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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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Montreal, 17-19 July 2002

REPORT ON THE INFORMATION COLLECTED CONCERNING THE STATUS OF IMPLEMENTATION OF MAC PROJECTS FOLLOW-UP TO DECISION 36/3

1. The Executive Committee discussed at its 36th Meeting a desk study on the evaluation of Mobile Air Conditioning (MAC) projects (document UNEP/OzL.Pro/ExCom/36/6). The analysis of project completion reports of 12 MAC projects in seven countries revealed that in several cases the production of MAC systems and components based on CFC-12 is continuing. In some cases, this production is intended not only for after sales service but also for installation in new cars, some times in spite of commitments of the companies to the contrary.

2. Following this discussion, the Executive Committee decided:

(a) "To take note of the desk study on the evaluation of MAC projects presented in document UNEP/OzL.Pro/ExCom/36/6;

(b) To urge countries with MAC projects to collect data on production figures of CFC-12 MAC systems and their use for installation in new cars and for servicing old ones, and to report such data to the Fund Secretariat, upon request;

(c) To request the Senior Monitoring and Evaluation Officer to report to the 37th Meeting of the Executive Committee on whether and how, in light of the information collected, to proceed with a full evaluation of the MAC sector." (Decision 36/3).

3. In compliance with this decision, the Senior Monitoring and Evaluation Officer requested nine countries with MAC projects to provide information concerning:

(a) National production, import and export figures for MAC systems and components, using CFC-12 and HCF-134a refrigerants (if possible for the last 3 years to be able to determine trends);

(b) Number of MAC systems and components using CFC-12 and HFC-134 refrigerants, used for installation in new cars and for after sales service.

(c) Legislation and deadlines in place or planned to limit production and imports of CFC-12 based MAC systems and components in new cars and for after sales service.

(d) Corresponding plans and deadlines of car producers and manufacturers of MAC systems and components.

4. All nine countries with MAC projects answered and provided information: Argentina, China, Colombia, India, Iran, Malaysia, Mexico, Thailand and Venezuela. The data were not always complete and in the form requested but provided sufficient information for the purpose of the present document. A summary is provided in the tables in the annex.

5. All countries reported significant progress towards achieving full phase-out in the MAC sector. The most important step is to stop the installation of CFC-12 based MAC systems in new cars. This decision is usually taken by car manufacturers reacting to Government regulations and market requirements. Only in India, car manufacturers continue in 2002 to install CFC-12 MAC systems; Thailand and Malaysia reported also installations in new cars in more limited numbers, which according to their National Phase-out plans takes place not in car manufacturing but in service shops (see data in tables A and B).

6. India has passed a regulation obliging all MAC manufacturers to stop MAC production of CFC-12 based systems by 1 January 2003; car producers will not anymore be allowed after that date to install and charge such systems. The World Bank is currently preparing a project for the second phase of conversion at Subros, the largest MAC producer in India. In Malaysia, only new commercial vehicles are to some extent still equipped with CFC-12 MAC systems. In Thailand, a limited production of CFC-12 MAC systems is still on-going for installation in new cars, in contrast to statements in the PCR for THA/REF/13/INV/37 (Nippondenso). Both countries have no firm regulations in place as yet to stop such installations. Malaysia undertakes information campaigns to stop the installation of CFC-based MAC systems in new commercial vehicles, and the NOU in Thailand has proposed a series of measures to be adopted and implemented with the Land Transport Department.

7. After the installation of CFC-12 based MAC systems has been stopped for new cars, there will be an ongoing demand to use CFC-12 in servicing vehicles which had been equipped with such systems in earlier years. This CFC-12 consumption could continue until 2010 when any consumption of CFC (except from recycled stocks, depending on national legislation) will become illegal. China has established a transition period until the end of 2009 while Malaysia for example has set 2005 as a target. Mexico expects the after sales market to service only HFC 134a MAC systems already in the year 2004 and to issue a supporting ban of CFC-12 based MAC systems soon. The other countries have not indicated fixed deadlines and the phase-out strategies for the service sectors are still under development.

8. In view of the information received by all countries with MAC projects, it does not seem to be necessary to proceed to a full evaluation of the sector with field visits to a significant number of projects. Instead it is proposed:

(a) To prepare an up-date of the present report in two years when most of the regulations under preparation by the countries concerned should be operational and the production of CFC-12 MAC systems will likely have ended, except for some limited quantities for the after sales market.

(b) To conduct an independent evaluation for the projects IND/REF/11/INV/12 (Subros) and IND/REF/22/INV/121 (Sanden Vikas), before the second project under preparation for Subros will be approved.

Table B: Installation in new and used cars[1]									
	CFC-12				HFC-134a				Issues / Comments
	Systems		Components		Systems		Components		
Country/year	*New Cars*	*After Sales*	*New Cars*	*After Sales*	*New Cars*	*After Sales*	*New Cars*	*After Sales*	
ARGENTINA 1999	355	22,839			116,918	3,021			Installation of R-12 MAC in new cars stopped in 2002.
2000	2,653	15,747			124,191	698			
2001	1,039	0			93,896	17,949			
CHINA 1999	208,355				519,825				Installation of R-12 MAC in new cars stopped January 2002. No figures made available for installation in used cars.
2000	167,359				667,417				
2001	162,703				857,243				
COLOMBIA 1999	0		0	52,900					No installation of CFC-12 MAC in new cars. Some components produced for after sales market.
2000				52,900					
2001	0		0	52,900					
INDIA 1999	147,250	4,270			85,105				Significant numbers of CFC-12 MAC continue to be installed in new cars and some in the after sales market.
2000	184,436	5,500			114,203				
2001	145,360	6,970			165,685				
MALAYSIA 1999	1,019	0	0	93,146	159,224	0	0	502,920	Complete data provided. On-going installation of R-12 MAC in some commercial vehicles.
2000	2,475	0	0	144,640	192,252	0	0	624,297	
2001	1,296	0	0	143,897	231,938	0	0	698,046	
MEXICO 1999	None	Some	None	Some	Production minus exports (10-15%)				Installation of R-12 MAC and components only for part of the after sales market.
2000									
2001									
THAILAND 1998	7,817	0			5,211	117,250			Some installation of R-12 MAC in new cars still on-going. Data for after sales market are not clear.
1999	10,125	0			6,750	151,875			
2000	13,314	0			8,876	139,714			
VENEZUELA 1999	None since 1994	Based on imported components		Imported since 1994 but small					Data promised; contradiction to PCR project VEN/REF/11/INV/19 (FAACA, IBRD) which reports on-going component production for CFC-12 MAC.
2000									
2001									
IRAN 1999					289,516				Number given for last 3 years together for 4 car producers which install R-134a based MAC systems since 1999; no data on number of used cars serviced; the ODS consumption in aftersales service by the car manufacturers is estimated to be 35 tonnes per year and the figure for about 2000 servicing workshops all over the country is estimated to be more than 320 tones per year for 600,000 cars using R-12 MAC systems.
2000									
2001									

[1]For empty fields no data were provided

Table A: National production, imports and exports of MAC Systems and components[1]

Country/year	CFC-12 Systems Imports	CFC-12 Systems Production	CFC-12 Systems Exports	CFC-12 Components Imports	CFC-12 Components Production	CFC-12 Components Exports	HFC-134a Systems Imports	HFC-134a Systems Production	HFC-134a Systems Exports	HFC-134a Components Imports	HFC-134a Components Production	HFC-134a Components Exports	Issues / Comments
ARGENTINA 1999		355	0		22,839	3,552		76,173	7,234		44,766	1,522	Data given for 3 of 4 companies only; the one missing has completed the conversion though. No data provided on imports.
2000		2,653	0		15,747	3,340		69,697	3,675		55,192	1,432	
2001		1,039	0		0	0		45,409	4,034		66,436	4,899	
CHINA 1999		208,355						519,825					No data shown for components, nor imports or exports; the latter thought to be small.
2000		167,359						667,417					
2001		162,703						857,243					
COLOMBIA 1999					52,900								
2000					52,900								
2001					52,900								
INDIA 1999		143,906	0					84,909	1,000				Two companies (Subros and Sanden Vikas) continue to produce CFC-12 MAC .
2000		178,539	0					113,814	600				
2001		144,125	0					161,448					
MALAYSIA 1999	0	1,019	0	2,600	117,382	35,000	2,060	278,564	2,931	151,926	432,720	53,355	Complete data provided.
2000	0	2,475	0	2,200	113,320	45,000	8,304	322,948	4,172	265,467	584,370	63,916	
2001	0	1,296	0	2,600	145,870	64,000	9,804	238,742	2,211	316,046	615,846	116,472	
MEXICO 1999		103,961						418,822					10-15% is exported (no exact data provided).
2000		99,198						562,122					
2001		63,562						572,055					
THAILAND 1998		7,817						117,250					Limited production of CFC-12 MAC on-going in contrast to PCR for THA/REF/13/INV/37 (Nippondenso, IBRD). No data given for imports and exports.
1999		10,125						151,875					
2000		13,314						199,714					
VENEZUELA 1999													Data promised; reportedly no production of CFC-12 MAC systems but of some components.
2000													
2001													
IRAN 1999													Data not broken down by year of production, import, or export; presented one figure for MAC installations in the last three years. (See table b).
2000													
2001													

[1]For empty fields no data were provided

Table D: Producers

Country	OEM	REM	Issues / Actions needed
ARGENTINA	The only manufacturer of R-12 MAC has discontinued production in 2002, because the Peugeot model requiring R-12 MAC systems is not manufactured any more. Car producers use HFC-134a in the production of MACs since 1994.		Develop phase-out strategy for service market.
CHINA	Car manufacturers, in compliance with Government deadline, stopped by 1 January 2002 to install CFC-12 MAC systems.	The component producers will comply with the requirements of auto manufacturers who intend to meet cut-off date set by Government.	Develop phase-out strategy for service market.
COLOMBIA	Two companies importing new cars with CFC-12 MAC were asked to stop - they complied. There are no more new cars sold in COL with CFC-12 MAC.	52900 CFC-12 condensers are produced for COL market each year.	Develop phase-out strategy for service market.
INDIA	Subros converted its export line but exports a free 134a Mac systems only. At the same time, CFC-12 MAC production continues for the domestic market, as it does at Sanden Vikas which had a project completed in August 2000.	No data available.	Phasing out production of CFC-12 MAC at Subros and Sanden Vikas.
MALAYSIA	Stopped installing any R-12 MAC system in national passenger car production in 1997; only some commercial vehicles are still being equipped with R-12 MAC systems.	Phase out of CFC-12 MAC components is expected by 2005.	Stop installing R-12 MAC systems in commercial vehicles; develop phase-out strategy for service market.
MEXICO	All car manufacturers already install only HFC-134a MACs systems.	The aftermarket for CFC-12 MACs is small and the use of HFC-134a MAC is expected to be at 100% within the next two years.	Complete phase-out for service market.
THAILAND	Limited production of CFC-12 MACs continues, along with the production of HFC-134a MACs.	It seems that most R-134a MAC systems manufactured in Thailand are installed as after sales service.	Develop phase-out plan for CFC-12 MAC in line with Government regulations proposed.
VENEZUELA	Car producers install only HFC-134a.	The import of components for CFC-12 MAC for the service of cars still takes place, and some components are still produced locally.	Develop strategy for phase-out of service market.
IRAN	All car manufacturers have all ready been installing HFC-134a MAC systems since 1998.	Expected to stop at the end of 2002.	

Table C: Government

Country	Projects	Regulations	Actions Planned	Issues / Actions needed
ARGENTINA	4 projects completed between 1999 and 2001	No legislation in place.	Restrictions planned within context of licencing system.	Conversion completed; set deadline and import restrictions for service sector.
CHINA	4 projects (1996-1999) and sector plan completed (2002)	Installation of CFC base MAC in new cars must stop by Jan. 1, 2002. 10 years has been allowed for transition for servicing used cars.	Dealing with after-sales market in service sector plan, under development with UNEP/Paris; transition period foreseen until 2010.	For new cars not needed; for service see actions planned.
COLOMBIA	1 project on-going; planned completion date is August 2003.	Two car importers were convinced by the NOU to stop all imports of new cars with R-12 MAC systems.	After completing the on-going project, the Govrnment will probably implement control measures for manufacturing and importing MAC based on CFC-12.	Follow up on intentions of NOU; set deadline for servicing R-12 MAC systems.
INDIA	3 projects completed (1998-2000).	New regulation passed: All MAC manufacturers will have to stop producing MACs suitable for CFC-12 by 1/1/2003 because car producers are not any more allowed by that date to install and charge such systems.	IBRD is formulating a project intended to phase out the production of CFC-12 MAC systems at Subros also for the domestic market, which was not covered by the first project. So far, few exports have materialized from the line converted under phase I.	Monitor compliance with new regulation.
MALAYSIA	3 projects completed (1998-2000); the fourth one to be completed in January 2003.	Malaysia is amending the environmental quality regulations to prohibit the installation of any new CFC-12 MAC. The country plans to phase out the production of R-12 MAC systems and related components by 2005.	Campaigns are being carried out to stop the installation of R12 MAC systems in commercial vehicles.	Set deadlines and define import restrictions for commercial vehicles and servicing market.
MEXICO	Two projects have been completed in 2000 and 2001.		The Government will impose a ban in the years 2003-2004 for the production of MACs based on R-12. Even the service market is then expected to use only HFC-134 MAC.	Realize planned ban.
THAILAND	Project completed in 1999.		NOU proposes to the Land Transport Department: - to include MAC inspection as part of the annual vehicle inspection. - that from 1 January 2004 any vehicles manufactured after 1 January 1996 will not have their registrations renewed if CFC-12 is found in the MAC systems. - that from 1 January 2016 any vehicles that have CFC-12 in their MAC systems will not have their registrations renewed. Furthermore, NOU proposes to issue a ministerial order banning the import of CFC-12 from 2010.	Follow-up on proposals.
VENEZUELA	Two projects completed in 1999.	It is forbidden to produce or import any airconditioners that use CFC since January 2000.		Set deadlines and define import controls for service market.
IRAN	One project on-going; to be completed until June 2002.	There is no legislation limiting the import of R12 based MAC systems.	Government plans to take the adequate measures to prohibit the import of MACs using/containing ODS once the on-going project will be completed (planned for June 2002).	Set deadlines for servicing and define import restrictions.