KINGDOM OF TONGA

NATIONAL COMPLIANCE ACTION PLAN

FOR

THE PHASING OUT OF OZONE DEPLETING SUBSTANCES (ODS)

December 2001

Prepared by

Department of Environment

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EXECUTIVE SUMMARY

INTRODUCTION

The Kingdom of Tonga ratified the 1985 Vienna Convention for Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer on 29 July 1998, and is currently in the process of reviewing the 1992 Copenhagen and the 1990 London Amendments for possible ratification. Since it is only party to the Montreal Protocol, Tonga is only required to control CFC and halon consumption. Tonga is obligated, under the Protocol, to freeze its consumption of CFC's from 1 July 2000 to the average level of consumption between 1995-1997. According to data submitted to the Ozone Secretariat, the average level during those years was 1.44 ODP tonnes. Since CFC consumption in 2000 was zero, Tonga is in full compliance with the Montreal Protocol. On the basis of consumption, Tonga qualifies as an Articles 5 country under the Montreal Protocol and is eligible for assistance from the Multilateral Fund(refer p. 5).

In fulfillment of its obligations under the Montreal Protocol, the Kingdom of Tonga's Department of Environment (DoE) entered into an agreement with SPREP through which assistance was received from an outside consultant to prepare a National Compliance Action Plan for the Phase Out of Ozone Depleting Substances (ODS).

In this plan, consumption of ODS is presented and analysed and an Action Plan has been developed which contains concrete strategies for timely phase out. The activities outlined in the plan will be funded through the Regional Strategy even though they are included in the NCAP. The budget is therefore presented as part of the Regional Strategy and not this NCAP.

The development of the NCAP is important in determining the level of ODS consumption in the country and:

- is a reflection of the commitment of the government of Tonga to achieve compliance with its obligations under the MP
- provides an assessment of the consumption of ODS in Tonga from 1995 to 2010
- identifies the actions that the government intends to take in order to fulfil its obligations under the Protocol, and
- identifies the nature and extent of the assistance sought by the government of Tonga from the Multilateral Fund to support its efforts to protect the Ozone Layer and meet the Protocol Objectives

PRODUCTION OF ODS

Tonga does not produce any ozone depleting substances (refer Figure 1).

IMPORTS, EXPORTS, AND CONSUMPTION OF ODS

Only three types of ozone depleting substances are known to have been imported into Tonga in bulk form: chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) which are used for refrigeration and air-conditioning, and methyl bromide used for quarantine fumigation. Other than the use of methyl bromide for fumigation, consumption of ODS in Tonga is exclusively in the refrigeration and air conditioning sector.

Tonga has strong trading relationships with New Zealand, Australia and Fiji. Almost all imports pass through these countries before arriving in Tonga.

The only company that imports ODS and methyl bromide into Tonga is BOC Gases Tonga Ltd. Prior to 1995, BOC Gases estimated they sold fifteen 13.5kg cylinders of CFC-12 per month (2,400 kg per year) and ten 22 kg cylinders of HCFC-22 (220 kg per year). In 1999, consumption of CFC-12 was reduced to one or two 13.5kg cylinders a month (250 kg per year). Kool Tonga Ltd., a refrigeration services company started in 1998, has recently begun importing their own non-ODS refrigerants from the New Zealand Company, Kooline. BOC Gas is the major supplier of ODS to the outer islands. These two companies are also the major distributors of ODS in Tonga.

Some traders in the Chinese community are also known to have imported an unknown amount of Chinese-made CFCs into Tonga. These are thought to have come from a wholesaler in either Hong Kong or Taiwan. This trade in Chinese-made CFCs is currently legal, both under Tongan and international law, but threatens Tonga's ongoing compliance with the Montreal Protocol.

Consumption of some ODS; namely CFC-12 and CFC-115 in Tonga for the period 1995-2000 are presented in Table 1. The consumption of CFC-115 for 1997 is not available due to unavailability of data. No data was available for years prior to 1995.

Table 1 Consumption of CFCs in Tonga (metric tonnes)

Substance	ODP	1995	1996	1997	1998	1999	2000
CFC-12	1.0	2.112	0.82	1.46	1.96	0.36[2]	0
CFC-115	0.6	0.32	0.49	0.32[1]	0.08	0.06	0
ODP tonnes		2.304	1.114	1.652	2.008	0.396	0

[1]CFC-115 consumption in 1997 is an estimate due to unavailability of data.
[2]100kg was added to the 1999 CFC-12 consumption to account for the Chinese imports.

USE OF ODS

There is no report of any new equipment being installed using CFC's as the refrigerant, thus, all ODS consumption in Tonga is for servicing existing refrigeration and air condition equipment. In addition, the Ministry of Fisheries and Ministry of Health also service their own refrigeration equipment and are the largest users of CFC's in Tonga. The most widely used ODS is CFC-12, but a number of businesses and hotels use HCFC-22 in their air conditioning systems. Servicing of domestic refrigeration equipment is common and is still carried out with CFC-12.

There are two large refrigeration and air-conditioning workshops (Ila Tapueluelu and Kool (Tonga) Ltd) and two smaller one-person operations. There is no large air-conditioning equipment (chillers) using CFC-11 in Tonga. All air-conditioning, including at the major hotel complex, is done using HCFC-22 window units and split systems.

Working mobile air-conditioning units are fairly common. There is still some servicing carried out with CFC-12, but this is now in short supply. The non-ozone depleting refrigerant HFC-134a is now commonly used in the newer units. None of the industries in Tonga have any recovery units for servicing of MACs due to its high cost. There is

only one major car dealer that services mobile air-conditioners in cars, ASCO Motors, Tonga. Reconditioned vehicles older than 1992 still use R12, which is listed under the Montreal Protocol as an ODS gas (Asco pers com Nov 2001).

There are several commercial, privately owned fishing companies; Seastar, Alatini, and Friendly Islands Fishery. They have only one CFC-502 blast freezer and all other equipment uses either HCFC-22 or the new non-ozone depleting refrigerants, R404A and R507.

There are four large supermarkets in Nuku'alofa and one in Vava'u. Most of the refrigeration units were reported to be using CFCs and HCFC-22. Some, especially the CFC-502 units, have already been converted to non-ozone depleting refrigerants. Newly installed units are using HFC-134a. Servicing of older equipment is still usually done with CFCs, but HFC-134a and the other refrigerants are being used because CFC-12 is in short supply.

Tonga is a relatively large user of methyl bromide. All of it is used for Quarantine and Pre-Shipment (QPS) applications. The Quarantine Division of the Ministry of Agriculture carries out all fumigation at the main port. It was estimated that approximately 10kg was used per week (roughly 500kg per year). At present, all uses of methyl bromide for Quarantine and Pre-Shipment (QPS) are exempted from control, if the country has ratified the 1992 Copenhagen Amendment. Once Tonga ratifies the Copenhagen Amendment it will only be required to report on the amounts that have been imported into Tonga.

FORECAST CONSUMPTION

There is no obvious source of CFC supply in the immediate region and CFC consumption is already at zero. Therefore forecasting future demand in the absence of government regulations is difficult.

It might be possible to predict CFC demand based on installed capacity of CFC equipment, but there is only limited data on the number of pieces of refrigeration and air-conditioning equipment in Tonga that still uses CFCs and would require this for servicing. Although it is know around 1200 – 1500 domestic and commercial refrigerators are imported into Tonga each year there is no data on the refrigerant type, or whether they are new or second hand.

If the supply of CFCs had not stopped in 2000 it is reasonable to assume that the demand for CFCs would have dropped from its level in 1999 to zero over a period of less than 10 years as existing equipment was replaced. Under this scenario it is likely that Tonga would have remained in full compliance up until 2010.

The main area of uncertainty in predicting demand is the on going importation of second hand equipment, particularly second hand vehicles that contain CFCs in them. If an alternative supply of CFCs were established, then the demand for servicing mobile air-conditioners in cars could be relatively high.

If regulations are not put in place, to restrict imports of CFCs then even one small shipment of CFCs to meet the demand to service imported second-hand Japanese cars could potentially put Tonga into a situation of non-compliance.

PHASE OUT STRATEGY & ACTION PLAN

The phase out strategy is an accelerated version of the Montreal Protocol phase out program and this is both technologically and economically viable. The goal is to ensure that the needs of industry and non-industry users are met while undertaking an accelerated CFC phase-out target date of 1 December 2005. This is inline with other countries in the region as part of the Regional Strategy. Adoption of an early phase-out date will send a strong signal of the Kingdom of Tonga's environmental commitment to the global community. These target goals will be achieved with the support of the Multilateral Fund and the Pacific Regional Strategy in collaboration with the private and public sectors, NGOs, and other government and international agencies.

Tonga's ODS consumption is already well below the Protocol's limits and continuation of this trend will be ensured with the implementation of the following Action Plan. Listed below are some of the plan's key provisions needed to achieve this goal. Table 1.1 outlines the phase out schedule and Tonga's strategy under the Montreal Protocol and the London and Copenhagen Amendments.

1. Maintain compliance with the Montreal Protocol while preparing an economically viable accelerated phase-out program.
2. Establish a Tonga National Ozone Unit (TNOU) office to co-ordinate, implement, and monitor the phase-out program.
3. Prohibit any new activity related to the import, production or use of ODSs in new equipment.
4. Ban of import of ODS-using and ODS-containing equipment (including new and second-hand domestic refrigerators using CFC-12 as the refrigerant).
5. Introduction of controls on the import (and export) of all ODSs (including licensing, taxation and/or quotas as appropriate).
6. Strengthening ODS import/export monitoring program by developing a licensing system.
7. Consideration of a system of fiscal incentives/disincentives in favour of non-ODS alternatives and transitional substances.
8. Implement and monitor training of Customs Officers to ensure proper control of import and export of ODSs and information collection and submission.
9. Implement and monitor training of refrigeration service technicians in good practices of refrigeration to minimise the use of ODSs and mitigate their emissions into the air during the service of refrigerators.
10. Conduct public awareness campaign on necessity and means for protection of the Ozone Layer of the Earth and the Government's commitment to phase out ODSs.

Table 1.1 Phase out Schedule for Tonga under the Montreal Protocol and London and Copenhagen Amendments.

Montreal Protocol

	Baseline	Phase-out Schedule	Tonga's strategy
A1 (5 major CFCs)	Average of 1995-1997	07/1999: freeze 2005: -50% 2007: -85% 2010: -100%	Accelerated CFC phase out completed by 2005 and a 20% per year reduction starting in 2002

London Amendment

	Baseline	Phase-out Schedule	Tonga's strategy
B1 (10 other CFCs)	Average of 1998-2000	2003: -20% 2007: -85% 2010: -100%	1993: -20% 1994: -75% 1996: -100%
B II Carbon Tetrachloride	Average of 1998-2000	2005: -85% 2010: -100%	1995: -85% 1996: -100%
B III Methyl Chloroform	Average of 1998-2000	2003: freeze 2005: -30: 2010: -70 2015: -100	1993: freeze 1994: -50% 1996: -100%

Copenhagen Amendment

	Baseline	Phase-out Schedule	Tonga's strategy
C 1 (HCFCs)	2015	2016: Freeze 2040: -100%	Maintain compliance with Amendment
E 1 (Methyl Bromide)	Average of 1995-1998	2002: freeze 2005: -20% 2015: -100%	Maintain compliance with Amendment

CONCLUSION

Tonga is committed to fulfilling its obligations under the Montreal Protocol, London Amendment, and the Copenhagen Amendment and has responded with the development of this NCAP. The plan also reflects Tonga's contribution to the global community's initiative to prevent further destruction of the ozone layer. Adherence to the basic concepts of the plan, but allowing for continual revision will ensure the safe recovery, recycling, storage, and containment of ODS in Tonga.

1.0 INTRODUCTION

The government department responsible for the oversight and implementation of the Montreal Protocol and the National Compliance Action Plan (NCAP) in Tonga was the Environment Planning and Conservation Section (EPACS) of the Ministry of Lands and Natural Resources. EPACS became a separate department on 1 July 2001 and is now know as the Department of Environment (DOE).

Tonga comprises four island groups and they are from south to north: the Tongatapu group, the Ha'apai group, the Vava'u group, and the Niuas. Of the 172 named islands with an area of 747 sq. km only 26 are inhabited and nearly 70% of Tonga's population of around 100,000 lives on the island of Tongatapu where the capital, Nuku'alofa, is located. The islands are between and to the south of both Samoa and Fiji. Tonga is the only Pacific Island nation never brought under foreign rule and is still ruled by its hereditary King, HRH Taufa'ahau Tupou IV. The Kingdom is still run as a constitutional monarchy and the King appoints the 12 members of Cabinet.

The GDP in 1996 (the most recently published figure) was estimated to be in the order of US$240 million. It has declined since 1996, largely as a result of two natural disasters (a drought and a cyclone) in 1998 and price declines in key world market exports of squash, vanilla and fish. Most economic development is concentrated on the island of Tongatapu, although tourist developments also exist on other islands. In particular, there has been development of tourist infrastructure, including lengthening the runway to allow landing of direct flights from overseas on Vava'u. Vava'u has a large natural harbor suitable for yachts. Tourism is a major part of the Tongan economy, but is not as significant as in other islands, such as Fiji or the Cook Islands. More than half of the population still live a largely subsistence based agriculture life.

There is a small manufacturing sector, mainly producing goods for the New Zealand and Australian markets, but these have largely closed with the introduction of free trade policies in the New Zealand and Australia. There are no manufacturing facilities using any ozone depleting substances.

Tonga has strong trading relations with New Zealand, Australia and Fiji. Almost all imports pass through New Zealand, Australia or Fiji before being sent to Tonga. Therefore the country of origin of imported goods is often reported as being from Fiji or Australia, even when it has come from elsewhere.

Recently there has been an influx into Tonga of ethnic Chinese from various parts of Asia, due to the sale of Tongan passports. The arrival of the Chinese has lead to a relatively large range of Chinese made goods in the markets although it is not clear if the origin was Mainland China, Hong Kong or Taiwan. These goods included new refrigerators, labeled as containing CFCs, along with a range of electronic goods, such as televisions and other appliances.

Most inhabitants of Tongatapu have electricity in their houses. Domestic refrigerators are relatively common, however, air-conditioners of any kind are rare outside of the up-scale tourist accommodations and office buildings. As with many other countries in the region, the vehicle fleet is dominated by second-hand Japanese vehicles. Most vehicles manufactured before 1992 arrive equipped with ODS based air-conditioning units.

Because Tonga is a small group of islands, with fairly constant trade winds, corrosion from salt air is a problem. Accordingly, steel products such as cars, but also

refrigerators and air-conditioners, suffer from severe corrosion problems. Due to this corrosion problem, the average life of a car in Tonga is only 5 to 10 years. As a result of the influx of cheap but relatively old second-hand vehicles, the disposal of car bodies is becoming a major environmental problem.

1.1 Purpose

As part of the process of meeting its obligations under the Protocol, the government of Tonga, in close collaboration with an outside consultant, has developed this National Compliance Action Plan (NCAP). The NCAP was prepared to reflect the commitment of the Government of Tonga to comply with its obligations under the Montreal Protocol (MP).

For that purpose, data on consumption of ODS is presented and analysed, as well as a strategy containing concrete actions to possible timely phase out. A detailed Action Plan for phasing out ODS has been elaborated and the specific projects to achieve it identified. This document provides the basis for monitoring progress of implementation of the MP in Tonga.

Tonga intends to be actively involved in the Regional Strategy to implement the Montreal Protocol in the Pacific region. Most of the activities outlined in this strategy will be funded through the Regional Strategy even though they are included in the NCAP. The budget is therefore presented as part of the Regional Strategy and not this NCAP.

The development of the NCAP is important in determining the level of ODS consumption in the country. More specifically the NCAP:

- is a reflection of the commitment of the government of Tonga to achieve compliance with its obligations under the MP
- provides an assessment of the consumption of ODS in Tonga from 1995 to 2010
- identifies the actions that the government intends to take in order to fulfil its obligations under the Protocol, and
- identifies the nature and extent of the assistance sought by the government of Tonga from the Multilateral Fund to support its efforts to protect the Ozone Layer and meet the Protocol Objectives

1.2 Status

On 29 July 1998, Tonga ratified the 1985 Vienna Convention for the Protection of the Ozone Layer, and the 1987 Montreal Protocol. Currently, Tonga is in the process of ratifying the 1990 London Amendment and the 1992 Copenhagen Amendment.

Because it is only a Party to the 1987 Montreal Protocol, Tonga is only required to control its consumption of CFCs and halons at this time.

According to data submitted to the Ozone Secretariat Tonga must freeze its consumption of CFCs at 1.69 ODP tonnes from 1 July 2000. As its CFC consumption in 2000 was zero, Tonga is in compliance with its obligation under the Montreal Protocol. Once imports have been frozen, Tonga is then required to reduce its level of imports to zero by 2010, meeting interim targets before then: a 50% reduction by 2005 and an 85% reduction by 2007. As noted above, because imports of CFCs have essentially stopped,

Tonga has already met this obligation to freeze its consumption and is on its way to the phase out target of 2005.

Table 1.1 Maximum allowable consumption under Montreal Protocol

Year	Maximum consumption (ODP tonnes)
2000	1.69
2001	1.69
2002	1.69
2003	1.69
2004	1.69
2005	0.845
2006	0.845
2007	0.2535
2008	0.2535

Tonga is classified as an Articles 5 country under the Montreal Protocol and is therefore eligible for the Multilateral Fund under the Montreal Protocol. The average consumption of CFCs for 1995-1997 was equivalent to 0.0169 kg per capita (assuming a population of 100,000).

1.3 Assistance Received

Tonga has not received any assistance from the Multilateral Fund for phase-out activities.

The South Pacific Environment Programme (SPREP), through its regional programme for the implementation of the Montreal Protocol in the Pacific region, employed a consultant to assist with the development of the NCAP. Specifically, the regional programme promotes the phase out of ODS in Pacific Island Countries through public education and environmental awareness and designing policy instruments to control ODS supply and usage. The Memorandum of Understanding (MOU), established between SPREP and UNEP, enabled the provision of technical assistance by SPREP for the development of Tonga's NCAP.

Additional assistance included:

- A one-day workshop on 25 March 2000 for government departments and small industry enterprises conducted by the SPREP Regional Consultant, Mr. Iain McGlinchy. The workshop was organized by the DoE and funded by UNEP. Participants of the workshop were from the private sector, including the Tapueluelu enterprises, Seastar Fishing Company, and BOC Gas, and other Government agencies, such as Ministry of Fisheries, Ministry of Agriculture, and Ministry of Education.
- A two-week visit to Tonga by Mr. Iain McGlinchy from 25 March–1 April 2000. Findings and data from the report on the consultant's visit were used to develop the NCAP.
- Training for four refrigeration technicians in Auckland, New Zealand at the beginning of 2000 funded by NZ ODA.

2.0 CURRENT SITUATION

2.1 Current and Forecast Consumption

2.1.1 Current Consumption

Only three types of ozone depleting substances are known to have been imported into Tonga in bulk form: chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) which are used for refrigeration and air-conditioning, and methyl bromide used for quarantine fumigation. Other than the use of methyl bromide for fumigation, consumption of ODS in Tonga is exclusively in the refrigeration and air conditioning sector.

Chlorofluorocarbons (CFCs)
There is no known data of import and consumption of ozone depleting substances (ODS) for years before 1995. Until 1999 the most common ODS used in Tonga was CFC-12 with lesser amounts of CFC-502 also being used. Because most ODS refrigerants were imported through Fiji, the decision by that country to cease imports of CFCs on 1 January 2000 has meant that CFC imports into Tonga effectively ceased at the same time. Some traders in the Chinese community are known to have imported small quantities of Chinese-made CFCs into Tonga. The importers have been unwilling to inform the Government of the amounts imported. This trade in Chinese-made CFCs is currently legal, both under Tongan and international law, but threatens Tonga's ongoing compliance with the Montreal Protocol.

Consumption of CFC-12 and CFC-115 in Tonga for the period of 1995-2000 is presented in Table 2.1. HCFC and methyl bromide consumption is discussed separately below.

Table 2.1 Consumption of CFCs in Tonga (metric tonnes)

Substance[1]	**ODP**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
CFC-12	1.0	2.112	0.82	1.46	1.96	0.36*	0
CFC-115	0.6	0.32	0.49	0.32*	0.08	0.06	0
ODP tonnes[2]		2.304	1.114	1.652	2.008	0.396	0

[1]CFC-502 is a mixture of 51.2% CFC-115 and 48.8% HCFC-22. It is reported here as its components.
[2]An ODP tonne is a metric tonne, multiplied by the substances' ozone-depleting potential (ODP). It is a measure of relative environmental damage, not physical quantity and is used by the Montreal Protocol to allow comparisons between substances of different ODPs.
*CFC-115 consumption in 1997 is an estimate due to unavailability of data. 100kg was added to the 1999 CFC-12 consumption to account for the Chinese imports.

Using this data, Tonga must freeze its consumption of CFCs at 1.69 ODP tonnes from 1 July 2000.

Hydrochlorofluorocarbons (HCFCs)
Because Tonga has not signed the 1992 Copenhagen Amendment, it is not required to report its annual data on consumption of HCFCs. Once it has ratified the 1992 Copenhagen Amendment, Tonga will not be required to reduce its consumption of these substances until 2015 and does not have to finally phase them out until 2040.

Only HCFC-22 is known to be imported into Tonga. There may be a small amount of HCFC being imported as components of mixtures used to service equipment that once used CFCs, but so far the amount is negligible.

Table 2.2 Consumption of HCFC-22 in Tonga (metric tonnes)

Substance	ODP	1997	1998	1999	2000
HCFC-22	0.055	0.225	2.511	1.0	1.31
ODP tonnes		0.012	0.138	0.055	0.072

The use of HCFCs is generally increasing in Tonga, corresponding to the rise in use of the HCFC-22 in building air conditioning and refrigeration equipment, especially in the fishing industry.

Other ODS Consumption

Halons, which are used as fire extinguishing gases, are the most ozone depleting of any of the ODS and have strict controls under the Montreal Protocol. There is no known consumption of bulk halons in Tonga and there are very few halon fire extinguishers in the country. There is no halon servicing facility in the country and any servicing of fire extinguishers is carried out in New Zealand or Australia.

Although Tonga may legally continue to import halon fire extinguishers, the global supply of halons is now very restricted and it will be difficult to obtain future supplies if an existing system is discharged.

There is no reported use or consumption of any other ODS, i.e. methyl chloroform, carbon tetrachloride, "other CFCs" and HBFC's. It is extremely unlikely that anyone would wish to export any of these substances to Tonga, as there are no facilities likely to use them.

2.1.2 Forecasted Consumption

There is no obvious source of CFC supply in the immediate region and CFC consumption is already at zero. Therefore forecasting future demand in the absence of government regulations is difficult.

It might be possible to predict CFC demand based on installed capacity of CFC equipment, but there is only limited data on the number of pieces of refrigeration and air-conditioning equipment in Tonga that still uses CFCs and would require this for servicing. Although it is know around 1200 – 1500 domestic and commercial refrigerators are imported into Tonga each year, there is no data on the refrigerant type, or whether they are new or second hand.

If the supply of CFCs had not stopped in 2000 it is reasonable to assume that the demand for CFCs would have dropped from its level in 1999 to zero over a period of less than 10 years as existing equipment was replaced. Under this scenario it is likely that Tonga would have remained in full compliance up until 2010.

The main area of uncertainty in predicting demand is the on going importation of second hand equipment, particularly second hand vehicles, that contain CFCs in them. If an alternative supply of CFCs were established, then the demand for servicing mobile air-conditioners in cars could be relatively high.

Table 2.3 Forecast ODS consumption in ODP tonnes

Year	Montreal Protocol Maximum consumption	Forecast consumption if no other intervention
2000	1.69	0.3936
2001	1.69	0.35424
2002	1.69	0.31488
2003	1.69	0.27552
2004	1.69	0.23616
2005	0.845	0.1968
2006	0.845	0.15744
2007	0.2535	0.11808
2008	0.2535	0.07872
2009	0.2535	0.03936
2010	0	0.00

It is clear from table 2.4 that if regulations are not put in place, to restrict imports of CFCs then even one small shipment of CFCs to meet the demand to service imported second-hand Japanese cars could potentially put Tonga into a situation of non-compliance.

2.2 Industry Structure

Besides methyl bromide used in quarantine fumigation, all ODS consumption in Tonga is used in the refrigeration and air-conditioning sector.

2.2.1 Importers of ODS in Tonga

Tonga has strong trading relationships with New Zealand, Australia and Fiji. Almost all imports of ODS pass through New Zealand, Australia and Fiji before arriving in Tonga.

The only company that imports ODS and methyl bromide into Tonga is BOC Gases Tonga Ltd. Prior to 1995, BOC Gases estimated they sold fifteen 13.5kg cylinders of CFC-12 per month (2,400 kg per year) and ten 22 kg cylinders of HCFC-22 (220 kg per year). In 1999, consumption of CFC-12 was reduced to one or two 13.5 kg cylinders a month (250 kg per year). On the basis of imports, consumption of CFC was declining during 1995-1999, while consumption of 404A and HFC-134a appeared to have grown during the same period. Kool Tonga Ltd., a refrigeration services company started in 1998, has recently begun importing their own non-ODS refrigerants from the New Zealand Company, Kooline. BOC Gas is the major supplier of ODS to the outer islands. These two companies are also the major distributors of ODS in Tonga.

Some traders in the Chinese community are also known to have imported an unknown amount of Chinese-made CFCs into Tonga. These are thought to have come from a wholesaler in either Hong Kong or Taiwan. This trade in Chinese-made CFCs is currently legal, both under Tongan and international law, but threatens Tonga's ongoing compliance with the Montreal Protocol.

2.2.2 Users of Refrigeration and Air-Conditioning equipment

There is only a limited amount of industry in Tonga and no manufacturing facilities using ODS. The only use of ODS in Tonga is in the refrigeration and air-conditioning sector. There are no reports of any new equipment being installed using CFCs as the

refrigerant, therefore all ODS consumption in Tonga is for servicing existing refrigeration and air-conditioning equipment.

There are two large refrigeration and air-conditioning workshops (Ila Tapueluelu and Kool (Tonga) Ltd) and two smaller one-person operations that mainly deal with domestic refrigerators, but sometimes work on small commercial refrigeration equipment. There is only one major car dealer that services mobile air-conditioners in cars (ASCO Motors, Tonga). In addition, the Ministry of Fisheries and Ministry of Health also service their own refrigeration equipment.

Air-conditioning Sector: Stationary

There is no large air-conditioning equipment (chillers) using CFC-11 in Tonga. There are few buildings more than three stories high and only one major hotel complex. Air-conditioning of any kind is uncommon except for office buildings where it is needed to protect computer and other electronic equipment. All air-conditioning, including at the major hotel complex, is done using HCFC-22 window units and split systems. Most other buildings use only ceiling fans and open windows for cooling.

Air-conditioning Sector: Mobile

Working mobile air-conditioning units are fairly common. According to the service shops, significant road improvements in Tongatapu in the last five years has significantly reduced the loss of refrigerants from vibrations, and therefore the overall use of refrigerants had fallen significantly. There is still some servicing carried out with CFC-12, but this is now in short supply. The non-ozone depleting refrigerant HFC-134a is now commonly used in the newer units. None of the industry in Tonga have any recovery units for servicing of MACs due to its high cost. ASCO Motors services MACs using a CFC refill unit known as a manifold gauge.

In the year 1999, the air conditioning sector consumed two 13.6 kg cylinders of CFC-12 per month (ASCO Motor pers com). Since 1999 this sector has largely switched to the non-ozone depleting refrigerant HFC-134a because supplies of CFCs are no longer obtainable.

Commercial and domestic refrigeration sector

The Ministry of Fisheries was the largest user of CFCs in Tonga. It maintains a number of freezer and cooler operations, both on Tongatapu and in the outer islands. There are several commercial, privately owned fishing companies; Seastar, Alatini, and Friendly Islands Fishery. The fishing companies carry out their own work and have their own engineers, but use the local firms to maintain their shore-based equipment. They have only one CFC-502 blast freezer and all other equipment uses either HCFC-22 or the new non-ozone depleting refrigerants, R404A and R507.

There are four large supermarkets in Nuku'alofa and one in Vava'u. Most of the refrigeration units were reported to be using CFCs and HCFC-22. Some, especially the CFC-502 units, have already been converted to non-ozone depleting refrigerants. Newly installed units are using HFC-134a. Servicing of older equipment is still usually done with CFCs, but HFC-134a and the other refrigerants are being used because CFC-12 is in short supply.

Servicing of domestic refrigeration equipment is common and is still carried out with CFC-12.

2.2.3 Fumigation

Tonga is a relatively large user of methyl bromide. All of it is used for Quarantine and Pre-Shipment (QPS) applications. The Quarantine Division of the Ministry of Agriculture carries out all fumigation at the main port. It was estimated that approximately 10kg was used per week (roughly 500kg per year).

Most of the fumigation carried out in Tonga is for agricultural products being exported to New Zealand, Australia and other developed countries. There is also some export of timber, which is fumigated in Tonga. In addition Tonga has its own strict quarantine laws as it does not have several pests common in other Pacific islands. Accordingly, a relatively large amount of incoming items such as used tyres and household goods are fumigated. Government-owned research farms in Tonga have used the Quarantine Division's fumigation chamber to fumigate bags of soil. In the past, some farms might also have used "one or two" one-pound (500 g) cans to fumigate their soils, however, any recent use of methyl bromide for this purpose is rare.

Table 2.4 Consumption of Methyl Bromide in Tonga (metric tonnes)

Substance	**ODP**	**1997**	**1998**	**1999**	**2000**
Methyl bromide	0.6	-	0.3	1.05	0.7
ODP tonnes		-	0.18	0.63	0.42

At present all uses of Montreal Protocol for Quarantine and Pre-Shipment (QPS) are exempted from control, if the country has ratified the 1992 Copenhagen Amendment. Once Tonga ratifies the Copenhagen Amendment it will only be required to report on the amounts that have been imported into Tonga.

2.3 Institutional Framework

The Department of Environment (DOE) will co-ordinate the NCAP, formulate and develop appropriate legislation, report to the Montreal Protocol's Ozone Secretariat, and participate in public and industry awareness campaigns. The DOE is the main arm of government in charge of management and protection of the environment, including protection of the atmosphere and issues pertaining to climate change and sea level rise.

It is proposed that a Tonga National Ozone Unit (TNOU) office be established within the DoE to implement the NCAP. This Unit will assume all responsibilities for data reporting to the Ozone Secretariat and the Multilateral Fund as well as all reporting requirements for project implementation. The TNOU will, in turn, report to an oversight committee, the Tonga National Ozone Committee (TNOC), set up to monitor the progress and implementation of NCAP activities. It will be comprised of other government departments, public and private sector organizations, and NGO's including:

Ministry of Fisheries	BOC Gases Tonga Limited
Ministry of Civil Aviation	Tonga Defenses Services
Ministry of Labor, Commerce and Industry	Tonga Police Fire Brigade
Department of Planning	Tonga Maritime Polytechnic Institute
Customs Department	Kool Tonga
Statistics Department	'Ila Tapueluelu Enterprise
Crown Law Department	ASCO Motors
Ministry of Agriculture	Private fishing industries

Media organisations	Other ODS importers and exporters

2.4 Policy Framework

As party to the Montreal Protocol, Tonga has accepted the responsibility to phase out ODS in the country. The policy framework within which the phase out of ODS will be managed is based on four tenants: government restrictions on imports, industry initiated support for new systems and technology, training of service technicians and Customs Officials, and co-operation between government and importers to conduct awareness campaigns with the public and industry.

There is no specific legislation in place to ban importation of ODS into Tonga. However, there is a large body of legislation, some going back more than fifty years ago, which contains provisions that can be used to control ODS. These include:

- Plant Quarantine Act of 1918
- Pesticide Act of 1976 and 1981
- Hazardous Materials Act
- Customs Act

Controls on the imports of ODS, especially of CFCs and other ODS refrigerants are expected to be prepared under the Customs Act. Regulations placing bans on ODSs will be developed in a consultative process to minimise economic disruption and ensure support from private industries and the public for NCAP programs. This NCAP strategy will form the national policy on ozone protection.

2.5 Government and Industry Response

The Government's first response to the Montreal Protocol was to commence the preparation of an Action Plan in collaboration with UNEP and SPREP in 1999. For this purpose, a country visit, survey, and workshop were organised with the technical assistance of SPREP's international consultant in March 2000.

Industrial response started with the main refrigerant suppliers in Tonga. The suppliers have already started importing low and non-ODS gases. The retailers are also changing to non-CFC manufactured products. Retrofitting of old equipment to R134a and R404A has begun in some of the major supermarkets and fishing companies, while new commercial installations have been encouraged to shift to HFC-134a-based equipment.

3.0 IMPLEMENTATION OF THE PHASE OUT STRATEGY

The phase out strategy is an accelerated version of the program under the Montreal Protocol. This is both technologically and economically viable as far as Tonga is concerned. Tonga's ODS consumption is already well below the Protocol's limits and continuation of this trend will be ensured with the implementation of phase out activities outlined in this NCAP.

3.1 Strategic Statement by the Government

The Kingdom of Tonga is committed to its obligations under the Montreal Protocol and the Vienna Convention and is prepared to undertake an accelerated CFC phase-out

target date of 1 December 2005, inline with other countries in the region as part of the Regional Strategy.

Adoption of an early phase-out date will send a strong signal of the Kingdom of Tonga's environmental commitment to the global community. These target goals will be achieved with the support of the Multilateral Fund and the Pacific Regional Strategy in collaboration with the private and public sectors, NGOs, and other government and international agencies.

3.2 Action Plan and Programs under the NCAP

3.2.1 Action Plan

In order to ensure Tonga's compliance with the Montreal Protocol the following Action Plan has been developed.

1. Maintain compliance with the Montreal Protocol while preparing an economically viable accelerated phase-out program.
2. Establish a Tonga National Ozone Unit (TNOU) office to co-ordinate, implement, and monitor the phase-out program.
3. Prohibit any new activity related to the import, production or use of ODSs in new equipment
4. Ban of import of ODS-using and ODS-containing equipment (including new and second-hand domestic refrigerators using CFC-12 as the refrigerant)
5. Introduction of controls on the import (and export) of all ODSs (including licensing, taxation and/or quotas as appropriate)
6. Strengthening ODS import/export monitoring program by developing a licensing system.
7. Consideration of system of fiscal incentives/disincentives in favour of non-ODS alternatives and transitional substances.
8. Implement and monitor training of customs officers to ensure proper control of import and export of ODSs and information collection and submission
9. Implement and monitor training of refrigeration service technicians in good practices of refrigeration to minimise the use of ODSs and mitigate their emissions into the air during the service of refrigerators
10. Conduct public awareness campaign on necessity and means for protection of the Ozone Layer of the Earth and the government's commitment to phase out ODSs

Education, training, legislation, regulations and other incentives will ensure that Tonga will continue to meet its obligations under the Montreal Protocol.

The implementation of the NCAP will require the establishment of a Tonga National Ozone Unit (TNOU) office and will be responsible for ensuring that Tonga meets its requirements under the Montreal Protocol. Among other things, the Unit will establish a Tonga National Ozone Committee (TNOC) comprised of other government departments, public and private sector organisations, and NGOs with interests in the ozone issue to provide policy advice and technical support for the NCAP.

3.2.2 Programs

The essential government actions include the assignment of an ODS focal point which will implement and monitor NCAP activities, drafting new or revised legislation and regulation, conducting public awareness and education campaigns, acquiring new technology, and developing training and licensing programs.

All Programs set out in the Action Plan will be implemented as part of the Pacific Regional Strategy. The budget for these projects is presented as part of the overall Regional Strategy.

Tonga Nation Ozone Unit Program

A Tonga National Ozone Unit Program is necessary to enable the achievement of strategic objectives under the Montreal Protocol. This project will establish the Tonga National Ozone Unit (TNOU) office within the DOE, as this is the agency responsible for implementing NCAP programs and activities. The Unit will be staffed be staffed for three years (2002 – 2005). A position will be established in the DOE as the equivalent of 37% of a full time position for the three year term. For the first year, while regulations are being prepared, a greater number of hours may be needed (up to 70% of full time), with less (20% of full time) in the second and third year. Following the introduction of legislation, the key tasks would be to manage the import permit system for HCFCs and continue any ongoing public education campaigns. The TNOU would also oversee the development and implementation of the certification scheme for refrigeration technicians.

Tonga National Ozone Committee

The first step is to identify a government department to deal with ODS substances and set up an ODS focal point. A proposed Tonga National Ozone Committee (TNOC), developed by the DOE, comprised of representatives from other government departments, private industry and businesses, and NGOs will be an advisory body to the TNOU on issues relating to meeting Tonga's obligations under the Montreal Protocol. The committee will oversee the implementation and progress of phase-out programs and activities as administered by the TNOU office. The TNOU will be responsible for the day-to-day management of the NCAP programs and will meet regularly with the TNOC to discuss progress reports, obstacles, and general findings. The TNOC will delegate responsibilities to its members, offer policy guidance and technical advice to government and industry, and monitor and evaluate timeframe schedules to ensure smooth economic transitions. To ensure that the public is kept informed of NCAP programs and activities, the TNOC will also report to a media group comprised of representatives from major newspaper, television, and other media organisations.

Legislation and Regulation

To ensure ongoing compliance with the Montreal Protocol, the government will establish a system to monitor and control CFC imports. The development of these regulations and drafting the necessary legislation will be a high priority and should be in place as quickly as possible. New regulations and policies should be prepared under the Customs Act. Assistance will be sought from the Pacific Regional Project to help develop the appropriate regulations.

Annual reports on ODS consumption will be submitted to the Ozone Secretariat, as required under Article 7 of the Montreal Protocol. In addition, annual reports on progress of implementation of NCAP will be submitted to the Multilateral Fund Secretariat and the Implementing Agency as required under the decision of the 10th meeting of the Executive Committee.

An import license scheme, will be developed with assistance from UNEP, will prohibit import of all CFCs, HCFCs and all other ozone depleting substances (especially from new industries and tourist developments), unless Tonga's DOE has issued an import license. If issued, the license will require the holder to report the amount of ODS it imports and it will limit that amount to a level set by the government each year. The license scheme will require co-operation from the importers and the Customs Officers. It may also require amendments to the Harmonised System (HS); an internationally agreed upon system of classifying trade goods and recording import statistics that Tonga uses to allow identification of individual controlled substances.

In case there are some unforeseen demands for CFCs, the regulations will also allow imports for "essential uses" provided that the DOE approves these. An exemption process, administered by the DOE, would allow for a case-by-case examination of an "essential uses" license request that could accompany any ban on imports.

Once Tonga ratifies the 1992 Copenhagen Amendment it will be required to collect information on imports of HCFCs. As with CFCs, some form of import license will be necessary for tracking purposes. This will be implemented at the same time as the license system for CFCs. These licenses will be issued on demand; with no restrictions on the quantity imported, but the actual quantities of HCFCs imported will be required to be reported to the DOE.

Controls on the remaining substances are necessary to ensure ongoing compliance with the Montreal Protocol. The government will prohibit the import of all halons, "other CFCs", 1,1,1-trichloroethane (methyl chloroform), carbon tetrachloride, and hydrobromofluorocarbons (HBFCs). None of these substances are known to have any use in the Tonga. Some such as the "other CFCs" and the HBFCs are no longer manufactured.

In addition to prohibitions on the import of the "bulk substances" the Government will develop regulations to prohibit the import of both new and second hand products containing CFCs, such as refrigerators and freezers. This is to avoid receiving "junk technology" and to reduce future demand for CFCs to service the equipment.

Public Awareness and Education

Creating awareness of the Montreal Protocol among the general public will be a very important part of the strategy to phase-out CFCs in Tonga. It is vital that the public understands why CFCs are being phased-out and what they can do to assist in the process. The National Ozone Unit office will be responsible for implementing public education and awareness programs. These programs will be targeted at special sector groups and the general public, i.e. youth, women, schools, general public, government and private sector stakeholders, and refrigeration technicians. These workshops will be used to promote an understanding of ozone layer issues, to increase public and private sector support for government legislation and policies, and to exchange information with the TNOU. Development of these public education and awareness programs will utilise existing media, such as radio programs, televisions, newspaper columns, posters, pamphlets, and video programs and existing organisations, such as the Tonga Visitors Bureau and the Chamber of Commerce.

The awareness campaign will initially focus on providing technical information. Additional materials, acquired from UNEP DTIE in Paris and from countries around the region, will then be provided for schools and other public education campaigns.

Training and Licensing Programs and Workshops

The Tonga Maritime Polytechnic Institute runs courses on basic refrigeration engineering but they have very limited training equipment and the course is mostly theoretical. Most technicians expressed strong interest in being able to attend a training course on the use of new refrigerants and retrofitting, but currently, this type of technician training is lacking. The Ministry of Education has expressed interest in inviting lecturers from other universities to attend proposed technician training courses. Educational activities should capitalise on existing academic institutions with a specific focus on developing practical, career-oriented training programs. If this is to occur in Tonga, it will be necessary to provide suitable training equipment.

It is proposed that a training program, funded by the Multilateral Fund, be developed to teach new skills to service technicians and Customs Officials. These training activities will enable the government to control trade in these substances and will also enable the island meet its reporting requirements under the Protocol. It will be vital that training is provided quickly and on a long-term basis if Tonga intends to implement a phase-out date of 2005.

The technician training courses will teach good containment practices, including recovery and recycling of refrigerants, operation of new machines, issues relating to the Montreal Protocol, and ozone depletion, and handling the new non-CFC refrigerants and lubricants. It will also be important that technicians have the necessary skills to fix leaks, rather than continuing to add new gas to the equipment.

Continued availability of technical personnel to conduct training in the fields of trade monitoring, refrigeration practices, and new technology is crucial to the sustainability of training activities. It is proposed that the training will be carried out at the Tonga Maritime Polytechnic Institute (TMPI). Those who attend will receive free or subsidised training. A qualified trainer from overseas will develop the courses and deliver the training, in consultation with the DOE, in 2002 or early 2003.

In order to ensure that technicians using CFCs have a good understanding of the Montreal Protocol and have the necessary skills to implement it, Tonga should require technicians to undertake formal training and to sit an examination to become licensed technicians. The test is intended to ensure that workers are aware of environmental issues and have the necessary skills to comply with government regulations.

A licensing program is recommended as an integral part of the NCAP. The government will approve the training course provided by an international consultant. Participants who passed an exam at the end of this training course will receive a certificate they can hang on workshop walls. They would then be able to advertise their businesses or staff as having been accredited by the government (or to relevant international standards). The government will publish a list in newspapers and other media organisations of technicians who have passed the course.

The training will be carried out as part of the Pacific Regional Strategy. The first training course will be aimed at training-the trainers, so that staff from the TMPI can continue to teach the course in the future. Local workshops will also be invited to attend the initial training, to ensure maximum benefit from the visit by the technical expert.

The project manager for the TNOU will attend all these training programs to keep current with importation, enforcement, servicing of machines, and monitoring mechanisms that will facilitate the phase out.

Training of Customs Officers
It will be necessary to train Customs Officers in the use of new CFC detection equipment, the identification of ODSs, including recognition of ODS-containing equipment, packaging, and storage containers, as well as reporting on imports and exports of these substances and equipment.

A necessary component to this training will involve the acquisition of CFC detection machines for Customs Officials. It is envisaged that field officers would be provided with hand-held identification equipment and where there is doubt about the accuracy of labelling, they would send samples to a central laboratory (possibly in Australia or Fiji) for legal testing. The training providers should also assist with the development of policies for sampling shipments of refrigerant gases.

This training will be provided under the Pacific Regional Strategy and will be co-ordinated with other Customs forces in the region.

New Technology Acquisitions
At present, relatively large numbers of second hand vehicles are being imported into Tonga from Japan. Most of these are fitted with CFC MACs when they arrive. The use of CFCs to service these older units is an area of possible ongoing demand for CFCs and one that the Government considers to be a priority if it is to ensure ongoing compliance with the Montreal Protocol. In addition to training technicians to reduce and repair leaks properly, the Government wishes to promote the use of recovery and recycling machines

The use of recovery and recycling equipment allows workshops to re-use any CFCs that are extracted from the customers' equipment at the time of servicing, especially in motor vehicle air-conditioning units (MACs). Any CFCs that are recovered can be re-used, either in the same piece of equipment or in another piece of equipment later on. This is done instead of releasing the refrigerants to the atmosphere, as is the case in most workshops in Tonga at present. While the use of recovery and recycling equipment on its own will not reduce leakage from MACs, it will reduce the amount of CFCs consumed during service.

The Government wishes to request funding, through the Multilateral Fund and the Pacific Regional Strategy, to be able to offer a 50% subsidy on the cost of purchasing these machines. If this approved, the subsidy would only be offered to companies whose technicians have completed the approved training course. Funding would be sought to allow the purchase of up to 10 units at a cost of US$2,500 per unit (i.e. a subsidy of US$1,250 per machine)

3.3 Roles in Implementing the Strategy

The lead agency responsible for implementing and managing the NCAP programs will be the TNOU. However, given the complexity and cross-sector nature of the plan, it will be necessary for the TNOU to collaborate with a number of other agencies and organizations, the principal ones being:

- ***Tonga National Ozone Committee (TNOC)***
  An oversight committee will be established to review NCAP progress, offer policy guidance and advice to the TNOU, and ensure cost effective NCAP strategy management to meet Protocol objectives.
- ***Customs Department***
  The Customs Department will enforce proposed regulations controlling the importation of ODS. Data recorded of all imports detailing the type and amount of ODS entering the country is stored at the Customs department and collated by the TNOU office for data reporting needs.
- ***Tonga Maritime Polytechnic Institute (TMPI)***
  The Institute will run the training and certification courses for trainers and technicians outlined in the Tonga Nation Ozone Unit Program (see Annex 1).

3.4 Timeframe and Consumption Implications of Action Plan

3.4.1 Timetable

The schedule for implementing activities to meet the Protocol objectives and its effects on ODS consumption is presented in Table 3.1. Of these activities, the ones that will lead directly to a reduction in consumption levels are:

- Monitoring of ODS imports and exports through a licensing system, new CFC detection equipment, and well-trained Customs Officials.
- The training of technicians in good service practices and the use of recovery and recycling equipment and retrofitting.
- Fiscal policy measures to encourage the development of economically viable and attractive ODS free technologies.
- Ban the use of ODS based technologies in new installations.

Table 3.1 Schedule for the Action Plan

Action	Description	Schedule	Impact	Implementing Agency
1	Establishment of TNOU office	Mar 2002	Enabling Activity	DOE
2	Establishment of TNOC	Mar 2002	Enabling Activity	DOE
3	Public Awareness and Education	Nov 2002	Enabling Activity	DOE
4	Establishment of Licensing System	Dec 2002	Regulation on Restricted Imports and Exports	TNOU Customs Department Attorney General's Office
5	Establishment of Monitoring System	Jan 2002	Data Reports under Article 7	Customs Department TNOU
6	Training of trainers	2002	Reduction of Consumption	TNOU Tonga Polytechnic Customs Department
7	Training of Customs Officials	2002	Reduction of Consumption	TNOU Tonga Polytechnic Customs Department
8	Training of technicians	2002 2003 2004	Reduction of Consumption	TNOU Tonga Polytechnic [Refrigeration Engineers and Technicians Association]

9	Tax incentives to promote use of substitutes and alternative technologies	July 2002	Reduction of imports and usage of CFC	TNOU Customs Department Attorney Generals Office Department of Finance
10	Ban on new installations and equipment using controlled ODS	Jan 2002	Elimination of new demands	TNOU Customs department Attorney generals office Chamber of Commerce

3.4.2 Consumption implications

Tonga has already achieved zero consumption because of the actions of other countries in the region that supply imported goods to Tonga. The actions set out in this plan are to ensure that Tonga maintains its zero consumption and its status of full compliance with the Montreal Protocol. The Government notes that although the supply of CFCs has ceased, there is still demand. If the actions set out in the NCAP are not taken and if importers establish an alternative supply of CFCs, then Tonga could quickly find itself in a position of non-compliance.

3.4 Budget and Financial Program

The implementation and management of this NCAP has as a prerequisite the establishment of a Tonga National Ozone Unit (TNOU) office. Funds will be used to co-ordinate public education campaigns, operate the TNOU office, train technicians and Customs Officials, set up a certification program, and purchase new CFC recovery and recycling and detection equipment. The funding for all of these proposals will be sought through the Pacific Regional Strategy.

APPENDIX A: DATA FROM STATISTICS DEPARTMENT

Number of appliances imported into Tonga containing CFC's

Imports		**Unit**	**1996**	**1997**	**1998**	**1999**
SITC	Commodity					
725.11 plus 725.12	Domestic refrigerators, electrical (new & used)	(No's.)	1197	1039	1003	1514
725.13	Other refrigerators and refrigerating equipment, electrical including commercial refrigerating equipment	(No's.)	210	120	294	47
725.19	Parts for electrical refrigerators and refrigerating equipment	cif value (T$)	94,338	47,589	180,624	36,988
719.01	Refrigerators and refrigerating equipment, non-electrical	(No's)	95	182	140	496
719.12 plus 719.13	Air conditioners (new & used)	(No's)	52	130	232	122
719.19	Parts for air conditioners	cif value (T$)	38,155	57,481	33,284	1,793

Figure 1. List of chemicals controlled by the Montreal Protocol

Chemical Code Name	Short Formula	Chemical Name
Annex A Group 1		
CFC – 11	CCL3F	Fluorotrichloromethane
CFC - 12	CCL2F2	Difluorodichloromethane
CFC – 113	C2CL3F3	Trichlorotrifluoroethane
CFC – 114	C2CL2F4	Dichlorotetrafluoroethane
CFC – 115	C2CLF5	Chloropentafluoroethane
Annex A Group 2		
halon 1211		
halon 1301		
halon 2402		
Annex C Group 1		
HCFC – 22	CHCLF2	Difluorochloromethane
Annex E		
Methyl Bromide	CH3Br	Methyl Bromide