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**TOBACCO SECTOR PLAN FOR CFC-11  
PHASEOUT IN CHINA**

**2002 Final Report**

**December, 2002**

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**Part 1. 2002 Annual Report**

**Part 2. 2002 Dismantled Equipment Reports**

**Part 3. 2002 Technical Assistance Activities Reports**

**Part 4. 2002 Account Records**

# **Part 1**

## **2002 Annual Report**

# **TOBACCO SECTOR PLAN FOR CFC-11 PHASE-OUT IN CHINA**

**Contract No.: 2001/031 Amendment No.1**

**Project No.: MP/CPR/00/056**

## **2002 Annual Report**

### **Summary**

This document describes the activities undertaken during the year 2002 to phase-out CFC-11 used by the tobacco industry in the process of expanding tobacco.

The programme dismantled eleven CFC-11 expansion lines and went beyond its objectives phasing-out 200 tons of CFC-11. Total CFC-11 consumption was 800 tons. These results compare favorably with the expected phase-out of 120 tons in the year 2002 and a maximum consumption of 880 tons.

Technical assistance activities are progressing as expected and the CFC-11 consumption quotas have been issued for each enterprise to do help to the control of CFC-11. Intensive efforts to further reduce the consumption of CFC-11 in the whole industry are giving better than expected results, and contributed to the extra amount of 80 tons phased-out ahead of schedule

December 2002

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## **A. Phase-out Objectives in Tobacco Sector in 2002**

The CFC-11 Phase-out Program in China Tobacco Sector, was approved by the Executive Committee of Montreal Protocol Multilateral Fund at its 30th meeting, which was held in March 29 to 31, 2000. Annual programme and disbursements subject to the achievement of the previous year targets are as follows:

**Table 1. CFC-11 Phase-out Programme in the Tobacco Sector**

Year	2002	2002	2003	2004	2005	2006	2007	Total
CFC-11 phased-out (tons)	90	120	180	200	200	150	150	1,090
CFC-11 consumption at the end of year (tons)	1000	880	700	500	300	150	0	
Grant Fund. (US\$ million)	2.00	2.00	2.00	1.80	1.70	1.50	0	11.00

## **B. Annual Programme for 2002.**

### **Duration**

Each Annual Programme covers 12 months and starts on January 1. The 2002 annual programme started on January 1, 2002 and was completed by December 31, 2002.

### **Objectives of the Annual Programme for the Year 2002**

The first objective of the annual programme for the year 2002 is to phase-out a minimum of 120 tons of CFC-11 used by the Tobacco sector in China. Overall consumption of CFC-11 till 31 December 2002 had be less than 880 tons on a yearly basis.

The second objective is to prepare the necessary conditions for an early phase-out of 180 more tons due at the end of the year 2003 mainly through awareness and TA activities

## **Funds received**

The Government of China, requested, in accordance with the Tobacco Sector Plan of the Year 2002, the amount of US\$ 2 million of which US\$1.7 million have been allocated to compensate closure of existing CFC-11 lines and US\$0.3 million are allocated to technical assistance

## **C. Activity Progress for 2002**

### **C.1 Progress at Sector-level**

#### **C.1.1 Information and awareness**

Material and information on the harmful potential of ODS' on the ozone layer and the development of CFC-11 phase-out in tobacco sector was given to newspapers and magazines such as "Ozone Activities", "Tobacco Science and Technology", "Sino-world Tobacco" and "China Environment Daily" towards the superintendents of enterprises.

In December 18 to 20, 2002, 100 participants from provincial tobacco monopoly administrations and enterprises concerned, attended a meeting organized in Beijing by SEPA and STMA. A representative of UNIDO also attended the meeting. The objective of the meeting was to summarize the implement status of phased-out programme in 2002, discuss and complete the management and surveillance system of the implementation plan and inform on the quota system. Also, the quota of CFC-11 consumption for year 2003 was determined at the meeting. Tobacco enterprises were informed that the total quota will decrease year by year and that no quota will be issued after the year 2006

#### **C.1.2 Issue of Quota Licensing System for year 2002**

At the beginning of 2002, the CFC-11 consumption quota of each enterprise for the year 2002 was defined, in accordance with the total CFC-11 consumption quota for tobacco sector of the year 2002 and the actual production schedule of the enterprise. A CFC-11 Consumption Quota Licence was given to each enterprise, so the enterprise can only consume CFC-11 within the quota.

Up to the end of December 2002, in accordance with the monthly statistics of CFC-11 consumption reported by the enterprises, the total consumption of CFC-11 was about 800 tons (see Table 2), which is lower than the target.



**Table2: Consumption of CFC-11 by all enterprises in 2002**

Reference	Name	CFC-11 Consumption (tons)	Reference	Name	CFC-11 Consumption (tons)
1	Zheng Zhou	40	30	He Fei	0
2	Zhu Ma Dian	30	31	Fu Yang	29
3	Luo Yang	22	32	Beng Bu	0
4	An Yang	57	33	Chu Zhou (Wu Hu)	13
5	Luo He	27	34	Xia Men	45
6	Nu Zhou	8	35	Long Yan	0
7	Kai Feng	0	36	Shi Jia Zhang	32
8	Shao Guan	65	37	Zhang Jia Kou	12
9	Nan Xiong	0	38	Huai Yin	0
10	Zhan Jiang	18	39	Xu Zhou	0
11	Lian Jiang	2	40	Chendu	0
12	Hai Nan	18	41	Mian Yang	18
13	Meng Zhou	18	42	Chong Qing	0
14	Nan Hai	15	43	Si Ping	3
15	Gui Yang	36	44	Huhehaote	10
16	Gui Ding	35	45	Wulanbato	4
17	Gui Ding 2	8	46	Haerbing	1
18	Tong Ren	0	47	Shen Yang	11
19	Zun Yi	30	48	Tianjin	15
20	Bi Jie	0	49	Lan Zhou	13
21	Wu Han	0	50	Liu Zhou	30
22	Li Chuan	0	51	Nan Chang	15
23	Zhao Yang	0	52	Hang Zhou	0
24	Hong An	5	53	Xin Jiang	16
25	Guang Shui	1	54	Yan Ji	11
26	Dang Yang	12	55	Tian Shui	8
27	Xiang Fan	0	56	Chang Chun	0
28	Xian Ning	14	57	Xiamen Huamei	5
29	Beijing	22	58	Shenzhen	22
Total			796		

### C.1.3 CFC-11 Phased-out Mechanism

At the beginning of 2002, all qualifying tobacco enterprises were requested to express their interest to phase-out their 2002 CFC-11 quota through a public bidding system. In March 2002, a public bidding was carried out among the 49 eligible enterprises in China's tobacco sector.

Fifteen enterprises which intend to dismantle CFC-11 equipment in 2002 submitted their bids (see Table 3).

The implementing agency (UNIDO) has been fully informed about the bidding process and all relevant documents have been reviewed by UNIDO

**Table 3: List of enterprises bidding for dismantlement in 2002**

Number in Table 4 of Sector Plan Document	Enterprises	Equipment Status	
		Sets	Installation date
37	Zhangjiakou Cigarette Factory	1	91-6
21	Wuhan Tobacco Group Co.,Ltd. Wuhan Cigarette Factory	1	92-4
27	Xiangfan Cigarette Factory	1	92-3
32	Bengbu Cigarette Factory	1	92-12
52	Hangzhou Cigarette Factory	1	90-8
38	Huaiyin Cigarette Factory	1	90-12
25	Guangshui Cigarette Factory	1	92-6
39	Xuzhou Cigarette Factory	1	91-1
35	Longyan Cigarette Factory	2	92-9
			95-3
7	Kaifeng Cigarette Factory	1	92-8
34	Xiamen Cigarette Factory	1	92-4
1	Zhengzhou Cigarette Factory	1	93-5
54	Yanji Cigarette Factory	1	92-1
28	Xianning Cigarette Factory	1	93-2
15	Guizhou Huangguoshu Group	1	92-10

In March 2002, SEPA and STMA made an evaluation of the bids. The evaluation committee was composed of the following members:

Mr. Liu Yi (Senior officer of SEPA)  
Mr. Xiong Kang (Senior project officer of SEPA)  
Mr. Wang Yanting (Senior officer of STMA)  
Dr. Zhao Baidong (Senior project officer of STMA)  
Mr. Zhang Xiaogang (Project officer of STMA)  
Mr. Jiang Xingrong (Senior project officer of DIA)  
Miss Qiao Yanzhao (Project officer of DIA)

The winner was selected by the evaluation committee based on the following criteria:

1. Total amount to be phase-out should not be lower than the 2002 target.
2. Whole cost shall be equal or lower than the total funds available in 2002.
3. The total funds for the enterprises selected should be no more than the total of the funds for year 2002 plus the balance.
4. Enterprises which commit to dismantle additional equipment in 2002 within the same cost shall have preference.

The Committee awarded the bids to 10 enterprises which will dismantle 11 sets CFC-11 equipment. It was agreed that the equipment will immediately stop production and have to be dismantled before December 31, 2002. List of the winners is shown in Table 4.

**Table 4: List of enterprises that won the 2002 bidding**

Number in table 4 of sector plan	Name of enterprise	Equipment Status	
		Sets	Installation date
7	Kaifeng Cigarette Factory	1	92-8
21	Wuhan Tobacco Group Co., Ltd. Wuhan Cigarette Factory	1	92-4
25	Guangshui Cigarette Factory	1	92-6
27	Xiangfan Cigarette Factory	1	92-3
32	Bangpu Cigarette Factory	1	92-12
35	Longyan Cigarette Factory	2	92-9 95-3
37	Zhangjiakou Cigarette Factory	1	91-6
38	Huaiyin Cigarette Factory	1	90-12
39	Xuzhou Cigarette Factory	1	91-1
52	Hangzhou Cigarette Factory	1	90-8
Total		11	

### Phase-out Results

A total of eleven sets of equipment from ten enterprises have been dismantled in the year 2002 and the minutes, minutes from the public notary and video documents have been transferred to UNIDO which has supervised the whole process. The total amount of CFC-11 phased-out of these eleven sets of equipments is **120 tons**, which means the phase-out target of 120 tons fixed in the 2002 programme has been accomplished.

TA activities focussed on better technical management of existing CFC-11 expansion lines gave good results and an additional 80 CFC-11 tons were also phased out ahead of schedule.

The total amount phased out in the year 2002 was 200 CFC-11 tons, well above the target 120 tons established in the plan

### C.1.4 Study on trade management mechanism

The study is still going on and once completed, STMA is forecasting to issue a notice that prohibit the importation of expanded tobacco and/or cigarette that is produced by means of CFC-11 expansion. A mechanism of banning

import and export of expanded tobacco and/or cigarette that use CFC-11 will also be put into operation.

#### **C.1.5 Optimization of transportation of expanded tobacco**

An expert team was sent to Shanghai, Hangzhou, Ningbo, Xuzhou, Nanjing, Guangyi, Guanger, Kunming, Yuxi, Jinan, Taiyuan, Huaiyin, Xinzheng, Xuchang, Luoyang and Yanji, plus Date Company and Qinhuangdao Cigarette Machine Plant. The experts of the above mentioned factories were also consulted. Experiments were carried out to test the feasibility of transporting expanded tobacco by train and via highways. Both the data supplied by the concerned enterprises and the results obtained through field investigation were referred to in preparing the investigation report. Some valuable suggestions on the packaging and transportation solutions that fit in with the particular conditions in China were proposed, which will promote the initiative to phase out CFC-11.

**Table 5: List of Experts on the project of optimization of expanded tobacco transportation**

<b>Name of experts</b>	<b>Title of technical post</b>	<b>Duration in months</b>
Liu Huan	Senior Engineer	15
Chen Jiadong	Senior Engineer	12
Li Genbao	Senior Engineer	12
Liang Xinquan	Senior Engineer	10

#### **C.1.6 Feasibility study on expanded tobacco supply**

A comprehensive survey was conducted to investigate the 58 enterprises involved in the phase-out initiative. Ten experts and specialists in the industry were also interviewed. In addition, more than ten enterprises were investigated intensively to obtain the information about the alternative solutions these enterprises apply to produce expanded tobacco. The results of the investigation have been sorted to analyze the advantages and disadvantages of different approaches, and to propose an economic solution to providing expanded tobacco.

**Table 6: List of Experts Interviewed**

Name	Enterprise	Professional title	Content of interview
Zhang Xiaogang	Tobacco Working Group	Project officer	Content of and policies on CFC-11 phase-out
Xie fei	Foreign Economic Office of SEPA	Project officer	Content of and policies on CFC-11 phase-out
Sun Ligu	Guangshiu Cigarette Factory	Expert in Tobacco Sector	Improvement and research of producing cigarette
Li Bin	Guangdong Provincial TMA	Expert in Tobacco Sector	Improvement of process of producing cigarette
Wu Yilin	Chinese Carrier Rocket Research Institute (101 Institute)	Expert on tobacco expansion equipment	Technical properties of tobacco expansion equipment
Ma Dechang	Chinese Carrier Rocket Research Institute (101 Institute)	Expert on tobacco expansion equipment	Technical properties of tobacco expansion equipment
Mao xilin	Zunyi Cigarette Factory	Senior engineer	Tobacco expansion process
Wang Zeteng	Longyan Cigarette Factory	Senior engineer	Application of CO2 tobacco expansion equipment
Ma Xuelin	Hubei Provincial TMA	Expert in Tobacco Sector	Setting up CO2 expansion center
Liu Shangpeng	Gerui CO2 Expansion Center	Senior engineer	Setting up CO2 expansion center

## **C.2 Progress at enterprise-level**

### **C.2.1 Signing of the ODS phased-out contract**

Phase-out contracts between SEPA and each of the ten enterprises that won the bidding process were signed in May 2002. It is declared in the contract that: the winners accept stopping the use of CFC-11 immediately, accept the price of bidding and agree to dismantle their selected CFC-11 tobacco expansion equipment in return for the funds. The contract specifies that SEPA and STMA will organize the work and proceedings to dismantle all these CFC-11 equipment.

### **C.2.3 CFC-11 tobacco expansion equipment dismantlement reports**

By the end of 2002, 11 sets of eligible equipment from 10 enterprises will have been dismantled. For each dismantlement of CFC-11 tobacco expansion equipment, members of the Special Working Group for Tobacco Sector Plan, the Foreign Economy Cooperation Office of the State Environmental Protection Administration, the relevant provincial Tobacco monopoly Administration, the local Environmental Protection Bureau as well as members of the local notary office were onsite for supervision. In many occasions, UNIDO experts also attended the dismantling process.

All above-mentioned members should sign on the *Certificate of Dismantling CFC-11 Tobacco Expansion Equipment*.

The whole dismantlement process was videotaped and photographs being taken. The local notary office filed notary deed. The Special Working Group of Tobacco Sector Plan is keeping these videotapes and photos for reviewing by the implementing agency.

### **C.2.6 Reduction of CFC-11 consumption by the existing tobacco expansion equipment**

1. It was found that the consumption per unit of expanded tobacco produced in 7 enterprises was too high compared with the standard consumption and the amount of expanded tobacco. These enterprises include Cigarette Factories such as Shijiazhuang, Fuyang, Lanzhou, Zhumadian, Zhangjiakou, Zhanjiang, and Sanxia. The issued quota of CFC-11 consumption could not meet the actual demand of these factories in order to maintain the normal cigarette production. Unless the situation becomes under control, the consumption quota of CFC-11 will not be enough and cigarette production will be affected. The objective of inviting experts is to help these factories to solve the problem of wasting CFC-11 and therefore keep the CFC-11 consumption well within the quota amount.
2. The experts visited the enterprises above mentioned, in order to assist them to reduce the consumption per unit. Based on the results of the investigation on the causes of the too high consumption per unit and the experience in the previous year, they proposed their solution, and helped train the personnel of the enterprises to implement necessary technical innovation reduce CFC-11 consumption.
3. The experts made modifications to the handbook "*Odd Consumption Reduction Manual of CFC-11 Tobacco Expansion Equipment*", which will be distributed to all enterprises, which have CFC-11 tobacco expansion equipment.

**Table 7: Activities in the project of reduction of CFC-11 consumption of existing CFC-11 expansion equipment**

Name of enterprises	Output of expanded tobacco produced per kg of CFC-11 (kg), before training	Output of expanded tobacco produced per kg of CFC-11 (kg), after training
Zhangjiakou	18.6	20.1
Shijiazhuang	14.1	23.3
Fuyang	17.8	28.9
Lanzhou	15.6	26.4
Zhumadian	22.1	28.9
Zhanjiang	14.5	21.6
Sanxia	8	18.6

**Table 8. Experts implementing the consumption reduction of CFC-11 in existing tobacco expansion equipment in 2002**

Name of experts	Title of technical post	Duration of current job
Ma Dechang	Senior Engineer	12
Chen Song	Senior Engineer	8
Wu Yilin	Senior Engineer	10
Qi Xiangyang	Senior Engineer	9

### **C.3 Progress in Policies**

#### **C.3.1 Quota System**

In January 2002, the *Supplementary Regulations on CFC-11 Consumption Quota Licensing System in Tobacco Sector for the Year 2002* were issued and distributed to all the enterprises having CFC-11 expansion equipment. STMA issued the quota for 2002 to the concerned enterprises, which were required to consume the CFC-11 within the quota.



#### **C.4 Summary of Technical Assistance Activities**

The activities undertaken are summarized in the following table:

**Table 9. List of technical assistance activities in 2002**

<b>Technical Assistance Activities</b>	<b>Contractor</b>	<b>Cost (US\$10,000)</b>	<b>Date of completion</b>	<b>Current status</b>
Training	(CFC-11 Tobacco Sector Group)	5.3	December 2002	Completed
Study on trade management mechanism	Environmental Sciences Center of Peking University	4.5	December 2002	On Going
Reduction of CFC-11 consumption of existing tobacco expansion equipment	Beijing Long March High Tech Company	6.5	December 2002	Completed
Feasibility studies on expanded tobacco supply	Beijing All-China Marketing Research Co., Ltd.	7.4	December 2002	Completed
Optimization of transportation of expanded tobacco	Zhengzhou Tobacco Research Institute	6.3	December 2002	Completed

D. Allocation of resources

**Table 10. Allocation of resources (US\$)**

Item	Payee	Cost (US\$)
CFC-11 Phase-out	Kaifeng Cigarette Factory	170,000
	Wuhan Tobacco Group Co.,Ltd. Wuhan Cigarette Factory	185,000
	Guangshui Cigarette Factory	170,000
	Xiangfan Cigarette Factory	185,000
	Bangpu Cigarette Factory	185,000
	Longyan Cigarette Factory	354,000
	Zhangjiakou Cigarette Factory	185,000
	Huaiyin Cigarette Factory	177,000
	Xuzhou Cigarette Factory	177,000
	Hangzhou Cigarette Factory	177,000
Training	(CFC-11 Tobacco Sector Group)	53,000
Study on trade management mechanism	Environmental Sciences Center of Peking University	45,000
Reduction of CFC-11 consumption of existing tobacco expansion equipment	Beijing Long March High Tech Company	65,000
Feasibility studies on expanded tobacco supply	Beijing All-China Marketing Research Co., Ltd.	74,000
Optimization of transportation of expanded tobacco	Zhengzhou Tobacco Research Institute	63,000
Total (*)		2,265,000

(\*) Note: The uncommitted balance of the 2001 workplan, which amounts US\$ 301,000, was carried over and allocated to the 2002 workplan, which has to phaseout a larger amount of CFC-11.

In 2002, 300,000 US dollars were used for technical support, and 1.965 million US dollars for equipment dismantlement, of which 1.7 million was from the 2002 workplan allocation and 265,000 US dollars from the amount carried over from 2001.

## E. Performance indicators and achievements

**Table 11. 2002 Programme Performance Indicators**

CFC-11 Phase-out Target			
At the beginning of the Annual Programme (ODP tons)	Phase-out target in 2002 (ODP tons)	At the End of the Annual Programme (ODP tons)	Performance Indicators
1090	120	880	Fully achieved. 200 tons were phased-out. Consumption at the end of 2002 was 800 tons
Policy Enforcement			
Policy Measures		Performance Indicators	
Quota system		Fully achieved. A regulation limiting 2002 consumption up to 880 tons was issued in January 2002. Compliance with consumption limits was compulsory for all tobacco enterprises.	
Activities at Enterprise Level			
Activity	Existing Lines	Lines to be closed	Performance indicator
To close CFC-11 expansion equipment	64	To be selected through a bidding process.	Fully achieved. 11 lines dismantled
Technical Assistance Activities			
1.Training and awareness campaign		Fully achieved but shall continue	
2. Reduction of CFC-11 consumption of existing tobacco expansion equipment		Goal accomplished. The CFC-11 consumption per unit of 88% of the enterprises has been brought down under the standard per unit consumption.	
3. Feasibility studies on expanded tobacco supply		Accomplished. The results of the investigation of the concerned enterprises have been sorted to analyze the advantages and disadvantages of different approaches, and to propose an economic solution to providing expanded tobacco.	
4. Optimization of transportation of expanded tobacco		Accomplished. The investigation of the practice at domestic and abroad has been completed to find out the best approach for packaging and transportation.	

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The programme dismantled eleven CFC-11 expansion lines and went beyond its objectives phasing-out 200 tons of CFC-11. Total CFC-11 consumption was 800 tons. These results compare favorably with the expected phase-out of 120 tons in the year 2001 and a maximum consumption of 880 tons.

Technical assistance activities are progressing as expected and the CFC-11 consumption quotas have been issued for each enterprise to do help to the control of CFC-11. Intensive efforts to further reduce the consumption of CFC-11 in the whole industry are giving better than expected results, and contributed to the extra amount of 80 tons phased-out ahead of schedule

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### **C.1 Progress at Sector-level**

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#### **C.1.2 Issue of Quota Licensing System for year 2002**

At the beginning of 2002, the CFC-11 consumption quota of each enterprise for the year 2002 was defined, in accordance with the total CFC-11 consumption quota for tobacco sector of the year 2002 and the actual production schedule of the enterprise. A CFC-11 Consumption Quota Licence was given to each enterprise, so the enterprise can only consume CFC-11 within the quota.

Up to the end of December 2002, in accordance with the monthly statistics of CFC-11 consumption reported by the enterprises, the total consumption of CFC-11 was about 800 tons (see Table 2), which is lower than the target.

Table2: Consumption of CFC-11 by all enterprises in 2002

Reference	Name	CFC-11 Consumption (tons)	Reference	Name	CFC-11 Consumption (tons)
1	Zheng Zhou	40	30	He Fei	0
2	Zhu Ma Dian	30	31	Fu Yang	29
3	Luo Yang	22	32	Beng Bu	0
4	An Yang	57	33	Chu Zhou (Wu Hu)	13
5	Luo He	27	34	Xia Men	45
6	Nu Zhou	8	35	Long Yan	0
7	Kai Feng	0	36	Shi Jia Zhang	32
8	Shao Guan	65	37	Zhang Jia Kou	12
9	Nan Xiong	0	38	Huai Yin	0
10	Zhan Jiang	18	39	Xu Zhou	0
11	Lian Jiang	2	40	Chendu	0
12	Hai Nan	18	41	Mian Yang	18
13	Meng Zhou	18	42	Chong Qing	0
14	Nan Hai	15	43	Si Ping	3
15	Gui Yang	36	44	Huhehaote	10
16	Gui Ding	35	45	Wulanbato	4
17	Gui Ding 2	8	46	Haerbing	1
18	Tong Ren	0	47	Shen Yang	11
19	Zun Yi	30	48	Tianjin	15
20	Bi Jie	0	49	Lan Zhou	13
21	Wu Han	0	50	Liu Zhou	30
22	Li Chuan	0	51	Nan Chang	15
23	Zhao Yang	0	52	Hang Zhou	0
24	Hong An	5	53	Xin Jiang	16
25	Guang Shui	1	54	Yan Ji	11
26	Dang Yang	12	55	Tian Shui	8
27	Xiang Fan	0	56	Chang Chun	0
28	Xian Ning	14	57	Xiamen Huamei	5
29	Beijing	22	58	Shenzhen	22
Total			796		



### C.1.3 CFC-11 Phased-out Mechanism

At the beginning of 2002, all qualifying tobacco enterprises were requested to express their interest to phase-out their 2002 CFC-11 quota through a public bidding system. In March 2002, a public bidding was carried out among the 49 eligible enterprises in China's tobacco sector.

Fifteen enterprises which intend to dismantle CFC-11 equipment in 2002 submitted their bids (see Table 3).

The implementing agency (UNIDO) has been fully informed about the bidding process and all relevant documents have been reviewed by UNIDO

**Table 3: List of enterprises bidding for dismantlement in 2002**

Number in Table 4 of Sector Plan Document	Enterprises	Equipment Status	
		Sets	Installation date
37	Zhangjiakou Cigarette Factory	1	91-6
21	Wuhan Tobacco Group Co.,Ltd. Wuhan Cigarette Factory	1	92-4
27	Xiangfan Cigarette Factory	1	92-3
32	Bengbu Cigarette Factory	1	92-12
52	Hangzhou Cigarette Factory	1	90-8
38	Huaiyin Cigarette Factory	1	90-12
25	Guangshui Cigarette Factory	1	92-6
39	Xuzhou Cigarette Factory	1	91-1
35	Longyan Cigarette Factory	2	92-9
			95-3
7	Kaifeng Cigarette Factory	1	92-8
34	Xiamen Cigarette Factory	1	92-4
1	Zhengzhou Cigarette Factory	1	93-5
54	Yanji Cigarette Factory	1	92-1
28	Xianning Cigarette Factory	1	93-2
15	Guizhou Huangguoshu Group	1	92-10

In March 2002, SEPA and STMA made an evaluation of the bids. The evaluation committee was composed of the following members:

Mr. Liu Yi (Senior officer of SEPA)  
Mr. Xiong Kang (Senior project officer of SEPA)  
Mr. Wang Yanting (Senior officer of STMA)  
Dr. Zhao Baidong (Senior project officer of STMA)  
Mr. Zhang Xiaogang (Project officer of STMA)  
Mr. Jiang Xingrong (Senior project officer of DIA)  
Miss Qiao Yanzhao (Project officer of DIA)

The winner was selected by the evaluation committee based on the following criteria:

1. Total amount to be phase-out should not be lower than the 2002 target.
2. Whole cost shall be equal or lower than the total funds available in 2002.
3. The total funds for the enterprises selected should be no more than the total of the funds for year 2002 plus the balance.
4. Enterprises which commit to dismantle additional equipment in 2002 within the same cost shall have preference.

The Committee awarded the bids to 10 enterprises which will dismantle 11 sets CFC-11 equipment. It was agreed that the equipment will immediately stop production and have to be dismantled before December 31, 2002. List of the winners is shown in Table 4.

**Table 4: List of enterprises that won the 2001 bidding**

Number in table 4 of sector plan	Name of enterprise	Equipment Status	
		Sets	Installation date
7	Kaifeng Cigarette Factory	1	92-8
21	Wuhan Tobacco Group Co.,Ltd. Wuhan Cigarette Factory	1	92-4
25	Guangshui Cigarette Factory	1	92-6
27	Xiangfan Cigarette Factory	1	92-3
32	Bangpu Cigarette Factory	1	92-12
35	Longyan Cigarette Factory	2	92-9 95-3
37	Zhangjiakou Cigarette Factory	1	91-6
38	Huaiyin Cigarette Factory	1	90-12
39	Xuzhou Cigarette Factory	1	91-1
52	Hangzhou Cigarette Factory	1	90-8
Total		11	

### **Phase-out Results**

A total of eleven sets of equipment from ten enterprises have been dismantled in the year 2002 and the minutes, minutes from the public notary and video documents have been transferred to UNIDO which has supervised the whole process. The total amount of CFC-11 phased-out of these eleven sets of equipments is **120 tons**, which means the phase-out target of 120 tons fixed in the 2002 programme has been accomplished.

TA activities focussed on better technical management of existing CFC-11 expansion lines gave good results and an additional 80 CFC-11 tons where also phasedout ahead of schedule.

The total amount phasedout in the year 2002 was 200 CFC-11 tons, well above the target 120 tons established in the plan

### **C.1.4 Study on trade management mechanism**

The study is still going on and once completed, STMA is forecasting to issue a notice that prohibit the importation of expanded tobacco and/or cigarette that is produced by means of CFC-11 expansion. A mechanism of banning

import and export of expanded tobacco and/or cigarette that use CFC-11 will also be put into operation.

### **C.1.5 Optimization of transportation of expanded tobacco**

An expert team was sent to Shanghai, Hangzhou, Ningbo, Xuzhou, Nanjing, Guangyi, Guanger, Kunming, Yuxi, Jinan, Taiyuan, Huaiyin, Xinzheng, Xuchang, Luoyang and Yanji, plus Date Company and Qinhuangdao Cigarette Machine Plant. The experts of the above mentioned factories were also consulted. Experiments were carried out to test the feasibility of transporting expanded tobacco by train and via highways. Both the data supplied by the concerned enterprises and the results obtained through field investigation were referred to in preparing the investigation report. Some valuable suggestions on the packaging and transportation solutions that fit in with the particular conditions in China were proposed, which will promote the initiative to phase out CFC-11.

**Table 5: List of Experts on the project of optimization of expanded tobacco transportation**

<b>Name of experts</b>	<b>Title of technical post</b>	<b>Duration in months</b>
Liu Huan	Senior Engineer	15
Chen Jiadong	Senior Engineer	12
Li Genbao	Senior Engineer	12
Liang Xinquan	Senior Engineer	10

### **C.1.6 Feasibility study on expanded tobacco supply**

A comprehensive survey was conducted to investigate the 58 enterprises involved in the phase-out initiative. Ten experts and specialists in the industry were also interviewed. In addition, more than ten enterprises were investigated intensively to obtain the information about the alternative solutions these enterprises apply to produce expanded tobacco. The results of the investigation have been sorted to analyze the advantages and disadvantages of different approaches, and to propose an economic solution to providing expanded tobacco.

**Table 6: List of Experts Interviewed**

Name	Enterprise	Professional title	Content of interview
Zhang Xiaogang	Tobacco Working Group	Project officer	Content of and policies on CFC-11 phase-out
Xie fei	Foreign Economic Office of SEPA	Project officer	Content of and policies on CFC-11 phase-out
Sun Liguo	Guangshiu Cigarette Factory	Expert in Tobacco Sector	Improvement and research of producing cigarette
Li Bin	Guangdong Provincial TMA	Expert in Tobacco Sector	Improvement of process of producing cigarette
Wu Yilin	Chinese Carrier Rocket Research Institute (101 Institute)	Expert on tobacco expansion equipment	Technical properties of tobacco expansion equipment
Ma Dechang	Chinese Carrier Rocket Research Institute (101 Institute)	Expert on tobacco expansion equipment	Technical properties of tobacco expansion equipment
Mao xilin	Zunyi Cigarette Factory	Senior engineer	Tobacco expansion process
Wang Zeteng	Longyan Cigarette Factory	Senior engineer	Application of CO2 tobacco expansion equipment
Ma Xuelin	Hubei Provincial TMA	Expert in Tobacco Sector	Setting up CO2 expansion center
Liu Shangpeng	Gerui CO2 Expansion Center	Senior engineer	Setting up CO2 expansion center

## **C.2 Progress at enterprise-level**

### **C.2.1 Signing of the ODS phased-out contract**

Phase-out contracts between SEPA and each of the ten enterprises that won the bidding process were signed in May 2002. It is declared in the contract that: the winners accept stopping the use of CFC-11 immediately, accept the price of bidding and agree to dismantle their selected CFC-11 tobacco expansion equipment in return for the funds. The contract specifies that SEPA and STMA will organize the work and proceedings to dismantle all these CFC-11 equipment.

### **C.2.3 CFC-11 tobacco expansion equipment dismantlement reports**

By the end of 2002, 11 sets of eligible equipment from 10 enterprises will have been dismantled. For each dismantlement of CFC-11 tobacco expansion equipment, members of the Special Working Group for Tobacco Sector Plan, the Foreign Economy Cooperation Office of the State Environmental Protection Administration, the relevant provincial Tobacco monopoly Administration, the local Environmental Protection Bureau as well as members of the local notary office were onsite for supervision. In many occasions, UNIDO experts also attended the dismantling process.

All above-mentioned members should sign on the *Certificate of Dismantling CFC-11 Tobacco Expansion Equipment*.

The whole dismantlement process was videotaped and photographs being taken. The local notary office filed notary deed. The Special Working Group of Tobacco Sector Plan is keeping these videotapes and photos for reviewing by the implementing agency.

### **C.2.6 Reduction of CFC-11 consumption by the existing tobacco expansion equipment**

1. It was found that the consumption per unit of expanded tobacco produced in 7 enterprises was too high compared with the standard consumption and the amount of expanded tobacco. These enterprises include Cigarette Factories such as Shijiazhuang, Fuyang, Lanzhou, Zhumadian, Zhangjiakou, Zhanjiang, and Sanxia. The issued quota of CFC-11 consumption could not meet the actual demand of these factories in order to maintain the normal cigarette production. Unless the situation becomes under control, the consumption quota of CFC-11 will not be enough and cigarette production will be affected. The objective of inviting experts is to help these factories to solve the problem of wasting CFC-11 and therefore keep the CFC-11 consumption well within the quota amount.
2. The experts visited the enterprises above mentioned, in order to assist them to reduce the consumption per unit. Based on the results of the investigation on the causes of the too high consumption per unit and the experience in the previous year, they proposed their solution, and helped train the personnel of the enterprises to implement necessary technical innovation reduce CFC-11 consumption.
3. The experts made modifications to the handbook "*Odd Consumption Reduction Manual of CFC-11 Tobacco Expansion Equipment*", which will be distributed to all enterprises, which have CFC-11 tobacco expansion equipment.

**Table 7: Activities in the project of reduction of CFC-11 consumption of existing CFC-11 expansion equipment**

Name of enterprises	Output of expanded tobacco produced per kg of CFC-11 (kg), before training	Output of expanded tobacco produced per kg of CFC-11 (kg), after training
Zhangjiakou	18.6	20.1
Shijiazhuang	14.1	23.3
Fuyang	17.8	28.9
Lanzhou	15.6	26.4
Zhumadian	22.1	28.9
Zhanjiang	14.5	21.6
Sanxia	8	18.6

**Table 8. Experts implementing the consumption reduction of CFC-11 in existing tobacco expansion equipment in 2002**

Name of experts	Title of technical post	Duration of current job
Ma Dechang	Senior Engineer	12
Chen Song	Senior Engineer	8
Wu Yilin	Senior Engineer	10
Qi Xiangyang	Senior Engineer	9

### **C.3 Progress in Policies**

#### **C.3.1 Quota System**

In January 2002, the *Supplementary Regulations on CFC-11 Consumption Quota Licensing System in Tobacco Sector for the Year 2002* were issued and distributed to all the enterprises having CFC-11 expansion equipment. STMA issued the quota for 2002 to the concerned enterprises, which were required to consume the CFC-11 within the quota.

#### C.4 Summary of Technical Assistance Activities

The activities undertaken are summarized in the following table:

**Table 9. List of technical assistance activities in 2002**

<b>Technical Assistance Activities</b>	<b>Contractor</b>	<b>Cost (US\$10,000)</b>	<b>Date of completion</b>	<b>Current status</b>
Training	(CFC-11 Tobacco Sector Group)	5.3	December 2002	Completed
Study on trade management mechanism	Environmental Sciences Center of Peking University	4.5	December 2002	On Going
Reduction of CFC-11 consumption of existing tobacco expansion equipment	Beijing Long March High Tech Company	6.5	December 2002	Completed
Feasibility studies on expanded tobacco supply	Beijing All-China Marketing Research Co., Ltd.	7.4	December 2002	Completed
Optimization of transportation of expanded tobacco	Zhengzhou Tobacco Research Institute	6.3	December 2002	Completed



D. Allocation of resources

**Table 10. Allocation of resources (US\$)**

Item	Payee	Cost (US\$)
CFC-11 Phase-out	Kaifeng Cigarette Factory	170,000
	Wuhan Tobacco Group Co.,Ltd. Wuhan Cigarette Factory	185,000
	Guangshui Cigarette Factory	170,000
	Xiangfan Cigarette Factory	185,000
	Bangpu Cigarette Factory	185,000
	Longyan Cigarette Factory	354,000
	Zhangjiakou Cigarette Factory	185,000
	Huaiyin Cigarette Factory	177,000
	Xuzhou Cigarette Factory	177,000
	Hangzhou Cigarette Factory	177,000
Training	(CFC-11 Tobacco Sector Group)	53,000
Study on trade management mechanism	Environmental Sciences Center of Peking University	45,000
Reduction of CFC-11 consumption of existing tobacco expansion equipment	Beijing Long March High Tech Company	65,000
Feasibility studies on expanded tobacco supply	Beijing All-China Marketing Research Co., Ltd.	74,000
Optimization of transportation of expanded tobacco	Zhengzhou Tobacco Research Institute	63,000
Total (*)		2,265,000

(\*) Note: The uncommitted balance of the 2001 workplan, which amounts US\$ 301,000, was carried over and allocated to the 2002 workplan, which has to phaseout a larger amount of CFC-11.

In 2002, 300,000 US dollars were used for technical support, and 1.965 million US dollars for equipment dismantlement, of which 1.7 million was from the 2002 workplan allocation and 265,000 US dollars from the amount carried over from 2001.

## E. Performance indicators and achievements

**Table 11. 2002 Programme Performance Indicators**

CFC-11 Phase-out Target			
At the beginning of the Annual Programme (ODP tons)	Phase-out target in 2002 (ODP tons)	At the End of the Annual Programme (ODP tons)	Performance Indicators
1090	120	880	Fully achieved. 200 tons were phased-out. Consumption at the end of 2002 was 800 tons
Policy Enforcement			
Policy Measures		Performance Indicators	
Quota system		Fully achieved. A regulation limiting 2002 consumption up to 880 tons was issued in January 2002. Compliance with consumption limits was compulsory for all tobacco enterprises.	
Activities at Enterprise Level			
Activity	Existing Lines	Lines to be closed	Performance indicator
To close CFC-11 expansion equipment	64	To be selected through a bidding process.	Fully achieved. 11 lines dismantled
Technical Assistance Activities			
1.Training and awareness campaign		Fully achieved but shall continue	
2. Reduction of CFC-11 consumption of existing tobacco expansion equipment		Goal accomplished. The CFC-11 consumption per unit of 88% of the enterprises has been brought down under the standard per unit consumption.	
3. Feasibility studies on expanded tobacco supply		Accomplished. The results of the investigation of the concerned enterprises have been sorted to analyze the advantages and disadvantages of different approaches, and to propose an economic solution to providing expanded tobacco.	
4. Optimization of transportation of expanded tobacco		Accomplished. The investigation of the practice at domestic and abroad has been completed to find out the best approach for packaging and transportation.	