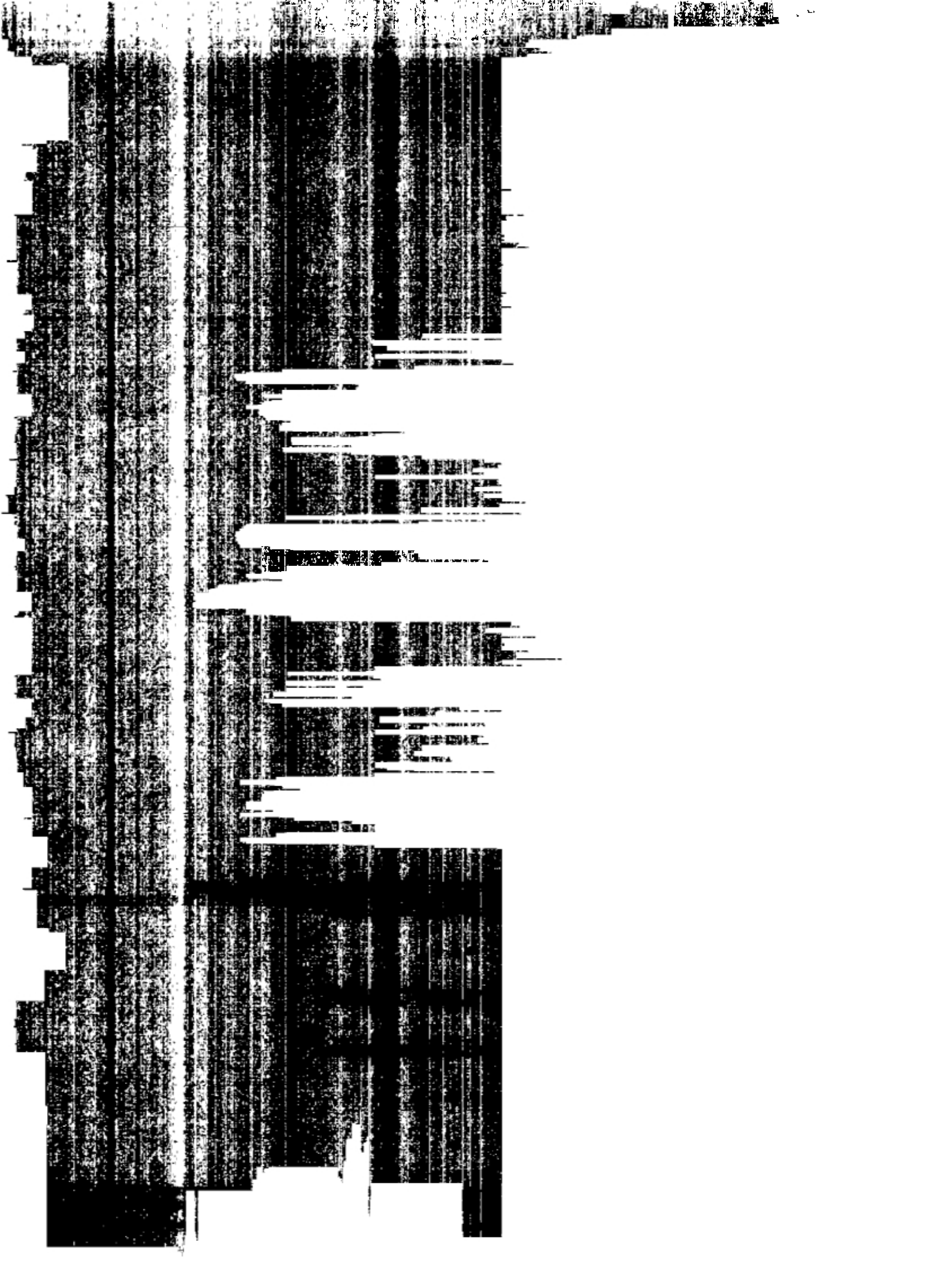
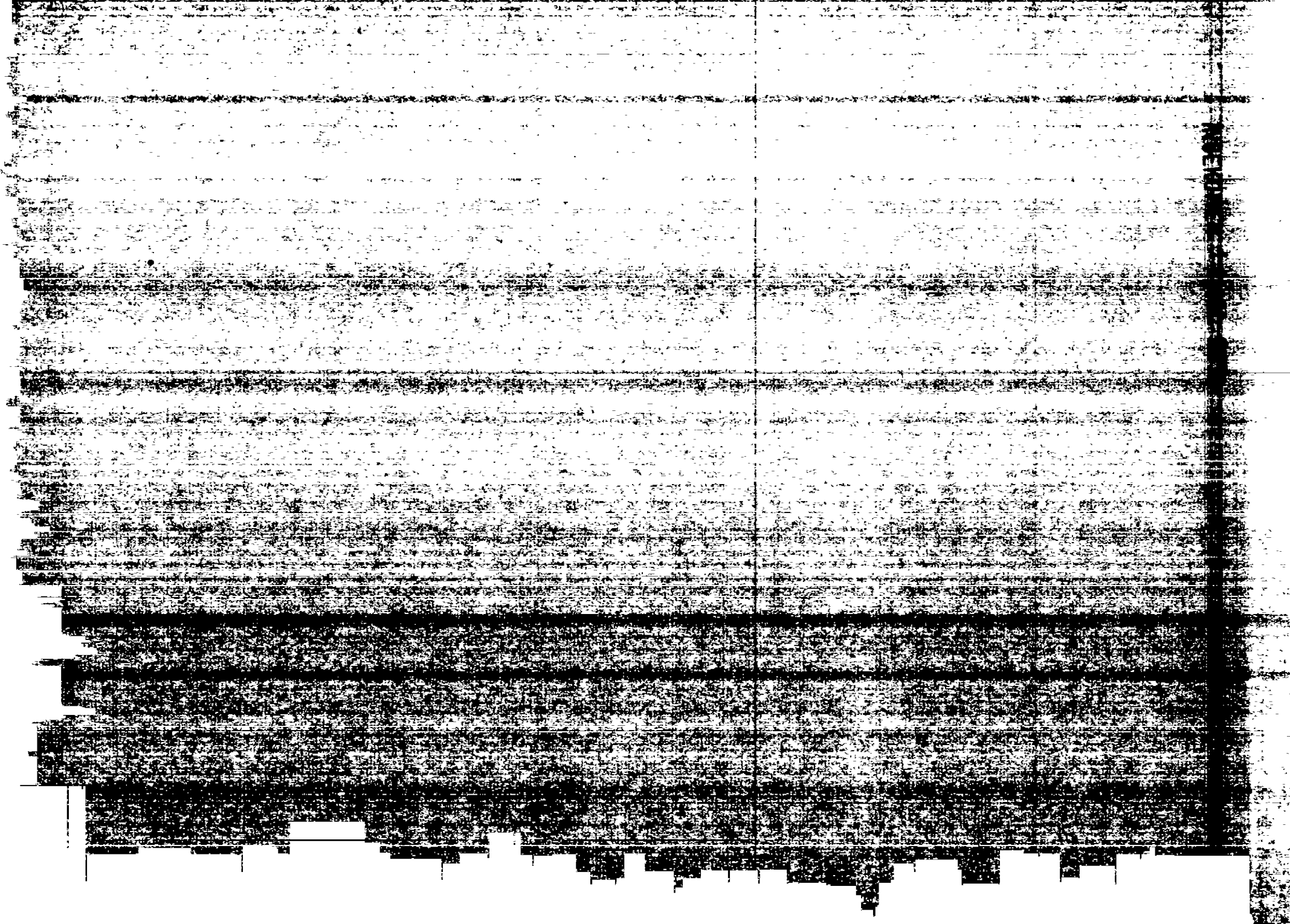


[Sanitation in emergency
situations : various papers]

Oxfam, Oxford, UK
1995

36-95SA-13169





OXFAM EMERGENCY EQUIPMENT

Users Guide to List of Suppliers of Oxfam Equipment

As Oxfam wants the equipment to benefit as many people as possible, and to be used by any agencies that require it, a List of Suppliers has been put together, which may be copied as required.

Oxfam normally does not deal with orders for "Oxfam equipment" from other organisations, though in times of urgent need Oxfam Public Health Team may consider requests, subject to a small administrative charge. We do however provide this 'List of Suppliers' and you are welcome to make direct contact with our suppliers and to place your orders with them. For the purchase of water equipment we recommend that you use this List in conjunction with the Oxfam Water Manuals, which are available from the Oxfam Public Health Team.

This 'List of Suppliers' relates to those suppliers that Oxfam uses for the purchase of its equipment. These suppliers provide equipment according to the specifications issued by the Oxfam Public Health Team. Other suppliers not listed here, whether they are based in Europe or elsewhere, may claim to supply "Oxfam equipment", but Oxfam is unable to comment on the quality or completeness of their kits as measured against the Oxfam specifications.

All Oxfam orders or quotation requests for internationally sourced equipment (i.e. non local purchase), from Oxfam field offices should generally come through Oxfam House in Oxford. An exception to this is when the equipment is purchased through a regional office, e.g. Nairobi.

The suppliers in this List are grouped together according to the equipment categories that they supply to Oxfam.

Oxfam cannot accept any responsibility for equipment ordered from these or any other suppliers, whether originating from errors or omissions in Oxfam literature, or for any other reason.

We hope that the information contained in these pages will help you in your work alleviating the suffering and need of the people you work with, in emergency and post-emergency situations, and in your work helping them to regain control of their lives.

* * * * *

OXFAM PUBLIC HEALTH TEAM
December 1995

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LIBRARY, INTERNATIONAL REFERENCE
CENTRE FOR COMMUNITY WATER SUPPLY
(OXFORD, ENGLAND)
PO BOX 1309 AD The Hague
(070) 814911 ext 141/142
TSW 13/69
LO: 36 955A

OXFAM List of Suppliers

at December 1995

All the suppliers listed below are based in the United Kingdom unless specified.
(The Items in Italics and marked with an asterisk are not Oxfam stock items.)

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* * * * *
*

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A - Admin and Accommodation

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OXFAM

CODE

DESCRIPTION

SUPPLIER

AB Books and Manuals

Various, upon application.

AC Catering Kit
 ALT Large Living Tent
 AP Personal kit

SAFARIQUIP
 The Stones
 Castleton
 Nr Sheffield Tel: (0)1433 620 320
 Derbyshire Fax: (0)1433 620 061
 S30 2WX
 Contact: Julian Macintosh

ALP Laptop with printer
 AS Stationery Kit

Various, upon application.
 Various, upon application.

APC Photocopier with spares and paper

Gellatly Hankey (Overseas) Ltd
 82-84 High Street
 Epping
 Essex Tel: (0)1992 560 511
 CM16 4AE Fax: (0)1992 574 235
 Contact: Bob Marmoy

AST Small Living Tent (1 person)

Cotswold Camping Ltd
 Broadway Lane
 South Cerney
 Nr Cirencester Tel: (0)1285 643 434
 Gloucestershire Fax: (0)1285 650 101
 GL7 5UQ
 Contact: Geoff Stone

ATC Pentapure Travel Cup

Lifesystems Ltd
 4 Mercury House
 Calleva Park
 Aldermaston
 Berkshire Tel: (0)1734 811 433
 RG7 4QW Fax: (0)1734 811 406
 Contact: Mark Taylor

AX1a	Water Filter SS2	Doulton Water Care	
AX1b	Water Filter SS4	Filley Brooks	
AZF	Sterasyll candle for Water Filters	Stone	
		Staffs	Tel: (0)1785 813 241
		ST15 OPU	Fax: (0)1785 818 733
		Contact: Malcolm Fraser	

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D - Water Distribution

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OXFAM
CODE

DESCRIPTION

SUPPLIER

DA	Distribution adaption kit	Evenproducts Ltd
DF3	3" Distribution fittings kit	The Oxstalls
<i>DFP4*</i>	<i>4" Distribution fittings for PE pipe</i>	Evesham
<i>DFU4*</i>	<i>4" Distribution fittings for uPVC pipe</i>	Worcs
<i>DFP6*</i>	<i>6" Distribution fittings for PE pipe</i>	WR11 4TS
<i>DFU6*</i>	<i>6" Distribution fittings for uPVC pipe</i>	Contact: Bob Rowland
DLR	Distribution layflat hose	Tel: (0)1386 41212
DS	Distribution tapstand	Fax: (0)1386 765 404

Alternative supplier for:

DA	Distribution adaption kit	Eurostan Water Equipment
DLR	Distribution layflat hose	Offices 1 & 2
		63 London Road
		Cowplain
		Waterlooville
		Hampshire
		PO8 8UJ
		Contact: Gordon Lee
		Tel: (0)1705 232 324
		Fax: (0)1705 232 325

Alternative supplier for:

DF3	3" Distribution fittings kit	Akro Valve Co
<i>DFP4*</i>	<i>4" Distribution fittings for PE pipe</i>	Unit 2, Chaucer Industrial Estate
<i>DFU4*</i>	<i>4" Distribution fittings for uPVC pipe</i>	Dittons Road
<i>DFP6*</i>	<i>6" Distribution fittings for PE pipe</i>	Polegate
<i>DFU6*</i>	<i>6" Distribution fittings for uPVC pipe</i>	East Sussex
DS	Distribution tapstand	BN26 6JF
		Contact: Peter Daigneault
		Tel: (0)1323 485 272
		Fax: (0)1323 485 273

DMP3	3" Distribution pipe PE	Wavin Industrial Products Ltd
DMU3	3" Distribution pipe uPVC	Meadowfield Industrial Estate
<i>DMP4*</i>	<i>4" Distribution pipe PE</i>	Meadowfield
<i>DMU4*</i>	<i>4" Distribution pipe uPVC</i>	Durham
<i>DMP6*</i>	<i>6" Distribution pipe PE</i>	DH7 8RJ
<i>DMU6*</i>	<i>6" Distribution pipe uPVC</i>	Contact: Ed Orwin
DP	Distribution pipe 32mm	Tel: (0)191 378 0841
DM1	Lube for DMU	Fax: (0)191 378 0835

Alternative supplier for:

DMP3	3" Distribution pipe PE	Uponor Ltd
DMU3	3" Distribution pipe uPVC	Hilcote Plant
<i>DMP4*</i>	<i>4" Distribution pipe PE</i>	PO Box 1
<i>DMU4*</i>	<i>4" Distribution pipe uPVC</i>	Blackwell
<i>DMP6*</i>	<i>6" Distribution pipe PE</i>	Nr Alfreton
<i>DMU6*</i>	<i>6" Distribution pipe uPVC</i>	Derbyshire
DP	Distribution pipe 32mm	DE55 5JD
DM1	Lube for DMU	Contact: David Truman

Alternative supplier for:

DMP3	3" Distribution pipe PE	Stewart and Lloyds Plastics
<i>DMP4*</i>	<i>4" Distribution pipe PE</i>	St Peters Road
<i>DMP6*</i>	<i>6" Distribution pipe PE</i>	Huntingdon
DP	Distribution pipe 32mm	Cambridgeshire
		PE18 7DJ
		Contact: Les Britton

DV	Water tap-3/4" Talflo (valve)	T M Products Ltd
		Winnal Valley Road
		Winchester
		Hampshire
		SO23 0LL
		Contact: Vivienne Alexander

<i>DBW*</i>	<i>Butt fusion welding machine for PE pipe</i>	MCA - Calder
		Bessemer Road
		Welwyn Garden City
		Hertfordshire
		AL7 1HH
		Contact: Ian Hearn

Alternative supplier for:

<i>DBW*</i>	<i>Butt fusion welding machine for PE pipe</i>	Fusion Group plc
		Chesterfield Trading Estate
		Sheepbridge
		Chesterfield
		S41 9PZ
		Contact: N A Thorp

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F - Water Treatment and Testing

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OXFAM
CODE

DESCRIPTION

SUPPLIER

FAS	Aluminium Sulphate (1 tonne)	Laporte Absorbents P O Box 2 Moorfield Road Widnes Cheshire WA8 0JU Contact: Veronica Allen	Tel: (0)151 420 9856 Fax: (0)151 495 2432
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FCH	HTH Chlorine granules 10kg drums (Hazardous)	Olin (UK) Ltd Site 7 Kidderminster Road Cutnall Green Droitwich Worcestershire WR9 0NS Contact: Mark Currier	Tel: (0)1299 851 561 Fax: (0)1299 851 378
FCT	Chlorine tablets 10kg (Hazardous)		

FCT	Chlorine tablets 10kg (Hazardous)	James White Pools Ltd Lafford and Leavey Garden Centre Arrow Head Road Theale Reading R7 4AZ Contact: Terry Woodhams	Tel: (0)1734 305 000 Fax: (0)1734 304 160
FFP	Floating pot chlorinators		

FF	Filtration Fittings Kit	Evenproducts Ltd The Oxstalls Evesham Worcs WR11 4TS Contact: Bob Rowland	Tel: (0)1386 41212 Fax: (0)1386 765 404
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FK	DelAgua Water Testing Kit	Centre for Environmental Health & Engineering (CEHE) Dept of Civil Engineering University of Surrey Guildford Surrey GU2 5XH Contact: Jenny Lynch	Tel: (0)1483 509 209 Fax: (0)1483 503 517
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FMT	Measuring and Testing Kit	Kennedy International (England) Ltd Wigston Works Victoria Street Wigston Leicester LE8 1AJ Contact: Mike Hayto	Tel: (0)116 288 8777 Fax: (0)116 281 2393
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FX	Fibertex F-4M Filter Fabric	Tex Steel Tubes Ltd Unit 35 Claydon Industrial Park Gipping Road Great Blakenham Ipswich Suffolk IP6 0JD Contact: Bill Chambers Jo Larkey	Tel: (0)1473 830 030 Fax: (0)1473 831 664
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G - Fittings

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OXFAM

CODE

DESCRIPTION

SUPPLIER

G2.1	2" hose coupler (F) c/w washer, 60mm OD hose MI	Hose Couplings (JAYMAC) Ltd 10 John Street West Bromich
G2.2	2" BSP (M) hose coupler MI	West Midlands
G2.12	2" bolted hose clip - 60mm OD hose	Tel: (0)121 553 3991
G3.2	3" BSP (F) hose coupler, for 90mm OD hose	B70 9RX Fax: (0)121 500 5126
G3.3	3" BSP (M) hose coupler, for 90mm OD hose	Contact: Andy Hazeldine
G3.18	3" bolted hose clip (86-91mm)	
G3.36	3" foot valve and strainer (F) CI	
G4.1	4" bolted hose clip (113 - 121mm)	
G4.2	4" BSP (F) x 4" hose coupler, c/w washer MI	
G4.3	4" BSP (M) x 4" hose coupler MI	
G4.4	4" foot valve and strainer CI	

G1½.6	30m coil 1½ " hose, for Code WDWP	Flexible Hose Supplies Ltd 140 Edinburgh Avenue Slough
G2.4	2" flexi hose (30m coil)	Berks
G2.15	2" x 15m coil flexi hose, (for Code MTM)	Tel: (0)1753 570 863 SL1 4UA Fax: (0)1753 824 141
G3.15	3" suction hose, low toxic 30m coil (for Code P4-GOLI & TF)	Contact: Scott Bradley
G4.15	4" suction hose - low toxic 30m coil	

G3.37*	<i>Automatic air release valve</i>	Eurostan Water Equipment
G3.39*	<i>Pressure reducing valve</i>	Offices 1 & 2 63 London Road Cowplain Waterlooville Hampshire
		Tel: (0)1705 232 324 PO8 8UJ Fax: (0)1705 232 325
		Contact: Gordon Lee

Alternative supplier for:

G3.37* *Automatic air release valve*
G3.39* *Pressure reducing valve*

Akro Valve Co
Unit 2, Chaucer Industrial Estate
Dittons Road
Polegate
East Sussex Tel: (0)1323 485 272
BN26 6JF Fax: (0)1323 485 273
Contact: Peter Daigneault

G3.38* *Bulk water meter*

G J Johnson
11-13 Middle Street
The Avenue
Southampton
Hampshire Tel: (0)1703 632 327
SO14 6GH Fax: (0)1703 334 980
Contact: Peter Johnson

Alternative suppliers for above and all other G Fittings:
(see next page for Complete List of G Fittings)

Akro Valve Co
Unit 2, Chaucer Industrial Estate
Dittons Road
Polegate
East Sussex Tel: (0)1323 485 272
BN26 6JF Fax: (0)1323 485 273
Contact: Peter Daigneault

Evenproducts Ltd
The Oxstalls
Evesham
Worcs Tel: (0)1386 41212
WR11 4TS Fax: (0)1386 765 404
Contact: Bob Rowland

Eurostan Water Equipment
Offices 1 & 2
63 London Road
Cowplain
Waterlooville
Hampshire Tel: (0)1705 232 324
PO8 8UJ Fax: (0)1705 232 325
Contact: Gordon Lee

APPENDIX 1

COMPLETE LIST OF * * G * * FITTINGS

<u>ITEM</u>	<u>CODE</u>	<u>DESCRIPTION</u>
1.	G0.1	12m roll PTFE tape (12mm wide)
2.	G1.1	32mm compression coupler uPVC
3.	G1.3	32mm compression Tee uPVC
4.	G1.6	32mm compression to 1" BSP (M) coupler
5.	G1½.6	For Code WDWP - 30m coil 1½" hose
6.	G2.1	2" hose coupler (F) c/w washer 60mm OD hose MI
7.	G2.2	2" BSP (M) hose coupler MI
8.	G2.4	2" flexi hose (30m coil)
9.	G2.6	2" BSP (F) brass gate valve
10.	G2.11	2" Float valve with tank reinforcement
11.	G2.12	2" bolted hose clip - 60mm OD hose
12.	G2.15	For Code MTM - 2" x 15m coil flexi hose
13.	G2.22	2" hex nipple GI
14.	G3.1	3" flange assembly
16.	G3.2	3" BSP (F) hose coupler for 90mm OD hose
17.	G3.3	3" BSP (M) hose coupler for 90mm OD hose
18.	G3.4	3" BSP (F) gate valve brass 8 Bar
19.	G3.8	3" hex nipple GI
20.	G3.9	3" compression coupler uPVC
21.	G3.10	3" BSP (M) to 3" compression coupler uPVC
22.	G3.14	3" x 1" (F) self-tapping ferrule strap
23.	G3.14/1	Ferrule strap key
24.	G3.15	For Code P4-2/1 & TF
		3" suction hose, low toxic (30m coil)
25.	G3.18	3" bolted hose clip (86-91mm)
26.	G3.19	3" Tee (F) GI
27.	G3.33	3" 90 degree elbow (F) GI
28.	G3.35	3" Non-return valve (clack valve) (F) Brass
29.	G3.36	3" Foot valve and strainer (F) CI
30.	G4.1	4" bolted hose clip (113 - 121mm)
31.	G4.2	4" BSP (F) x 4" hose coupler c/w washer MI
32.	G4.3	4" BSP (M) x 4" hose coupler MI
33.	G4.4	4" foot valve and strainer CI
34.	G4.15	4" suction hose - low toxic x 30m coil

The Items in Italics are not Oxfam Stock Items

The following kits are not commonly used, but the specifications have been prepared to facilitate the quick purchase and deployment of these items in the event of any of them being required.

1.	<i>G3.37*</i>	<i>Automatic air release valve</i>
2.	<i>G3.38*</i>	<i>Bulk water meter</i>
3.	<i>G3.39*</i>	<i>Pressure reducing valve</i>

=====

K - Communications

=====

OXFAM
CODE

DESCRIPTION

SUPPLIER

KFX Office fax machine with paper

Central Business Machines Ltd
226 Banbury Road
Summertown
Oxford Tel: (0)1865 310 777
OX2 7BY Fax: (0)1865 310 887
Contact: Graham Durham

Alternative supplier for:

KFX Office fax machine with paper

Extrans International Ltd
5 Clarendon Square
Royal Leamington Spa
Warwickshire Tel: (0)1926 889 449
CV32 5QJ Fax: (0)1926 886 983
Contact: Jill Rose

KG Generator Kit

Atalanta Group of Companies
Hanworth Lane
Chertsey
Surrey Tel: (0)1932 562 655
KT16 9JX Fax: (0)1932 565 989
Contact: Neil Crosby

KHB HF Base Station
KHM HF Mobile

Codan (UK) Ltd
Gostrey House
Union Road
Farnham Tel: (0)1252 717 272
Surrey Fax: (0)1272 717 337
GU9 7PT
Contact: Francoise Galley

KM Mast Kit

South Midlands Communications
SM House
School Close
Chandlers Ford Industrial Estate
Eastleigh
Hants Tel: (0)1703 255 111
SO5 3BY Fax: (0)1703 263 507
Contact: Mike Bennett

KP	Power Kit	PAL Electrical Wholesale Ltd
KSP	Solar Power Kit	Unit 2, Victory Close
		Woolsbridge Industrial Estate
		Threelegged Cross
		Near Wimborne
		Dorset
		BH21 6SX
		Contact: David Lane
		Tel: (0)1202 813 783
		Fax: (0)1202 813 875

KSATM	Mobile Satellite Unit, Antenna, Telephone and transit case only, ie, part Kit	Applied Satellite Technology
		Burlingham House
		Hewett Road
		Gapton Hall Estate
		Great Yarmouth
		Norfolk
		NR31 0NN
		Contact: Gregory Darling
	Accessories	Various, upon application

KT	Communications Tool Kit	Kennedy International (England) Ltd
		Wigston Works
		Victoria Street
		Wigston
		Leicester
		LE8 1AJ
		Contact: Mike Hayto
		Tel: (0)116 288 8777
		Fax: (0)116 281 2393

KVHB	VHF Base Station/Portable Kit	ICOM (UK) Ltd
KVHW	VHF Hand Portable Kit	Sea Street
		Herne Bay
		Kent
		CT6 8LD
		Contact: Michael Hudson
		Tel: (0)1227 741 741
		Fax: (0)1227 741 742

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L - Latrines/Sanitation

=====

OXFAM
CODE

DESCRIPTION

SUPPLIER

LD	Latrine Digging Kit	Kennedy International (England) Ltd Wigston Works Victoria Street Wigston Leicester Tel: (0)116 288 8777 LE8 1AJ Fax: (0)116 281 2393 Contact: Mike Hayto
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LS	Latrine Slab Kit	Evenproducts Ltd The Oxstalls Evesham Worcs Tel: (0)1386 41212 WR11 4TS Fax: (0)1386 765 404 Contact: Bob Rowland
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O - Tools

OXFAM

CODE

DESCRIPTION

SUPPLIER

OB1	Tool Box	Kennedy International (England) Ltd
OB2	Tool Box	Wigston Works
OE	Engineers Tool Kit	Victoria Street
OL	Ladder for Tank Erection	Wigston
OM	Mechanics Tool Kit	Leicester
OP2	SS Container Padlock	LE8 1AJ
OS	Site Tool Kit	Contact: Mike Hayto

OT	Scaffolding Tower	Lyte Industries Ltd
		Wern Industrial Estate
		Rogerstone
		Newport
		Gwent
		NP1 9YL
		Contact: Sarah Jenkins

=====

P - Water Pumping

=====

OXFAM

CODE

DESCRIPTION

SUPPLIER

P2	2" Atalanta Pumpset	Atalanta Group of Companies
PE2	2" pump Engine Overhaul Kit	Hanworth Lane
PS2	2" Atalanta Swallow Pump Repair Kit	Chertsey
P3H	3" Gorman Rupp Pumpset Kit,	Surrey
PE3H	3" pump Engine Overhaul Kit	KT16 9JX
PS3H	3" Gorman Rupp Pump Repair Kit	Contact: Neil Crosby
P4	4" Atalanta Pumpset Kit	
PE4	4" pump Engine Overhaul Kit	
PS4	4" Atalanta Pump Major Repair Kit	

Alternative supplier for:

P4	4" Godwin pumpset kit (needs G3.15 flexible hose, see G Fittings)	Godwin Pumps, H J Godwin Ltd Quenington Cirencester
PE4	4" pump Engine Overhaul Kit	Gloucestershire
PS4	4" Godwin Pump Major Repair Kit	GL7 5BX
		Contact: John Miller Alison Stevens

PF	Pumping Pack Fittings	Evenproducts Ltd The Oxstalls Evesham
		Worcs
		WR11 4TS
		Contact: Bob Rowland

Alternative supplier for:

PF	Pumping Pack Fittings	Akro Valve Co Unit 2, Chaucer Industrial Estate Dittons Road
		Polegate
		East Sussex
		BN26 6JF
		Contact: Peter Daigneault

PO

Pumping Pack Oil

Kennedy International (England) Ltd

Wigston Works

Victoria Street

Wigston

Leicester

LE8 1AJ

Contact: Mike Hayto

Tel: (0)116 288 8777

Fax: (0)116 281 2393

=====

S - Site Selection, Planning and Shelter

=====

OXFAM
CODE

DESCRIPTION

SUPPLIER

SES	Emergency shelter	Monarflex Ltd
SPE	Plastic sheeting with eyelets reinforced	Lyon Way
		St Albans
		Herts
		AL4 0LB
		Contact: Enid Runchman
		Tel: (0)1727 830 116
		Fax: (0)1727 868 045

SR	Poly rope, 6mm, blue	Morep Chandlery Ltd
		Luddenden Chambers
		New Road
		Luddenden
		Halifax
		W Yorkshire
		HX2 8RA
		Contact: Mark Slater
		Tel: (0)1422 882 721
		Fax: (0)1422 883 226

=====

T - Water Storage

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OXFAM
CODE

DESCRIPTION

SUPPLIER

T6	6m ³ Bladder PVC Tank	Crestbury Ltd-Auto Marine Hempstead Road Holt Norfolk NR25 6DL Contact: Malcolm Felmingham
T30	30m ³ Onion PVC Tank	

Tel: (0)1263 713 522
Fax: (0)1263 711 152

Alternative supplier for:

T6	6m ³ Bladder PVC Tank	Structure-Flex Ltd 24 Grove Lane Holt Norfolk NR25 6EG Contact: Ian S Doughty
T30	30m ³ Onion PVC Tank	

Tel: (0)1263 712 911
Fax: (0)1263 711 150

T10	10.5m ³ tank liner, sheets and roof	Butyl Products Ltd Radford Crescent Billericay Essex CM12 ODW Contact: Andrew Swift
T45L	45m ³ Tank liner	
T45R	45m ³ Tank roof	
T45S	45m ³ Tank sheets	
T70L	70m ³ Tank liner	
T70R	70m ³ Tank roof	
T70S	70m ³ Tank sheets	
T95L	95m ³ Tank liner	
T95R	95m ³ Tank roof	
T95S	95m ³ Tank sheets	

Tel: (0)1277 653 281
Fax: (0)1277 657 921

Alternative supplier for:

T10	10.5m ³ tank liner, sheets and roof	Evenproducts Ltd The Oxstalls Evesham Worcs WR11 4TS Contact: Bob Rowland
T45L	45m ³ Tank liner	
T45R	45m ³ Tank roof	
T45S	45m ³ Tank sheets	
T70L	70m ³ Tank liner	
T70R	70m ³ Tank roof	
T70S	70m ³ Tank sheets	
T95L	95m ³ Tank liner	
T95R	95m ³ Tank roof	
T95S	95m ³ Tank sheets	

Tel: (0)1386 41212
Fax: (0)1386 765 404

TF Tank fittings kit
(needs G3.15 flexible hose,
see G Fittings)

Akro Valve Co
Unit 2, Chaucer Industrial Estate
Dittons Road
Polegate
East Sussex Tel: (0)1323 485 272
BN26 6JF Fax: (0)1323 485 273
Contact: Peter Daigneault

Alternative supplier for:

TF Tank fittings kit
(needs G3.15 flexible hose,
see G Fittings)

Evenproducts Ltd
The Oxstalls
Evesham
Worcs Tel: (0)1386 41212
WR11 4TS Fax: (0)1386 765 404
Contact: Bob Rowland

MT1 1m³ Allibert Tank

Allibert Helix Tank Division
St Oswald's Trading Estate
Gloucester Tel: (0)1452 411 911
GL1 2UQ Fax: (0)1452 300 011
Contact: John McGann

MTA Allibert tank Adaptor
MTM Manifold for tank carriers
(needs G2.15, flexible hose,
see G Fittings)

Evenproducts Ltd
The Oxstalls
Evesham
Worcs Tel: (0)1386 41212
WR11 4TS Fax: (0)1386 765 404
Contact: Bob Rowland

MTR Plastic tank welding/repair kit

Goodburn Plastics Ltd
Arundel Road
Trading Estate
Uxbridge
Middlesex Tel: (0)1895 232 256
UB88 2SE Fax: (0)1895 811 779
Contact: Mr A E Mathews

MTW Webbing for bulk carriers

Medway Sling Co Ltd
Rochester Test House
353-357 High Street
Rochester Tel: (0)1634 813 773
Kent, ME1 1DA Fax: (0)1634 409 307
Contact: Mr Barrett

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V - Vehicles and Accessories

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OXFAM
CODE

DESCRIPTION

SUPPLIER

VFA	Vehicle First Aid Kit	Laerdal Medical Ltd Laerdal House Goodmead Road Orpington Kent BR6 0HX Contact: Kevin Jeeves	Tel: (0)1689 876 634 Fax: (0)1689 873 800
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VHMB*	<i>Honda Motorbike for on/off road</i>	Bassadone Project Vehicles Ltd 40 Devil's Tower Road PO Box 739 Gibraltar SPAIN Contact: Stephen Guillem Martin Wright	Tel: (00) 350 77306 Fax: (00) 350 70465
VLCHT	Toyota Landcruiser Hardtop		
VLCPU	Toyota Landcruiser Pickup		

VLRPU	Landrover High Capacity Pickup	MW Newport Ltd Kencot Near Lechlade Gloucestershire GL7 3QW Contact: Bill Newport	Tel: (0)1367 860 303 Fax: (0)1367 860 562
VLRSW	Landrover Stationwagon		

VT	Vehicle tool kit	Kennedy International (England) Ltd Wigston Works Victoria Street Wigston Leicester LE8 1AJ Contact: Mike Hayto	Tel: (0)116 288 8777 Fax: (0)116 281 2393
VWA	Vehicle winch accessories kit		

=====

W - Well Digging

=====

OXFAM
CODE

DESCRIPTION

SUPPLIER

WAS WT6	Survey Auger Kit Well Tripod Kit	Van Reekum Materials bv Oude Apeldoornseweg 36 PO Box 98 Tel: (00) 31 555 335466 NL 7300 AB Apeldoorn NETHERLANDS Fax: (00) 31 555 335488 Contact: Ben Kanne
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Alternative supplier for:

WAS	Survey Auger Kit	Van Walt Agricultural Services Prestwick Lane, Grayswood Haslemere Surrey Tel: (0)1428 661 660 GU27 2DU Fax: (0)1428 656 808
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WDWC	Hydrovane Air Compressor	A W Phillips & Son (Upton Park) Ltd 47-51 Plashet Grove Upton Park Tel: (0)181 472 6656 or London (0)171 473 1023 E6 1AD Fax: (0)181 471 8317 or Contact: Mr Stevenson (0)171 511 0194
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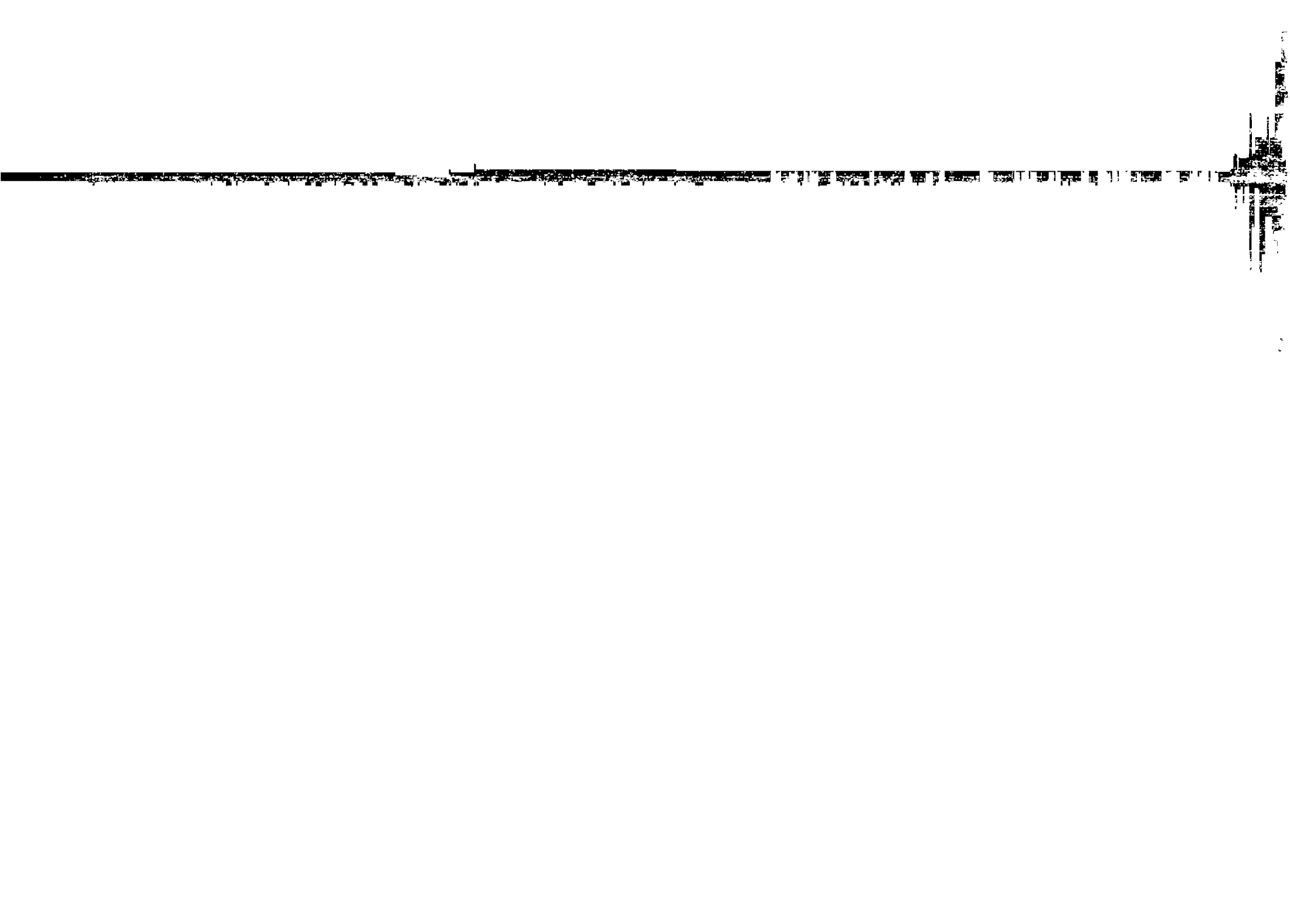
WDWP WDWF	Air Powered Pump, including: Air filters for WDWP (needs G1½.6, see G Fittings)	Cougar Pumps Ltd 19/20 Empire Centre Imperial Way Watford Herts Tel: (0)1923 231 380 WD2 4YH Fax: (0)1923 242 681 Contact: Alan Parkins
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WL WLP WL1	Hand dug well liner (non-perforated) Hand dug well liner (perforated) Nuts and bolts for WL and WLP	Asset International Ltd Stephenson Street Newport Gwent Tel: (0)1633 273 081 NP9 0XH Fax: (0)1633 281 301 Contact: Mr A M Clarke
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WM	Well Ring Mould (non-perforated)	WIG Engineering Ltd	
WMP	Well Ring Mould (perforated)	Mill Road	
WD	Ring Mould Dowel Lifting Bar	Kirtlington	
WR	Well Mould Cutting Rings	Oxon	Tel: (0)1869 350 200
		OX5 3JE	Fax: (0)1869 350 960
		Contact: Bill Giles	

WSF.12	Well Digging First Aid Kit	Various, upon application
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UNHCR



PROGRAMME AND TECHNICAL SUPPORT SECTION

TECHNICAL APPROACH

Environmental Sanitation

March 1994

TECHNICAL APPROACH

Environmental Sanitation

TABLE OF CONTENTS

- A. PROJECT FORMULATION
- B. NEEDS ASSESSMENT
- C. PERIODICAL REPORTING
- D. STANDARDS & CRITERIA



PROJECT MANAGEMENT TOOLS
A. TECHNICAL PROJECT FORMULATION

1. When formulating a project, elements contained in the attached matrix have to be developed as they are interrelated and presented in a logical sequence. Each element must be analyzed in relation to the other ones, i.e. upward and downward.
2. For example, when describing "Activities" to be undertaken, look upward at column "Outputs" to clearly define the results to be achieved, and downward at column "Inputs" to ensure that the necessary resources are at disposal. Hence it makes it possible to estimate the costs involved (to set up a project budget).
3. As reflected in the project matrix, any project document should include the following elements which have to be developed as appropriate:

- I. OVERALL OBJECTIVES
- II. PROJECT OBJECTIVES
- III. OUTPUTS
- IV. INDICATORS FOR VERIFICATION
- V. ACTIVITIES
- VI. INPUTS



Sectorial Indicators and Guidelines
For Project Formulation,
Monitoring and Evaluation Purposes

I- Stage ONE: Project Approach

Fielding a mission to collect all the information required to allow:

- 1/ **a full assessment of the situation**, taking into account:
 - * the requirements/policy of the host government with regard to refugee camps;
 - * the minimum requirements in line with the rules stated within the International Drinking Water Supply and Sanitation Decade (IDWSSD) with regard to environmental hygiene and sanitation;
 - * the human and physical resources available;
 - * the interveners (local, international) working in the areas;
 - * the statistics and data available regarding health, hydrology, hydrogeology, geology and topography in particular.
- 2/ **assessment of the needs** to fulfill the objectives;
- 3/ **preparation of a work plan and identification of actions** to be taken by major actors including UNHCR.

II. INDICATORS FOR PROJECT FORMULATION AND MONITORING

Overall Objectives	Project Objectives	Outputs	Indicators for Verification	Activities	Inputs
<p>To eliminate the constraints for the attainment of basic sanitation standards in refugee settlements to make the living conditions comparable to those in the neighbouring local villages</p> <p>To prevent the spread of disease and to promote a safe environment to benefit both refugees and hosting area</p>	<p>1. Ensure a safe disposal of <u>human excreta</u></p>	<p>Sanitation team + sanitarian overseer available</p> <p>Schools, clinics and public areas are provided with latrines</p> <p>Each family has its own latrine</p>	<p>All sanitary facilities will be permanently clean inside and outside and used.</p> <p>Odour and fly population will be at an acceptable level.</p> <p>No defecation on the ground</p> <p>Incidence of vector-borne diseases will gradually decrease</p> <p>1 seat + 1 urinal per 20 boys</p> <p>1 seat per 20 girls</p> <p>Availability of toilets for medical staff and for patients</p> <p>1 latrine per family or per 20 persons at least</p>	<p>Under permanent guidance/monitoring by PTSS:</p> <ul style="list-style-type: none"> - to introduce environmental education in school curriculum and, - to involve students in maintenance of latrines at school - to involve refugees in pit digging and in erecting the latrine super-structure - to set up workshops for latrine slab production - to give technical backstopping with regard to design, location, etc. - to build sanitary units - to monitor and report continuously on latrine construction (cost per unit, time spent to complete one unit, etc.) 	<p><u>Personnel:</u></p> <ul style="list-style-type: none"> - sanitarian overseer; - sanitation workers. <p><u>Equipment:</u></p> <ul style="list-style-type: none"> - tools (shovels, etc.); - equipment (suger, etc.); - materials (cement, etc.). <p><u>Sub-contract:</u></p> <ul style="list-style-type: none"> - implementing Agency (NGO, GO) <p><u>Training:</u></p> <ul style="list-style-type: none"> - workshops, seminars; - periodic refresher courses on sanitation technologies

Overall Objectives	Project Objectives	Outputs	Indicators for Verification	Activities	Inputs
	2. <u>Solid wastes</u> will neither be placed in any place other than approved receptacle nor disposed everywhere	<ul style="list-style-type: none"> - Schools, clinics and places such as markets are provided with appropriate refuse storage/collection/disposal system - Availability of closable containers judiciously located in camp area - Availability of communal pits or site for final disposal of refuse - Precise schedule set up for transport of refuse 	<ul style="list-style-type: none"> - Cleanliness of the whole camp area - 1 container, 50 l capacity min., for every 10 families (or 50 persons) - No dwelling at more than 15 m from a refuse bin - No accumulation and rotting of garbage will be seen - Medical wastes will be properly disposed of 	<p>Under permanent guidance/monitoring by PTSS:</p> <ul style="list-style-type: none"> - to identify suitable methods/site for disposal of refuse - to burn or bury medical wastes in a special place - to organize clean-up campaigns - to sensitize and organize refugee community for solid waste activities - to construct incinerators if necessary (for clinics particularly) - to dig communal refuse pits not less than 50 m from any dwelling - to monitor and report on related activities 	<p><u>Personnel:</u></p> <ul style="list-style-type: none"> - 1 person responsible for solid waste management <p><u>Equipment:</u></p> <ul style="list-style-type: none"> - refuse containers - wheel barrows - tools/equipment for pit digging - materials <p><u>Subcontract:</u></p> <ul style="list-style-type: none"> - implementing Agency (NGO, GO, etc.) <p><u>Training:</u></p> <ul style="list-style-type: none"> - 2-day course focusing on sanitary aspects of waste disposal

Overall Objectives

Project Objectives

Outputs

Indicators for Verification

Activities

Inputs

3. To prevent flooding and eliminate/minimize waste water stagnation and creation of long lasting ponds

- Proper drainage channels and/or seepage pits built at any source where drinking water is available
- Drainage system set up to prevent latrine from flooding and also around clinics and feeding centres

- No standing waters around tanks, standpipes, wells
- No water accumulation in the camp area
- During rainy days storm water will not accumulate around dwelling areas but will be quickly drained away

- Under permanent guidance/monitoring by PTSS:
- to check regularly for leaks from tanks and pipework and to undertake repair where/when required
 - to organize a drainage team to:
 - a- undertake drainage works with the support of community labour;
 - b- inspect drainage facilities regularly;
 - c- clear and remove any blockage found in a drainage channel or culvert;
 - d- look after possible small ponds and eliminate them at once
 - to monitor and report on related activities

- Personnel:
- 1 overseer for drainage
 - 4-5 person drainage team
- Equipment:
- tools for drainage system maintenance (shovels, wheel barrows, etc.)
 - mechanical trenchers
 - materials
- Subcontract:
- the same Agency (NGO, or GO) should be able to implement the sanitation programme as regards human and solid wastes and drainage
- Training:
- short course on hydraulics and civil engineering for the drainage workers

Overall Objectives**Project Objectives****Outputs****Indicators for Verification****Activities****Inputs**

4. To reduce diseases borne by insects and rodents. Any vector control programme will be directed towards control of the environment first through sanitation and hygiene, second through chemical treatment

- Availability of a vector control team properly/regularly trained
- Availability of locked pesticide storage areas
- Availability of sufficient number of sprayers in working order plus spare parts
- Clear spraying annual programme formulated which will state: type of chemicals, target sites/vectors, spraying schedule, etc.

- Malaria incidence rate in camps will be comparable to those in the neighbouring local villages
- Vector population (mosquitoes, flies and rodents in particular) will be at an acceptable level
- No visible signs of infestation by vectors such as cockroaches, bugs, lice, fleas, etc.
- Absence of standing waters (potential breeding places) which require minor drainage work

- Under permanent guidance/monitoring by PTSS:
- to organize a vector control team with at least two experienced spraymen:
 - a- to make preliminary surveys to determine the number and extent of breeding/harbouring sites
 - b- to map these sites to indicate where control measures are required
 - c- to undertake chemical spraying as required
 - d- to inspect potential breeding/harbouring sites on a regular basis

- Personnel:
- qualified person(s) for the selection, application rate, rotation schedule of chemicals
 - vector control overseer plus spraymen
- Equipment:
- sprayers and spare parts
 - safety clothing for spraymen
 - chemicals
- Subcontract:
- implementing Agency (NGO, GO)
- Training:
- regular short refresher courses on insecticide spraying and safety measures

Overall Objectives	Project Objectives	Outputs	Indicators for Verification	Activities	Inputs
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4. (Cont'd)

- to identify and mark clearly the most suitable area(s) for pesticide storage as well as for the disposal of surplus pesticides and empty containers
- to check for a possible presence of rodents inside warehouses and make proposals to remedy such an infestation
- to link with the Health Unit to acquire basic morbidity/mortality data concerning environmental-related diseases (diarrhoeas, helminthiasis, malaria, typhoid fever, etc.)
- to monitor and report on related activities

Overall Objectives	Project Objectives	Outputs	Indicators for Verification	Activities	Inputs
	5. To provide means for <u>personal and domestic hygiene</u>	<ul style="list-style-type: none"> - Each family has appropriate container(s) to store water at home - Special places available for laundering - Community members have the possibility to take shower - Availability of soap for all households - Health Committee set up to promote refugee involvement in environmental sanitation activities 	<ul style="list-style-type: none"> - The incidence of skin and eye diseases is decreasing in a noticeable manner - Cleanliness for each shelter and its surroundings - Facilities constructed for handwashing after defecation 	<p>Under permanent guidance/monitoring by PTSS:</p> <ul style="list-style-type: none"> - to construct facilities for shower and laundering - to launch an education environmental programme focusing on human and solid waste disposal, vector control through sanitation and hygiene - to procure containers for both water collection and storage at home - to ensure that soap is included in the distribution of domestic items 	<p><u>Personnel:</u></p> <ul style="list-style-type: none"> - qualified person to design and locate the required facilities - work force provided by the community <p><u>Equipment:</u></p> <ul style="list-style-type: none"> - tools and materials for the production of washing slabs and construction of showers <p><u>Subcontract:</u></p> <ul style="list-style-type: none"> - implementing Agency (NGO or GO) <p><u>Training:</u></p> <ul style="list-style-type: none"> - mass education programme

NEEDS ASSESSMENT

I. INTRODUCTION, OBJECTIVES

The hygienic disposal of human excreta, solid wastes and domestic wastewater as well as the control of disease vectors are among basic activities which greatly contribute to the prevention of disease transmission and to the promotion of an healthy environment.

Health can be restored through curative measures. Water quality can be improved using various methods. Both cannot be safeguarded and promoted if environmental sanitation is overlooked.

This paper aims at providing tools which might help any professional to quickly assess a situation where any delay in responding to the vital needs of people might have tragic consequences. The usefulness of such tools will indeed be maximized if the said professional has a strong technical background combined with a few years of field experience in sanitary engineering.

II. INDICATORS, STANDARDS

Please refer to the document entitled "Sectorial Indicators and Guidelines for Project Formulation, Monitoring and Evaluation Purposes".

III. WHAT TO ASSESS IN ENVIRONMENTAL SANITATION

Assess NOT ONLY the **Needs** BUT ALSO the existing (local) **Resources**

Give PRIORITY to **Immediate Needs** WITHOUT OVERLOOKING **Needs in the near future** (e.g. conditions which seem acceptable during the dry season may become drastically appalling when it rains: adverse topography, soil, etc.).

Needs

- Human excreta disposal: qualitative (appropriate design, private vs communal) and quantitative (coverage so as to create an efficient defense line against contamination of water supply sources, food, etc., with excrements);
- Solid waste management: collection, transport, disposal and treatment. Special consideration to be given to medical wastes (classified as hazardous);
- Waste water: disposal of domestic wastewater (from showering/laundry/cooking areas), drainage of runoff water, sanitation around water points. Possible discharge of industrial wastewater in the vicinity. Special care about cholera camp outlet if there is any;
- Disease vectors: environmental measures (drainage, filling) versus chemical control (target organisms, national policies -e.g. malaria control, types of insecticides);
- Hygiene: food hygiene (cooking areas, storage of food items in warehouses -indication of potential presence of rodents or other vermine, fumigation, etc.), body hygiene (soap, showers, laundering areas);

Resources

- Local availability of building materials (grass, thatch, cement, bricks, planks, timbers, iron bars, pipes) and market prices;
- Local hand tools (masonry, carpentry, plumbing, etc.) and their price on the local market;
- Financial resources from: GOV, NGOs, Agencies such as UN bodies, EEC, USAID, etc.;
- Locally available expertise: locals, NGOs, UN, refugees;
- Technical and managerial capacity of potential actors (GOV, NGOs, UN bodies, etc.) to deal with environmental sanitation issues.

IV. HOW TO ASSESS IT

Basic Tools

COMMON SENSE + PROFESSIONAL EXPERIENCE + TECHNICAL BACKGROUND

In addition, below are tools which can be used either separately or simultaneously depending on the situation:

- visual assessment and close checking (particularly inside the shelters, defecation areas, water points, garbage dumping sites);
- meetings: refugees, leader(s) of the community, technicians, local authorities (line departments in particular);
- interviews: family heads, women, other individuals (water attendants, mechanics, cleaners);
- literature research, study of maps (topography, hydrology, geology) and of reports (specific or relating to the subject);

Parameters, Criteria

Site characteristics

- Topography: drainage, erosion, siting of sanitary facilities (dumping sites, toilets/showers);
- Soil (ground surface & subsoil): permeability, filtration (re. groundwater pollution), stability (lining of pits), design of structures (e.g. raised latrines in rocky areas);
- Available space: may be determinant with respect to both the type of facilities to install (individual, semi-communal, communal) and their siting;
- Hydrology, Hydrogeology, Climatology: floodable zones, groundwater table (shallow aquifers), possible contamination of water bodies (e.g. schistosomiasis);
- Vegetation: deforestation vs building materials, protection against wind or dust, presence of undesirable vectors (e.g. tsetse fly);

Social, Cultural and Cultural Aspects

- previous experience of refugees/returnees in sanitation;
- sanitary habits in the country of origin (disposal of wastes including garbage and excreta);
- taboos (water use, reuse of excreta as a fertilizer, gender issues);
- religion(s);
- health education: awareness of linkages between environmental sanitation and health (e.g. water contamination vs gastro-enteritis, soil pollution vs intestinal parasites);

Specific Issues

- Local/national standards in urban, semi-urban and rural sanitation;
- Epidemiology and vector control: morbidity & mortality (top diseases/causes), endemic diseases in the area, registered chemicals (e.g. insecticides used by the national malaria programme), national strategies;
- On-going projects/programmes directly or indirectly related to environmental sanitation, implemented by GOV or other bodies;
- Living conditions of locals at various levels (national, provincial, district, village) particularly regarding water supply and environmental sanitation.

V. HOW TO REPORT IT

Irrespective to its format, the report should fully addresses all of the **Terms of Reference** attached, particularly:

Items 1 & 2: Findings

Items 3, 4 & 5: Recommendations

To the extent possible, a standard format should be adopted for any sectorial report including that on environmental sanitation.

Sketch-maps (with rough contour lines, showing possible breeding sites, etc.) should be appended to the report as well as all relevant data collected during the survey.

NEEDS ASSESSMENT

TERMS OF REFERENCE

(Sector: ENVIRONMENTAL SANITATION)

In general and particularly during emergencies, **Environmental Sanitation** is of utmost importance if contamination of food by vectors such as flies, cockroaches or rodents and pollution of drinking water by excreta are to be minimized if not avoided. Activities in that sector have to be implemented as soon as possible. The following tasks will have to be performed by the specialist covering the sector.

DUTIES AND RESPONSIBILITIES

1. Carry out an assessment of the situation particularly as regards possible sources of contamination of water points, the living conditions of people, the disposal of solid and liquid wastes, possible presence of vectors of public health importance in the area.
2. Collect
 - (a)- all relevant data on the physical characteristics of the site(s) such as soil conditions, topography, water table, open space available, potential breeding/nesting/resting sites (ponds, swamps, rivers) for mosquitoes/flyes and
 - (b)- all relevant information on resources which could be available locally (building materials as well as human resources).
3. Identify requirements in the sector and work out necessary designs and schematic drawings for sewage (including human excreta) and garbage disposal.
4. Prepare a plan of action and devise appropriate means to ensure reliable monitoring and reporting in the sector.
5. Provide basic management recommendations regarding the necessary institutional and financial arrangements for the implementation of environmental sanitation programmes.
6. When applicable, supervise the implementation of programmes.
7. Coordinate activities in the environmental sanitation sector with all other UN agencies and NGOs and liaise with other specialists (Health, Water, Physical Planning officers, etc.).

QUALIFICATIONS AND EXPERIENCE

- Civil engineer with an advanced university degree in public health or sanitary engineering,
- Five years' professional experience in the design and implementation of environmental sanitation programmes in developing countries.



PERIODICAL TECHNICAL REPORTING

Preamble

There should be no confusion between this type of report and the report which is to be prepared following an initial needs assessment mission (document "B. Needs Assessment" to see please).

It has also to be recalled that technical consultants must submit a comprehensive report at the end of their mission. The format which has been developed by PTSS for such consultancy missions is then to be used.

The format which is proposed below for technical staff gives a general pattern to follow while leaving room for addition or deletion as necessary.

Periodicity

Every month in normal circumstances. More frequently (for example every week) whenever necessary.

Format

1. Background

Briefly compare the original design with the actual programme implementation;

Give any major information relevant to the sector since the last report was issued.

In a summary form, describe the disease-pattern encountered by the community, in particular sanitation-related morbidity e.g. diarrhoeal diseases, skin and vector-borne diseases, helminthiasis, etc.

2. Implementation

Describe the major actors (GOV authorities, international organizations, NGOs, private sector, individuals) as well as their objectives and strategies;

Describe generally the existing educational, technical and managerial capacity each of the a/m bodies has to deal with environmental sanitation issues.

Any major constraint that might hamper a normal development of planned activities is to be mentioned here along with proposals to overcome such constraints.

3. Main environmental sanitation issues in the project area

Include a brief profile of the main environmental characteristics of the project area, such as vegetation, precipitation, seasonal characteristics, elevations, climate, water table, nature of soil, etc.;

Should such be the case, indicate whether, for example, the area is prone to flooding and/or other natural disasters or health is at risk because of over-crowding , etc.

While referring as necessary to the sectorial indicators summarized in document "A.II Indicators", describe the present situation with respect to the following:

- human excreta: mode of disposal (including precise information on pit volume, materials used, etc.), total number of units, ratio of seat to users, information on cleanliness inside & outside latrine shelter, possible problems caused by smells & flies. Special attention is to be given to places such as schools and clinics;
- solid waste: collection at household level (capacity of refuse bins to mention), transportation, final disposal (in case of sanitary landfilling, specify pit dimensions). Medical wastes require special checking on how they are managed.
- waste water: drainage around water points, latrines, dwellings. How and where domestic wastewater (from showers, laundering areas, kitchens) is being disposed of?

- vector control: target vectors? control of breeding sites through environmental measures (drainage, filling, garbage management)? chemicals and spraying equipment used? protective clothing for spraymen?
- hygiene: availability of soap and water for such purposes as body hygiene and washing of clothes? In case of need, provide information on the incidence of diseases such as eye or skin infections.

4. Alternatives for project design

Discuss possibility of altering the project design (technology, project objectives and methodology of implementation) in the light of a possible modification of initial design parameters (e.g. repatriation prospects, withdrawal of partners, depletion of building materials, etc.).

5. Training

Describe ongoing activities aiming at improving the capacity of any actor including the beneficiaries themselves (see item 2 above) to deal with environmental sanitation issues. Information on both trainers and trainees would help the reader to have a better understanding of the situation.

6. Miscellaneous

Mention any additional input (personnel, material or financial) which may be required either to speed up the pace of implementation of activities planned in the sector or to globally improve the living conditions of people with respect to the other sectors.

When possible, attach a map of the project area that shows problematic zones such as potential breeding sites for vectors or factories generating potentially hazardous wastes.



ENVIRONMENTAL SANITATION

N.B.: ">>" stands for either "better than" or "to be preferred to" as appropriate.

I. General

Local resources >> imported resources. Such a guiding principle should be used throughout any project cycle (from needs assessment to implementation). This apply not only to building materials/equipment but to local expertise as well.

Quality >> quantity : particularly true when it comes to the construction of latrines. There is not much point in installing as many facilities as possible within a very short period of time if no provision has been made to ensure a proper operation and maintenance (O & M) of such facilities.

Whenever possible, the SOFT package (sensitization, health education, community involvement/organization) and the HARD one (construction works) are to be implemented simultaneously if project failure is to be avoided.

May be more important for a/m sector than for others, community participation should be promoted and encouraged at all stages (planning/design - implementation - O & M - evaluation).

II. Specific

Human Excreta Disposal

Living areas: Family/individual units >> Communal units. The latter are usually recommended for public places such as schools, clinics, markets, etc.

Essential criteria:

efficient control of smells and flies (screened vents do, hole lids do not) ;

latrine slab: made of concrete for an easy cleaning ;

life-span: based on .07 m³/person/year as the average excreta accumulation rate, 3 years for pit latrines, 1 year for both compost and double-vault latrines.

Keep in mind that usual statistics of the number of latrines constructed tell very little on improvements in the community's sanitary habits.

Basic standards: 1 latrine per family or 1 cubicle for 20 persons (if communal facilities are foreseen).

Solid Waste Management

Communal systems >> Individual pits

Burying (sanitary landfilling) >> Burning (incineration). Incinerators might be advisable for clinics/health centres where medical/hazardous wastes are to be disposed of in the safest possible manner.

Minimum standards:

Storage: 1 refuse bin, 100 litre capacity, for 10 families or 50 persons;

Transport: 1 wheelbarrow/500 persons, 1 garbage tipper/5,000 persons;

Final Disposal: 1 pit (l x L x D = 2m x 5m x 2m) /50 persons;

1 incinerator + 1 deep pit for each clinic.

Vector Control

Environmental measures (filling, drainage, etc.) >> Chemical control (i.e. use of chemical pesticides).

Routine and indiscriminate insecticide spraying should be resisted firmly. Pesticides should be used only as a last resort, and their usage, dosage and application carefully adjusted so as to produce localised and specific effects on the target pests.

A proper management of garbage, excreta (see above as for fly control) and domestic wastewater is definitely more cost-effective than chemical measures which may result in undesirable effects such as resistance of target organisms to chemicals and/or poisoning of non-target organisms including human beings.

Before spraying activities are launched, protection of workers through provision of adequate training as well as protective clothing is as important (if not more) as the procurement of chemicals and sprayers.

Domestic wastewater management

Absorption trenches + sucking trees (e.g. banana or papaya trees) >> soakaway pits. This should be the guiding principle as for the drainage of spilled water around tapstands.

Serviced water (from showers, kitchen, laundering areas) could be used to irrigate vegetable gardens provided that the detergent content of the said water does not exceed permissible levels beyond which health of potential consumers of those vegetables is at risk.

III. Flexibility

Above standards are to be applied whenever possible. During emergencies various constraints may prevent the implementation of these standards. For instance it may be advisable to phase the approach and construct say 1 latrine for every 100 persons in phase I, increase the coverage so as to bring the ratio of latrine to users up to 1/50 during phase II and eventually reach the standard of 1/20 in the final phase.

Flexibility might also be required when deciding on which type of latrine to install. Incremental sanitation should guide the designer of such latrines which means that rudimentary structures may be acceptable at the outset of the emergency provided that gradual improvement (e.g. ventilation, shift from pit to pour-flush latrines if conditions permit, connection to a small bore sewer network, etc.) is properly thought of and planned from the very beginning.

XXX

ENVIRONMENTAL SANITATION

TECHNICAL APPROACH

- A. Guiding Principles**
- B. Specific Criteria**
- C. Flexibility**

ENVIRONMENTAL SANITATION

A. GUIDING PRINCIPLES

. LOCAL >> IMPORTED

. QUALITY >> QUANTITY

. SOFT ⊕ HARD

. INVOLVEMENT/PARTICIPATION

B. SPECIFIC CRITERIA

- **HED**
 - . Individual >> Communal
 - . Odours/Flies
 - . O & M
 - . Lifespan
 - 07 m³/person/year
 - 3 year versus 1 year

- **SWD**
 - . Communal >> Individual
 - . Burying >> Burning
 - . Storage --> Transport --> Disposal
 - . Medic Wastes

- **VC**
 - . Environmental Measures >> Chemical Control
 - . Local Regulations
 - . Resistance
 - . Safety Measures

- **WWD**
 - . Priority Zones
 - . Water-Avoid Trees >> Soak Pits

ENVIRONMENTAL SANITATION

C. FLEXIBILITY

. PHASED APPROACH

. INCREMENTAL SANITATION

DF ---> TL ---> PL ---> VIP

DF: Defecation Field

TL: Trench Latrine

PL: Pit Latrine

VIP: Ventilated Improved Pit

PF: Pour Flush Toilet

SBSN: Small Bore Sewer Network

VIDP: Ventilated Improved Double Pit

CL: Compost Latrine

---> PF ---> SBSN

---> VIDP

---> CL

ENVIRONMENTAL SANITATION

NEEDS ASSESSMENT

A. What to assess?

B. How to assess?

C. How to report?

A. WHAT TO ASSESS?

■ NEEDS

- . Immediate ---> Future
- . Priority Issues
 - Disposal/treatment of:
 - . *Excreta*
 - . *Solid waste*
 - . *Sullage/waste water*
 - Control of Vectors
 - Hygiene

■ RESOURCES

- . Physical: materials, tools, etc.
- . Human
- . Financial
- . Technical and Managerial

B. HOW TO ASSESS?

■ TOOLS

- C³ [Common sense x Creativity x Competence]
- Observations
- Discussions/Meetings
- Reports/Data
- UNHCR Standards

■ PARAMETERS

- Physical
- Socio-cultural
- Local standards

■ SPECIAL CONSIDERATIONS

- Ongoing Projects
- Living Conditions in RAA

C. HOW TO REPORT?

- **TORs >> FORMAT**
- **FINDINGS**
- **RECOMMENDATIONS**
- **WORK PLAN**
- **BUDGET**
- **SKETCHES/MAPS**

WHO - DENNIS WAENOR

**PRINCIPLES FOR
BETTER SANITATION
PROGRAMMES**

Working Group on
Promotion of Sanitation
1995

PRINCIPLES FOR BETTER SANITATION PROGRAMMES

THE BACKGROUND

These "Principles for Better Sanitation Programmes" were formulated by the Collaborative Council Working Group on the Promotion of Sanitation. This Working Group met periodically from March 1993 to May 1995. Its mandate was to advise the Council on how the status of sanitation could be raised within the sector and how to push sanitation forward and accelerate coverage and sustainability.

One of the conclusions of the Working Group is that better sanitation programmes have a common set of underlying principles that are rarely expressed in writing, but can be derived by analyzing the features of better programmes. The Working Group tried to express these principles as briefly and simply as possible.

Other conclusions of the Working Group are that the skills and training of sector professionals had to be upgraded, and that there should be more research and more science in the sector. Another major conclusion, that is expressed as a principle, is that political commitment is fundamental to successful programmes and that we must do much more to achieve it.

The Working Group was composed of persons from every continent who are intimately familiar with sanitation programmes and have years of field experience. The principles were derived from their observations and experience over time. Despite the fact that Working Group members came from different parts of the world, different cultures and different kinds of sanitation programmes, they had amazing consensus on these principles. As a result, the Working Group has faith that the principles, if applied, will result in much better sanitation programmes.

Mayling Simpson-Hebert
Promotion of Sanitation
Working Group Coordinator
World Health Organization
Geneva

1 December 1995

GIVE SANITATION ITS OWN PRIORITY

From an implementation point of view, sanitation

should be treated as a priority issue in its own

right and not simply as an add-on to more

attractive water supply programmes. Sanitation

requires its own resources and its own time-frame

to achieve optimal results.

REMEMBER: SANITATION IS THE FIRST BARRIER

From an epidemiological point of view, sanitation is the first barrier to many faecally transmitted diseases and its effectiveness improves when integrated with improved water supply and behavioural change.

However, improvements in hygiene behaviours alone can result in disease reduction and can serve as a valid programme objective.

PROMOTE BEHAVIOURS AND FACILITIES TOGETHER

Sanitation comprises both behaviours and facilities,

which should be promoted together to maximize

health and socio-economic benefits.

TAKE A 'SYSTEMS APPROACH'

At household level, good sanitation is a 'system'.

It is a harmonious resolution among four factors:

the waste, the physical environment, the cultural

beliefs and attitudes of the local population

and a technology.

GENERAL POLITICAL WILL

Political will at all levels is necessary for sanitation programmes to be effective. Communities are more motivated to change when they know political will exists.

BE GENDER SENSITIVE

Sanitation programmes should equally address the needs, preferences and behaviours of children, women and men.

Programmes should take a gender-sensitive approach but, learning from the mistakes of other sectors, should guard

against directing messages only to women or placing the burden of improved sanitation primarily upon women.

EMPOWER PEOPLE

User ownership of sanitation decisions is vital to sustainability. Empowerment is often a necessary step to achieving a sense of ownership and responsibility for sanitation programmes.

PRIORITIZE HIGH RISK GROUPS

Sanitation services should be prioritized for high risk

under-served groups in countries where universal

coverage seems unlikely in the foreseeable future.

Hygiene promotion should be targeted at all groups.

USE PROMOTIONAL METHODS

Good methods of public health education and participation, especially social marketing, social mobilization, promotion through schools and children, exist to promote and sustain sanitation improvements.

CREATE DEMAND

Sanitation programmes should be based upon generating demand, with all of its implications for education and participation, rather than provision of free or subsidized infrastructure. Government sanitation policy should facilitate and enhance partnership among the private sector, NGOs, community-based organizations and local authorities in the achievement of improved sanitation.

BUILD ON EXISTING PRACTICES

Sanitation improvements should be approached incrementally, based on local beliefs and practices and working toward small lasting improvements that are sustainable at each step, rather than wholesale introduction of new systems.

UNDERSTAND CONSUMERS

Latrines are consumer products and their design and promotion should follow good marketing principles, including a range of options, designs attractive to consumers and therefore based upon consumer preferences, affordable, and appropriate to local environmental conditions. Market forces are best understood by the private sector.

CONTINUALLY PROMOTE

As in all other public health programmes aimed at preventing disease, the promotion of sanitation should be a continuous activity. This continuous promotion is necessary to sustain past achievements and to ensure that future generations do not become complacent as diseases decrease.

APPLY THESE PRINCIPLES

TO DEVELOPING:

POLICY

PROGRAMMES

PRACTICE

OXFORD

SANITATION IN EMERGENCY SITUATIONS

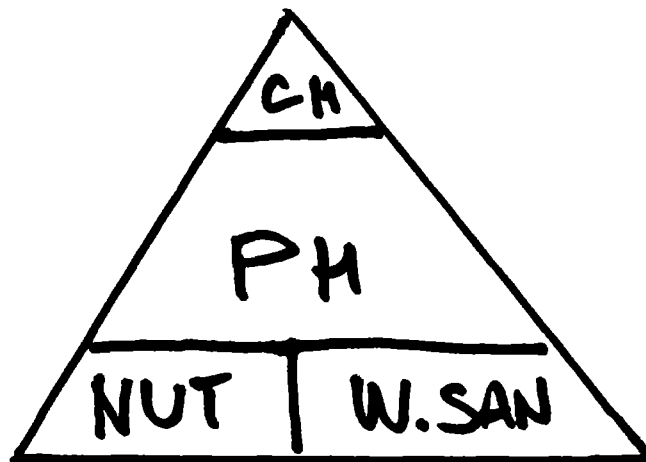
SANITATION IN ENCLOSED CENTERS

INTRODUCTION:

What do we mean by "enclosed centers" ?

Prisons, detention centers and detention camps, this definition can be extended to some hospitals where for security reasons or topographical constraints work is restricted to a confined area.

ICRC but also some NGO's and religious organizations are working in prisons, the water and sanitation department is nowadays working in 15 different countries in 4 continents, it's approach to tackle the problems is an integrated one which follows the concept of the **HEALTH PYRAMID** where nutrition and water and sanitation are the base pillars.



The **OBJECTIVE** of any intervention is to guarantee living conditions which keep morbidity and mortality rates at the best possible level.

The specific constraints related to enclosed centers are generally the following:

**NO POSSIBILITY OF EXPANSION (LIMITED SURFACE)
SECURITY
ADMINISTRATIVE
RESTRICTED INTERACTION BETWEEN INMATES AND
THE ENVIRONMENT**

with such constraints our worst enemy is **OVERPOPULATION**, unfortunately it is a common fact and the major source of problems in the majority of visited prisons.

CURRENT SANITATION INTERVENTIONS IN ENCLOSED CENTERS

Taking into account the specific constraints listed above, adding the usual constraints encountered in open concentrations of large populations, one imagine quite easily the tremendous potential health risks the inmates are confronted with if quick and efficient measures are not taken.

If in the situation of refugee camps one still have the choice between on-site and off-site sanitation, here the answer is quite obvious,

GET THE HUMAN AND SOLID WASTE OUT AS QUICK AS POSSIBLE.

In order to be able to evacuate the human waste, the primary facilities (toilets) should be functional and in sufficient number to cope with the demand, they should be constructed or modified in order to be very simple and adapted to local techniques (examples from mosques).

In order to transfer this waste from the toilets to the exterior, channels and pipes must be clear of any solid big enough to clog the system, very often simple improvements in the profile of the section of the channels improves drastically the flow.

And finally, in order to move all this matter a few hundred meters further down, one need **WATER, LOTS OF WATER.**

In an overcrowded prison, the only sanitary system which will function is one driven by water. Since water is generally scarce, its management is of paramount importance in such an environment.

As often as possible , showers and washing places should be placed upstream from toilets in order to use it to "flush" them. Buffer stocks of water should be kept both outside and inside in order to cope with a shortage or a deliberate cut.

The message in the above paragraphs could be **SIMPLICITY IS ALWAYS BETTER THAN SOPHISTICATION, THINK SIMPLE AND STRONG (INMATEPROOF)** One simple, functioning toilet is much more appreciated than ten syphon type toilets which are clogged every second day.

Without going into many details, action is taken as well for improving **DRAINAGE, ROOFING, HYGIENE (HYGIENE TEAMS), KITCHEN and cooking facilities, REFUSE COLLECTION and last but not least VECTOR CONTROL.**

SEWAGE TREATMENT OFF-SITE

When sewerage systems are not present (in 95% of the cases) septic tanks are used, according to the quality the effluent it is disposed directly through soak pits, when the quality of the latter is not satisfactory , maturation ponds are dug

There are many books with different techniques, changing from one author to another or from country to country or from legislation to legislation. There are as well many formulas with temperature, retention time, flow and many other variables. Taking all this into account and adding our experience, when coming to calculate the volume of these septic tanks we use the figure of 50 liters (roughly 100 pints) per inmate, the design is a 2 chambers tank with a ratio of 2/3 of the total length for the first chamber and 1/3 for the second one, the maximum height should be chosen according to desludging constraints (suction pump, rope and bucket a.s.o).

The major problem in desludging is the solid waste, particular attention should be given to cultural, religious or bad habits when choosing the type of pump.

The following types of pumps have been used during the last five years:

- centrifugal submersible
- membrane
- rotary pistons
- peristaltic
- vacuum-truck
- rope and bucket

Sludge disposal remains a problem and the solutions are always ad-hoc and not sustainable.

KEY WORDS

OVERPOPULATION, SURFACE/INMATE, VECTOR CONTROL, INFESTATION, BED-BUGS, FLEAS, LICES, MOSQUITOES, SHIGELLOSIS, CHOLERA, SCABIES, DAHIAREIA, MALARIA, MAINTENANCE, VENTILATION, LIGHT, WATER SUPPLY, SEPTIC TANK, MATURATION POND, SOAK PIT, EPIDEMICS, STANDARDS.

Riccardo CONTI , December 1995

OXFAM
PUBLIC HEALTH TEAM
EMERGENCIES DEPARTMENT

SANITATION WORKSHOP

11th - 14th December 1995.

Environmental Health and Environmental Impact: Policy and Practice in Emergency Water
Supply and Sanitation

1 Introduction

1.1 Aim of the presentation

The aim of this presentation is to look at the gap between policy and practice concerning the environmental impact of refugees and displaced people and of emergency environmental health responses, and to discuss some possibilities for bringing policy and practice closer together.

1.2 Scope of the presentation

The discussion will focus on environmental health work, which includes water sanitation and hygiene promotion as well as water supply in the context of wider environmental issues. Oxfam's response to emergency situations is usually in this field, and Oxfam is committed to integrating these related activities where possible.

1.3 Oxfam and emergency environmental health

Since Oxfam was founded in 1942, the organisation has worked with millions of refugees and displaced people in many different countries on emergency water supply and sanitation programmes. Over the past year, Oxfam has helped provide water and sanitation facilities for almost two million refugees and displaced people, mostly in the Great Lakes Region of Central and East Africa.

2 Policy aims and good practice

2.1 Policy aims

One of Oxfam's fundamental aims is to work with poor people as a force for change to address the causes of poverty and alleviate suffering. Oxfam works towards increased sustainability of livelihoods of displaced people and refugees as well as resident populations. Working towards "sustainable livelihoods" is understood to mean "increasing the ability to maintain and to improve livelihoods while maintaining or enhancing the global assets and capabilities on which livelihoods depend". It is obvious that in crisis situations priorities need to be decided within the broad range of assets and capabilities that are important in livelihoods. Oxfam's aims to respond to urgent human needs in emergencies and help poor people to reduce their vulnerability (the inverse of sustainability) in crisis situations, and our focus is generally on public health work.

2.2 Good practice

In all of Oxfam's operational projects and work with local partners, project managers are encouraged to consider the sustainability of projects, in different understandings of the

word: for example, is operation & maintenance of water supply systems feasible and affordable, and is the water supply environmentally sustainable? There is a section in Oxfam's project application form to address the environmental impact of the proposed activities (this grant application form has to be approved before project implementation).

Oxfam's Public Health Team is particularly concerned with the effects of environmental degradation on people's health. In as much as environmental health work in emergencies is concerned with providing a healthy environment for refugees and displaced people to live in, it makes sense to avoid pollution in the area of the settlement, including pollution of local water sources and careless disposal of refuse. Oxfam is careful to maintain good relations with host communities and tries to avoid, where possible, depletion of local resources and environmental degradation in the areas around camps, which would affect local livelihoods.

3 Field experience

The following examples illustrate just a few of the potential environmental impacts of the presence of refugees and displaced people and the water and sanitation projects that Oxfam has been associated with over the past few years. They show how, despite the best policy intentions, good practice is not always achieved, and illustrate some of the constraints to good practice discussed in section 4.

3.1 Jijiga 1988: unsustainable water supply

In May 1988, several hundred thousand Somalie refugees arrived in the Ethiopian Ogaden desert from Northern Somalia (now Somaliland). Two camp areas were set up Hartisheik

and Harshin. The latter, moving after two month to create Hartisheik 'B'.

Both local and international politics at the time sited the camps 72 km away from any available water source at Jijiga town. Water was truck in small quantities from Jijiga to the camp, and because water was short in the beginning, any local water sources in the area were exhausted by the refugees. These were mostly small water catchment ponds or 'burka's' used by the nomad population to keep their families and animals alive.

This created a problem for the nomads, so when the tankering operation improved to the camps, the nomads came there for their water, creating many conflicts.

The water source in Jijiga was the main boreholes for the town, so when more water was required the towns own supply came under pressure.

Additional boreholes for the camp have now been drilled, only 45km from the camp. But for three years water was trucked from Jijiga, putting alot of pressure on the aquifer, and putting the town at risk and costing UNHCR \$1million per month.

3.2 Ngara 1994: unsustainable water supply

When about 250,000 people fled Rwanda to the Ngara area of Tanzania, they were directed by the Government to a site at Benaco. This was due to the existence of a lake that had been made in 1986, and that there was no local inhabitance living or farming around the lake. Two days after the refugees had arrived water was being pumped out of the lake to be treated with chlorine and distributed through tapstands. It took however, about a week to get people off from the lake to the tap bars, in the mean time Oxfam had started to construct a water treatment plant and distribution network.

It was quickly realised that the lake alone could not supply all the refugees, estimates showed that it might last 4-6 months. The lake however did last 8-9 months into the next rainy season.

UNHCR acted very quickly to the possibility of the lake running out by getting an agency to drill 24 boreholes. While it was of great benefit that these holes were done so quickly, very little drilling data was left and pump test yields proved to be much higher than the actual yields. More disturbing was the fact that they had left the wells unlined, in two months, three had collapsed, and fears that all the others may do the same.

It was not possible, for a variety of reasons, to move the refugees to sites with more suitable water supplies. So additional boreholes were drilled in the valleys between the hills, all tapping the same aquifer. Early in 1995, there were signs that the water table was beginning to drop significantly and by mid 1995, a hydrogeologist employed by Oxfam was predicting that the aquifer would be exhausted by the end of the year. Oxfam is now conducting a more detailed study to try to quantify what rate of water abstraction the lake and the aquifer can sustain and make recommendations for settling some refugees elsewhere, or developing a scheme to pump water from the Ruvubu river. The problem now, in the current situation of great and growing pressure for the return of the refugees to Rwanda, is that the Tanzanian government, UNHCR and donors are likely to be unwilling to start any major new investment such as alternative camps or the Ruvubu river scheme.

3.3 Goma 1994: resource depletion and local pollution

Nearly 1 million Rwandan refugees arrived in Goma in July 1994 and have been settled for over a year on the edges of one of the most important nature reserves in the world. The environmental impact of these settlements, particularly the destruction of forest for fuelwood and construction timber by refugees has been widely discussed and well documented. Aid agency activities have also contributed to the environmental degradation. Sanitation programmes have used hardwood planks to construct latrine slabs, cut from natural tropical forest. Control of the origin of this timber is extremely difficult in this part

of the world. Construction of water systems and disinfection of defecation zones has involved the use of quicklime, produced in the camps with local limestone and fuelwood. Huge amounts of refuse have been generated in the camps, some of which has been dumped in the national park, including medical and other dangerous wastes. The camps are sited on impermeable basalt lava flows, where latrines fill quickly. They have to be emptied and the contents dumped off the sites.

3.4 Drilling in Mutare, Northern Rwanda

Oxfam has been under considerable pressure from the Rwandan government to provide water in the Mutare area of Northern Rwanda for returnees who have been living in Uganda since 1959/60. Many of these returnees are cattle owners and the water supplies would be as crucial for the survival of the animals as for their owners. The area concerned is adjacent to the Akagera national park, and could suffer major environmental degradation if large numbers of cattle were able to graze there because of the provision of new water supplies. Oxfam is presently exploring water supply options to the resident population of the northern part of this region, where agriculture is traditionally dominant over livestock keeping and where relative large numbers of people live. Oxfam has recently initiated participatory research and project planning with staff, local NGOs, authorities and (new) residents. Local perceptions of humanitarian needs, environmental change and development potential were assessed, and activities which are both socially acceptable and environmentally responsible are being planned.

4 Practical constraints

There are several reasons why achieving environmental related policy aims may be difficult to achieve in practice.

4.1 Conflicting priorities and limited resources

There is often a serious conflict between the need to respond to the immediate humanitarian crisis and the need to ensure that the response does not have a negative environmental impact. The first priority for funders, coordinating bodies and (international) implementing agencies is to save lives. This may mean depleting scarce natural resources and accepting sanitary conditions far below internationally accepted standards, especially in early stages of crisis.

Host governments and other (local) organisations and groups will generally agree with that but must also consider several local interests, from political to social, economic and environmental.

Emergency programmes that minimise negative impact on natural resources may cost more to implement and take more time. On the other hand, the funding crisis usually occurs several months after the onset of a refugee situation, so the first few weeks would be the best time to secure resources for mitigating environmental damage. Furthermore, some choices made in early stages of emergencies can minimize medium and long term costs and/or environmental degradation, which would imply financial savings.

4.2 Short term planning and programme inertia

Indeed, during the emergency phase, the priorities of all involved, most importantly the refugees and displaced people themselves, are short term. Even after the emergency passes, these situations usually remain politically unstable which makes governments, donors and implementing agencies cautious about longer term programmes and funding. Even where there is scope for longer term planning, it is hard to change the direction of large programmes, in which inertia quickly sets in. This is particularly true for decisions about relocating camps, which involves large financial investments, new energy and further disruption for the refugees and displaced people.

4.3 Political and security constraints

The situation of refugees and displaced people is a political issue at all levels. They have an impact on local politics, they may be used by host governments as a bargaining tool or for gaining revenue, they have political significance for the countries or areas they left, and politics within settlements of refugees and displaced people is often crucial to the outcome of programmes. The security implications of significant numbers of displaced people and refugees are many and various, ranging from disputes with local people over water supplies to the creation of bases from which to launch attacks on the country which was fled. Security is also an issue for agencies working in camps, and may severely restrict the control they have over their programmes.

4.4 Unsuitable sites

Decisions on where to settle displaced people and refugees have critical significance for subsequent environmental quality and potential, and yet basic considerations such as

having a sustainable water supply and terrain suitable for installing latrines are often ignored by political and security constraints or competition for better land. Refugees and displaced people are usually settled on land which, for example, may be available only because of lack of water.

Whether settlements are large and concentrated or small and scattered has particular significance for the local environment. But the agencies which are to be involved in service provision are often not able to influence decisions on settlement type and location, because of overriding political or financial constraints. Indeed, there is often a conflict between the costs of reaching a scattered population and the frequent health, livelihood and environmental benefits of avoiding large settlements. This tension may bring different agencies into conflict (see 4.5 below).

4.5 Fragmented response

The growing tendency, when a mass displacement of people occurs, is for a large number of agencies to become involved, each with different responsibilities and objectives. The environmental impact of the programme as a whole is the responsibility of many different actors, creating difficulties for coordination and integration of activities.

4.6 Inadequate information for planning

The information usually available to agencies planning emergency environmental health interventions is extremely limited, partly because of the speed at which decisions have to be taken, but partly because information needed for incorporating environmental considerations into emergency work is not accessible, or readily available. Agencies may unwittingly create environmental hazards, or planners may create inappropriate settlements

because they are not fully aware of the impact of their decisions. Baseline data may not exist, leading to problems, later on, in measuring the environmental impact of programmes and reducing learning opportunities.

4.7 Poorly developed environmental impact monitoring and assessment

When looking at the environmental impact of emergency water supply and sanitation projects, it is difficult to compare environmental costs with other project outcomes, particularly when human lives are part of the equation. As mentioned in 4.6, baseline data for impact studies is usually lacking. The UNHCR have produced guidelines for environment-sensitive management of refugee programmes (UNHCR 1994) and for environmental surveys and studies; other agencies have produced guidelines as a result of specific studies (eg ERM, 1994). These still need developing to be more generally useful in emergency situations, and have yet to be widely adopted by implementing agencies. Oxfam is also in the process of updating its own guidelines, on water and sanitation and wider environmental issues. A major aspect for further consideration in assessment and monitoring systems is the level of consultation and participation of both displaced people and local residents, especially in early emergency stages.

4.8 Poor relationships with local authorities, private sector, CBOs and NGOs

UNHCR as the coordinating body in most situations has responsibility for coordination with local authorities, and relationships between implementing agencies and local authorities are often weak. Few international agencies will have contacts with local NGOs and CBO (Community Based Organisations). This may be partly due to a high "turnover" of international staff and a short-term outlook of the agencies. The poor relationships may

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partly explain the lack of local information and (political) difficulties in negotiations.

5. Suggested ways forward

5.1 Programme integration

In order to appreciate the overall impact of an emergency programme on the environment, planning, monitoring and evaluation of the various programme elements have to be brought together. This is most effectively achieved where there are few agencies implementing broad programmes, rather than where there are a multitude of agencies with different levels and areas of competence, with overlaps and gaps in programme cover. For this reason among others, Oxfam is moving towards a more integrated approach to refugee programmes. For instance, in the Ikafe settlements of Sudanese refugees in Northern Uganda, Oxfam is engaged in a broad programme of refugee assistance which covers distributions, water supply and sanitation, health and income generation. Where there are many different agencies involved in the same programme, effective consideration of environmental impact demands strong coordination and a willingness on the part of the agencies to accept the role of coordinating bodies.

5.2 Information, preparedness and consultation

Good information already exists in and about many places which are (potentially) subject to large population influxes, in the form of satellite images, aerial photographs, maps, ground surveys and Geographical Information Systems (GIS), etc.. The data are held by a variety of bodies, including government ministries, universities, local development projects, companies, NGOs and defence forces. It is often time consuming and difficult to access

and assemble the relevant data when emergencies occur.

Information related to water resources, land uses etc. should be more readily available, in a form more convenient for planning interventions. Desk studies could be made on areas where population movements are likely to occur, so that a basic understanding is developed before the emergency occurs, and for short term decisions with better long term environmental consequences. This could be done by a coordinating body such as UNHCR or a consortium of agencies, which could then make the relevant information available to implementing bodies when needed.

Improved coordination between local organisations, including authorities and NGOs, is essential for this data collection and indeed it could have a local focus. It would in that case also offer possibilities for developing preparedness plans and structures in collaboration with these organisations.

5.3 Agreed procedures and minimum standards

Environmental impact mitigation measures need to be spelt out in proposals to funders and coordinating bodies. This requires more practical and widely acceptable guidelines which recognise the outstanding operational difficulties faced by implementing agencies. Monitoring and evaluation of programmes should take into account their negative environmental impact. This needs programme objectives and evaluation criteria to be broadened. Environmental monitoring should begin as close to the start of an emergency as is practical, and should be reported on regularly. More effective programme planning, monitoring and evaluation does demand clearer criteria for measurement, and a commitment to provide the resources needed.

5.4 More realistic planning horizons

It is generally true that temporary settlements of refugees and displaced people have lifetimes spanning years rather than months. This we know, even as we battle with fast moving events at the beginning of a crisis. Oxfam's response in water supply and environmental sanitation tends to use equipment which may last for many years and to engage the communities involved in a way that produces sustainable management of the infrastructure installed.

5.5 Better site selection

So much which affects the health and welfare of displaced people and refugees depends on the site in which they live. The environmental impact of these people depends crucially on the location and size of the settlements. The conditions for the people in camps could be used as an argument for environmentally less damaging settlements. Dispersed settlements, whilst being more difficult to service in some cases, provide more healthy places for people to live in and have less negative impact on natural resources nearby.

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