PLANT CLOSURE VERIFICATION

Jiangsu Wuxian Juxing Chemical Plant

Date Visited: January 14, 2000

A: Plant identification

Name of enterprise: Jiangsu Wuxian Juxing Chemical Plant

Plant Ref Number: Sector Plan: #12

SRI ref. A5

Closure contract Number: CFC 99020

Date signed: June 4, 1999

Address: East of Dong Qiao Town, P.C. 215152

City: **Wuxian**

Province: **Jiangsu**

Contact person:	Name	Designation
	Guo Xonggeng	General Manager

Telephone number: (0512) 5379874

B: Plant Activities:

Production:			<i>Capacity</i>
	CFC	11	2,000 tpa

Other activities: None

C: Plant dismantling verification

Plant dismantled: **Yes**

Status of dismantling: **Total.**

Will the plant be able to resume production? **No.**

Have documentation of destruction of key components been verified by EPB? **Yes**

Comments

Wuxian Juxin Chemical plant is a 2000 tonne CFC-11 plant on a property that was founded in 1991 as a multiproduct TVE facility. The CFC-11 facility was started up in August 1993 to supply the market for rigid refrigerator forms as well as soft sponge forms. HF and CTC were purchased externally. After some initially profitable years, the CFC-11 plants' economic situation became very poor in 1996 due to strong competitive market

pressure and a requirement to repay bank and other loans, and all raw materials were liquefied to repay the bank. The current owner of the CFC facility in fact took ownership of the CFC-11 plant in December 1996 to recapture capital invested in the TVE, believing that it could be profitable as an investment. After producing 300 MT in 1996 and 370.4 MT in 1997, there has been no production at all due to market conditions. There is no inventory of CTC, HF or CFC remaining.

The CFC-11 facility was dismantled and key equipment cut up in June 1999 by an outside contractor, and 20 MT of scrap were sold, with Local EPA officials witnessing the equipment destruction and removal. Of the total CFC-11 plant employment of 40 persons, 22 were terminated with a severance payment and the remaining 18 remain on the payroll.

The Bank mission was shown certificates and photographs as proof of the plant dismantling activity; the CFC process building is gutted of essentially all equipment, piping, controls, electrical and instruments. The only remaining equipment is comprised of; refrigeration system, cooling water system and a carbon steel caustic storage tank; all being retained for possible future use. The owner is currently is trying to rent out the former CFC structure and office building to generate some income, and there are essentially no prospects of this site being able to return to CFC manufacture.

CFC PLANT CLOSURE VERIFICATION

Hubei Wuhan Changjiang Chemical Plant

Date Visited: January 15, 2000

A: Plant identification

Name of enterprise: Hubei Wuhan Changjiang Chemical Plant

Plant Ref Number: Sector Plan: #13
SRI ref. B5

Closure contract Number: CFC 99023

Date signed: June 4, 1999

Address: No. 28, Zhan Jia Ji Da Dao, Jian An Qu P.C. 430011

City: Wuhan

Province: Hubei

Contact person: Name Designation
Li Xunsheng Director

Telephone number: (027) 82329317

B: Plant Activities:

Production: CFC 11/12 *Capacity* 1,500/4,500 tpa

Other activities: HCFC 22 (1,500 tpa)
HF (3,000 tpa)

C: Plant dismantling verification

Plant dismantled: Yes
Status of dismantling: Total.

Will the plant be able to resume production? No.

Have documentation of destruction of key components been verified by EPB? Yes

Comments

The site was one of the first fluorochemical producers in China from 1975-1976, when they built and started a 500 TPA CFC-11/12 plant that made primarily CFC-12 with 50 TPA CFC-11 as by-product. A new 1500 TPA CFC-12 plant replaced the original line in 1983-84, and was expanded in 1987 to 4500 TPA (based on 200 days of operation). In 1991 they forecast a growing CFC-11 market and constructed a separate 1500 TPA CFC-11 plant (200 days of operation). 1994, 1995 and 1996 were excellent business years with CFC production and sales of 3000 tonnes in each year making this company one of the three largest manufacturers in China. An original HF plant capacity of 300 TPA was also later expanded to 1000 tonnes and subsequently to a single kiln line capable of 3000 TPA.

1997 prove to be a very difficult year; with severe shortage of working capital and work disruption by local farmers who blamed poor crops on pollution from HF releases. This limited production to five months in 1997(April through August), with 100 tonnes of CFC-11 and 920 tonnes of CFC-12. Production in 1998 was also prevented, by the serious 1998 Yangtze River flood which occurred from June through September. During this time they were incorporated into SEPA's CFC sector plan for reducing and closing CFC production capacity.

The HCFC-22 plant started as a 300 TPA unit and was expanded to 800 tonnes in the early 1980's. In 1994 the old HC FC-22 plant was dismantled and replaced with a 1500 TPA unit (based on 200 days of operation). The plant procured CTC and chloroform from external suppliers. A methanol based chloromethanes plant (capacity 2000 TPA) built many years ago has also failed.

They signed a dismantling contract in June, 1999, and dismantling work was completed in July. Video and photographs, as well as extensive TV and newsprint coverage, of the dismantlement have been provided to SEPA. The Local EPB supervised dismantlement and key equipment destruction. Seventy persons from the CFC operation were laid off with minimum pensions, and expect to be recalled to active service when other activities resume. The Bank mission found the entire plant site in very bad condition, and it exhibited a total lack of cleanup of any abandoned operating area. The CFC-11/12 equipment was essentially all removed from the open structure process building, including piping, electrical and control systems. The mission also found a very large number of one half and one tonne cylinders scattered around the area.

The HCFC-22 plant is adjacent to the CFC building. While the unit is intact it has not been operated for two years and would need significant maintenance to resume operation. They did not produce any HCFC-22 in 1998 due to the flooding in the region, or in 1999 because their costs were not competitive and the plant could not earn a profit. They made less than 500 tonnes of HCFC-22 in 1997.

They continue to operate their HF plant to supply their existing and expanding organic and inorganic specialty fluorides businesses. Prospects of any other resumption do not seem bright.

CFC PLANT CLOSURE VERIFICATION

Chongqing Tanyuan Chemical Plant General

Date Visited: January 16, 2000

A: Plant identification

Name of enterprise: **Chongqing Tanyuan Chemical Plant General**

Plant Ref Number: Sector Plan: **#21**

SRI ref. **B2**

Closure contract Number: CFC 99019

Date signed: June 4, 1999

Address: No. 34, Jian Xin Li Lu Jiang Bei Qu P.C. 400022

City: **Chongqing
Municipality**

Province:

Contact person: Name Designation
Xia Domg Director

Telephone number: (023)
67771963

B: Plant Activities:

Production: CFC 11/12 *Capacity*
500 tpa total

Other activities: Caustic soda (60,000 tpa)
CTC (9,000 tpa)

C: Plant dismantling verification

Plant dismantled: **Yes**
Status of dismantling: **Total.**

Will the plant be able to resume production? **No.**

Have documentation of destruction of key
components been verified by EPB? **Yes**

Comments

The CFC plant of 500 TPA capacity was started in 1987, primarily to produce CFC-12. The plant did not co-produce CFC-11 and CFC12 but changed plant conditions to produce the desired product alone. In 1995 plant modifications permitted co-production of CFC-11 and CFC-12. 1993 was their best production year for CFC-12 at 157.6 MT, but production in recent years declined to 56 MT in 1998, and 14 MT in 1999 (purchased production quota from the Jiangsu Meilan Chemical Group Company to use up the plant's remaining HF inventory). There is no remaining HF or CFC inventory on site. Of the 80 persons employed on the CFC unit, about half were reassigned internally, while the rest were terminated.

The Bank mission found all equipment, piping, electrical and instrumentation to be gone from the former CFC building. The company has no interest in resuming CFC production, and the old CFC process building is being converted to produce barium chloride in a 3000 TPA facility. Usable CFC cylinders will be put into liquid chlorine service and out of test cylinders will be sold as scrap.