

Annex III
CONSOLIDATED LIST OF PROJECTS FUNDED AT THE 18TH MEETING

(a) Investment projects ranked by order of cost-effectiveness

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Aerosol					
<i>Hydrocarbon</i>					
Sudan	Phasing out CFCs at Sudanese Cosmetics & Household Products, Ltd.	281.5	UNIDO	\$562,302	1.78
Tanzania	Phasing out CFCs at Mansoor Daya Chemicals Ltd	150.0	UNIDO	\$471,394	2.78
Malaysia	Alloychem Malaysia Sdn., Bhd., aerosol conversion project	29.0	UNDP	\$112,435	3.43
Algeria	Investment project for phasing out CFCs at Enterprise Nationale des Detergents (ENAD)	150.0	UNIDO	\$694,781	4.09
Malaysia	Tenco Industries Sdn., Bhd., aerosol conversion project	18.0	World Bank	\$89,496	4.40
Foam					
<i>Flexible polyurethane</i>					
China	Conversion to CFC-free technology in the manufacture of flexible polyurethane foam (slabstock) at Penglai Polyurethane Plastic Factory	70.0	World Bank	\$362,259	4.72
Argentina	Conversion to non-CFC technology in the manufacture of flexible foam (slabstock) at Belmo Buenos Aires and Belmo San Luis	145.0	UNDP	\$807,950	4.93
Argentina	Conversion to non-CFC technology in the manufacture of flexible foam (slabstock) at Piero SAIC	64.0	UNDP	\$385,330	5.33
Argentina	Conversion to non-CFC technology in the manufacture of flexible foam (slabstock) at Limansky	95.0	UNDP	\$534,490	5.50
Argentina	Conversion to non CFC technology in the manufacture of flexible foam (slabstock) at Sueño Estelar S.A. and Estelar San Luis S.A.	128.6	UNDP	\$779,700	5.75
Argentina	Conversion to non-CFC technology in the manufacture of flexible foam (slabstock) at Nuvel Corp. S.A.	53.0	UNDP	\$354,255	5.92
Argentina	Conversion to non-CFC technology in the manufacture of flexible foam (slabstock) at Mentvil S.A.	18.5	UNDP	\$129,950	6.22

(*) Includes agencies' overhead costs where applicable

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Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
<i>General</i>					
Pakistan	Phase out of CFC-11 in the manufacture of molded and rigid PUF at Razi Sons	60.0	World Bank	\$557,386	8.47
Egypt	Conversion to CFC free technology in the manufacture of flexible molded PUF and integral skin foam at El Shabrawi	15.8	UNDP	\$161,590	9.06
Philippines	Residual phaseout of CFCs in the manufacture of PUF foam at RGC Foam Group (Polyfoam/Uratex)	70.0	UNDP	\$734,500	9.29
<i>Integral skin</i>					
Brazil	Conversion to CFC-free technology in the manufacture of polyurethane foam at MBR	40.0	UNDP	\$382,505	8.46
India	Phase out of CFCs in the manufacture of molded PUF at Bharat Seats Ltd.	55.0	World Bank	\$581,456	9.64
Brazil	Conversion to CFC-free technology in the manufacture of polyurethane foam at Macform	25.0	UNDP	\$275,155	9.74
Malaysia	Elimination of CFCs in the manufacture of cold cured/integral skin PUF molded at Muda Murni Sdn., Bhd.	21.0	UNDP	\$267,245	11.23
India	Phase out of CFCs in the manufacture of molded PUF at PUR Polyurethane Products P. Ltd.	17.0	World Bank	\$212,286	11.39
India	Phase out of CFCs in the manufacture of integral skin PUF moldings at Pfeda Synthetics (P) Ltd.	30.0	World Bank	\$379,373	11.52
Brazil	Conversion to CFC-free technology in the manufacture of polyurethane foam at Naera	20.0	UNDP	\$287,585	12.73
Malaysia	Elimination of CFCs in the manufacture of molded/integral skin PUF at Bristol Sdn. Bhd.	8.0	UNDP	\$139,442	15.43
Malaysia	Elimination of CFCs in the manufacture of integral skin PUF at Artright Technology Sdn.	5.9	UNDP	\$102,062	15.81
Malaysia	Elimination of CFCs in the manufacture of integral skin PUF at Sze Chuan Sdn. Bhd.	5.7	UNDP	\$108,480	16.77
<i>Polystyrene and/or polyethylene</i>					
China	Conversion to CFC-free technology in the manufacture of XPS foam at Tianjin Gangda	55.0	UNDP	\$456,803	7.35

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Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
India	Phase out of CFCs in the manufacture of extruded polyethylene foam at Kunststoff Polymers Ltd.	30.0	World Bank	\$270,432	7.97
<i>Rigid polyurethane</i>					
Turkey	Conversion to CFC-free technology in the manufacture of rigid polyurethane foam insulation panels at Tek-iz Izolasyon ve Yapi Elemanlari Sanayii	155.0	World Bank	\$824,505	3.06
Brazil	Substitution of CFC-11 by HCFC-141b in the manufacture of polyurethane foams at Recrusul SEA	201.0	World Bank	\$1,215,485	5.35
Brazil	Substitution of CFC-11 by HCFC-141b in the manufacture of polyurethane foams at Sao Rafael Ind. Com.	14.0	World Bank	\$93,424	5.91
Brazil	Substitution of CFC-11 by HCFC-141b in the manufacture of polyurethane foams at Randon Implementos S.A.	14.5	World Bank	\$104,163	6.36
Indonesia	Elimination of CFCs in the manufacture of rigid PUF for coolers/thermoware at P.T. Merah Delima	27.0	UNDP	\$195,490	6.41
Thailand	Phase out of the use of CFCs in the manufacture of rigid PUF foam for thermoware at Krieng Thavorn Containers Co. Ltd.	65.0	UNDP	\$485,900	6.62
Malaysia	Elimination of CFCs in the manufacture of rigid polyurethane foam decorative products at Florafoam Marketing Sdn., Bhd.	23.0	UNDP	\$171,760	7.30
Malaysia	Elimination of CFCs in the manufacture of rigid polyurethane foam at TM Cooling Technology	10.0	UNDP	\$88,140	7.31
India	Phase out of CFCs in the manufacture of rigid PUF products at SDC Polyurethane Products Ltd.	24.0	World Bank	\$181,897	7.54
Brazil	Substitution of CFC-11 by HCFC-141b in the manufacture of polyurethane foams at Termolar, S.A.	8.1	World Bank	\$69,739	7.57
Brazil	Substitution of CFC-11 by HCFC-141b in the manufacture of polyurethane foams at M. Agostini, S.A.	11.0	World Bank	\$96,295	7.75
Argentina	Elimination of the use of CFC's in the manufacture of sandwich panels and spray foams at Montisol Argentina S.A. and Art Nouveau Puntana, S.A.	36.5	UNDP	\$322,050	7.81

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(a) Investment projects ranked by order of cost-effectiveness

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Halon					
<i>Fire extinguisher</i>					
Malaysia	Conversion of production of portable fire extinguishers at Eversafe	574.0	UNDP	\$202,932	0.31
India	Conversion from halon 1211 to ABC dry chemical power (ABC-DCP) and carbon dioxide (CO ₂) in portable extinguishers at Real Value Appliances Ltd.	462.0	World Bank	\$284,462	0.54
Refrigeration					
<i>Commercial</i>					
Egypt	Elimination of CFCs 11 and 12 in the manufacture of commercial refrigeration equipment at United Investment Corp. Inc.	49.0	UNDP	\$557,486	10.06
Kenya	Umbrella investment project for phasing out CFCs at 3 companies of Kenya Cold Storage Group	40.8	UNIDO	\$147,300	11.98
Indonesia	Phasing out ODS at P.T. Air Tech co. Ltd., Indonesia	30.1	UNIDO	\$463,131	13.58
Argentina	Elimination of the use of CFCs in the manufacture of display cabinets and polyurethane panels for cold stores at Market Costan	28.1	UNDP	\$477,990	15.05
Malaysia	Umbrella project for elimination of CFCs 11 and 12 in the manufacture of commercial refrigeration at 3 small enterprises: Lim Yew, Exquisite, Noblelane	44.8	UNDP	\$768,400	15.17
Egypt	Elimination of CFCs 11 and 12 in the manufacture of commercial refrigeration equipment at Refcat, Co. Inc.	26.9	UNDP	\$462,170	15.19
<i>Domestic</i>					
Argentina	Elimination of CFCs in domestic refrigerator production plants in Aurora S.A.	27.0	World Bank	\$641,377	4.66
Turkey	Elimination of the use of CFCs in the manufacture of domestic refrigerators at Pekel	100.0	World Bank	\$565,750	5.00
Romania	Phasing out ODS at the domestic refrigeration factory Arctic S.A.	206.0	UNIDO	\$1,237,689	5.32
Indonesia	Elimination of ODSs used in the production of Household Refrigerators at P.T. Sharp Yasonta	74.8	World Bank	\$678,000	8.02

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i) Investment projects ranked by order of cost-effectiveness

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Argentina	Elimination of CFCs in two domestic refrigerator manufacturing plants at Piragua S.A., and Piragua San Luis	49.4	World Bank	\$1,175,498	8.36
China	Conversion from CFC-11 foaming agent to cyclopentane at Chang Ling (Group) Co. Ltd.	190.0	World Bank	\$2,330,060	9.06
Cameroon	Investment project for phasing out of CFCs at Union Camerounaise d'Entreprise	115.1	UNIDO	\$1,493,182	9.11
Colombia	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Unilemh Ltd. (Challenger)	17.1	UNDP	\$175,546	9.11
Indonesia	Elimination of ODSs used in the production of household refrigerators at P.T. National Gobel	89.5	World Bank	\$967,858	9.57
Venezuela	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Madosa, S.A.	93.0	UNDP	\$260,210	9.88
Venezuela	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Coresmalt Valencia, C.A.	65.5	UNDP	\$774,423	10.45
Argentina	Elimination of CFCs in domestic refrigerator production plant in Autosal, S.A.	22.0	World Bank	\$901,051	11.63
Nigeria	Investment project for phasing out CFCs at Thermocool Engineering Co. PLC	82.0	UNIDO	\$1,656,298	11.70
Philippines	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Matsushita Electric Philippines Corporation (Mepco)	47.0	UNDP	\$126,836	11.92
Argentina	Elimination of CFC in the manufacturing plant of domestic refrigerators of Neba, S.A.	29.0	World Bank	\$775,598	12.28
Nigeria	Investment project for phasing out CFCs at Debo Industries Ltd.	52.0	UNIDO	\$1,184,300	12.57
Argentina	Elimination of CFCs in the manufacturing plant of domestic refrigerators of Briket, S.A.	24.0	World Bank	\$820,832	12.66
Venezuela	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Grupo Frigilux, C.A.	48.8	UNDP	\$1,076,890	13.24
Malaysia	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Sanyo domestic refrigeration	13.4	UNDP	\$207,084	13.69
Costa Rica	Elimination of CFCs 11 and 12 in the manufacture of domestic refrigerators at Atlas Eléctrica S.A.	27.3	UNDP	\$423,750	13.76

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(a) Investment projects ranked by order of cost-effectiveness

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Indonesia	Elimination of ODSs used in the production of household refrigerators at P.T. Topjaya Antariksa Electronics	51.0	World Bank	\$793,260	13.76
Solvent					
CFC-113					
Egypt	Conversion of cleaning processes from CFC-113 to aqueous cleaning at Optica	0.4	UNIDO	\$13,609	12.54
Brazil	Phase out of CFC-113 at DMG used in medical equipment parts cleaning	2.0	UNDP	\$42,940	19.00
Brazil	Elimination of CFC-113 from the precision cleaning and drying process at Brasimet	1.6	UNDP	\$34,352	19.00
CFC-113, TCA					
India	Conversion of electronic cleaning processes from ODS solvents to no-clean and hydrocarbon cleaning technologies at ERL-Bangalore	16.4	UNIDO	\$217,436	11.77
India	Conversion of electronic cleaning processes from ODS solvents to no-clean and aqueous photoresist developing and stripping technologies at ITI Palakkad	15.0	UNIDO	\$266,391	15.72
Egypt	Conversion of electronic cleaning processes from ODS solvents to non-ODS cleaning at three electronic companies (Benha Co. for Electronics Industry, A.I.O. Electronics Factory, Sakr Factory)	13.7	UNIDO	\$256,739	16.60
Egypt	Conversion of cleaning processes from CFC-113 and 1,1,1 TCA to semi-aqueous cleaning at Arab International Optronics	2.1	UNIDO	\$54,842	23.11
Brazil	Phase out of CFC-113 and of MCF used in vapor degreasers to clean aircraft parts at Embraer	12.6	World Bank	\$348,283	24.45
TCA					
Malaysia	Conversion of correction fluid manufacturing process from 1,1,1 TCA to non-ODS solvent at Mondial Sdn. Bhd.	85.0	World Bank	\$163,225	1.70
Malaysia	Conversion of metal cleaning process from 1,1,1 TCA to hydrocarbons at AE Technology Sdn. Bhd.	16.8	World Bank	\$64,289	3.39
Malaysia	Conversion of correction fluid manufacturing process from 1,1,1 TCA to non-ODS solvent at Widetech	29.0	World Bank	\$450,212	13.74

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a) Investment projects ranked by order of cost-effectiveness

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Brazil	Conversion of ODS cleaning processes from 1,1,1 TCA to aqueous cleaning and using trichlorethane at Elgin Maquinas, S.A.	6.0	UNIDO	\$176,921	26.10
Malaysia	Conversion of metal cleaning process from 1,1,1 TCA to hydrocarbons at Eng Teknologi Sdn. Bhd.	3.4	World Bank	\$132,638	31.29
Indonesia	Conversion of metal cleaning processes from 1,1,1 TCA to aqueous cleaning at PT INTI	1.0	World Bank	\$42,239	38.50
Indonesia	Conversion of metal cleaning processes from 1,1,1 TCA to aqueous cleaning at PT. Garuda	0.9	World Bank	\$37,588	38.50
Indonesia	Conversion of metal cleaning processes from 1,1,1 TCA to aqueous cleaning at PT. Markindo Theco	2.2	World Bank	\$94,016	38.50
Total		5,137.8		\$38,074,573	

(*) Includes agencies' overhead costs where applicable

(b) Low ODS-consuming countries

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Halon					
<i>Fire extinguisher</i>					
Uruguay	Transfer of technology and conversion of production of halon 1211 fire extinguishers at Izeta López Fire Company	2.7	UNDP	\$27,374	8.97
Uruguay	Conversion of production of halon 1211 fire extinguishers at Tornay and Mori	2.4	UNDP	\$43,110	15.90
Total		5.1		\$70,484	

(*) Includes agencies' overhead costs where applicable

c) MAC and compressor

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Refrigeration					
<i>Compressor</i>					
China	Conversion of compressor production for domestic refrigerators from CFC-12 to hydrocarbon refrigerant at Jiaxipera Compressor Factory		UNIDO	\$1,683,700	
<i>MAC</i>					
Argentina	Conversion to non-CFC technology in the production of mobile air conditioning systems at Sistemaire, S.A.		World Bank	\$2,678,722	
China	Conversion from CFC-12 to HFC-134a MAC system at Yueyang Hengli Air Conditioning Equipment Co. Ltd.		World Bank	\$1,997,796	
China	Conversion from CFC-12 to HFC-134a MAC compressor at Guangzhou Haohua Automobile Parts Co. Ltd.		World Bank	\$2,499,604	
China	Conversion from CFC-12 to HFC-134a MAC system at Shanghai Automobile Air Conditioner Co.		World Bank	\$1,855,833	
Malaysia	Phase out of CFC-12 MAC system production equipment and conversion to HFC-134a MAC system manufacturing in Nippodensu Capital Sdn. Bhd.		World Bank	\$2,522,971	
Malaysia	Phase out of CFC-12 MAC manufacturing equipment and conversion to HFC-134a MAC system manufacturing at APM Air Conditioners Sdn., Bhd.		World Bank	\$1,335,155	
Total				\$14,573,781	

(*) Includes agencies' overhead costs where applicable

(d) CFC recycling and halon banking

Country	Project title	ODS to be phased-out (ODP tonnes)	Agency	Funds recommended (US \$) (*)	C.E. (US\$/kg)
Refrigeration					
<i>Refrigerant recovery and recycling</i>					
Malaysia	Reduction of the consumption of ODSs in the commercial air-conditioning sector via training, recovery and recycling of CFC-11 and CFC-12 in chillers at Mashrae		World Bank	\$931,208	
Mexico	Recovery of CFC-12 servicing of domestic refrigeration at Vitromatic Comercial y Servicios Integrados		UNDP	\$398,449	
Total				\$1,329,657	

(*) Includes agencies' overhead costs where applicable

SUMMARY OF CONSOLIDATED LIST OF PROJECTS

Sector	Number of projects	Phased-out (ODP tonnes)	Cost (US \$) (*)	C.E. (US\$/kg)
(a) Investment projects ranked by order of cost-effectiveness				
Aerosol	5	628.5	\$1,930,408	3.07
Foam	34	1,621.6	\$12,119,082	7.47
Halon	2	1,036.0	\$487,394	0.47
Refrigeration	27	1,643.6	\$21,141,969	12.86
Solvent	16	208.1	\$2,395,720	11.51
TOTAL:	84	5,137.8	\$38,074,573	7.41
(b) Low ODS-consuming countries				
Halon	2	5.1	\$70,484	13.82
TOTAL:	2	5.1	\$70,484	
(c) MAC and compressor				
Compressor	1		\$1,683,700	
MAC	6		\$12,890,081	
TOTAL:	7		\$14,573,781	
(d) CFC recycling and halon banking				
Refrigerant recovery and recycling	2		\$1,329,657	
TOTAL:	2		\$1,329,657	
GRAND TOTAL:	95	5,142.9	\$54,048,495	