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# **EMERGENCY** WATER SOURCES

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GUIDELINES FOR SELECTION AND TREATMENT

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**Sarah House and Bob Reed**

Water, Engineering and Development Centre (WEDC)  
Loughborough University UK

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The authors would like to hear from anyone who uses the guidelines in the field with comments on their usefulness and areas which require adaptation or improvement. Please forward comments or suggestions to Bob Reed at the address given overleaf.

## **ABOUT WEDC**

The Water, Engineering and Development Centre (WEDC) is one of the world's leading institutions concerned with education, training, research and consultancy for the planning, provision and management of physical infrastructure for development in low- and middle-income countries.

WEDC is devoted to activities that improve the health and well-being of people living in both rural areas and urban communities. We encourage the integration of technological, environmental, social, economic and management inputs for effective and sustainable development.



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## COLLABORATORS

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Opinions noted within these documents do not necessarily represent those of DFID or the collaborators, but are solely those of the authors.



INTERNATIONAL COMMITTEE OF THE RED CROSS



International Federation  
of Red Cross and Red Crescent Societies



Many individuals have made useful contributions and are acknowledged in Section 1.

## **Dedication**

The effort behind this work is dedicated to Annick Barros. Annick was an enthusiastic supporter of the project and assisted in field visits and trials, providing information and reviewing an early draft during May 1996 when working for the International Federation of Red Cross and Red Crescent Societies in Bukavu, Zaire. Prior to this assignment Annick had worked in the relief field for 5 years with Médecins sans Frontières and was highly committed to her work and the people she was working with and for. After Bukavu, Annick continued her work in Tanzania where she tragically died in December 1996 as a result of injuries sustained in a car accident.

Sarah House

# OVERVIEW

<b>Section 1</b>	<b>Introduction and instructions for use</b>	<b>1</b>
<b>Section 2</b>	<b>Survival supply</b>	<b>11</b>
	Procedures; selection; checklists and survey sheets	
<b>Section 3</b>	<b>Longer term supply</b>	<b>35</b>
	Procedures; selection; checklists and survey sheets	
<b>Section 4</b>	<b>Supporting information</b>	<b>101</b>
<b>Section 5</b>	<b>Equipment and addresses</b>	<b>255</b>



# CONTENTS

Acronyms

xvi

---

<b>Section 1</b>	<b>Introduction and instructions for use</b>	<b>1</b>
<hr/>		
About these guidelines		1
What is an 'emergency'?		2
Socio-political, legal, cultural and security issues		2
Approach		3
Application		4
Guideline user group		4
Relationship between source selection with other activities		4
Completeness of surveys		5
Record keeping		5
Photographs and sketches		5
Time targets for assessments		6
Instructions for use		6
Acknowledgements		7

<b>Section 2</b>	<b>Survival supply</b>	<b>11</b>
<hr/>		
<b>Procedures and selection</b>		<b>13</b>
Flowchart S1:	<b>Steps for assessing survival supply</b>	13
Flowchart S2:	<b>Source and water treatment process selection for survival supply</b>	14
<b>Checklists</b>		<b>15</b>
Checklist S1:	<b>Background information gathering and identification of working environment before departure and in-field</b>	15
	■ Background information gathering before departure and in-field	15
	■ Identification of working environment	16
Checklist S2:	<b>Reconnaissance of the area</b> (including existing water usage situation, features of the source, requirements for development, constraints and impacts)	17
	■ Regional orientation	17
	■ Settlement orientation	17
	■ Demographics, water usage and water demands	18
	■ Availability of resources / logistics	18
	■ Physical features including yield and quantity	19
	■ Management, legal, security, socio-political and cultural issues	19
	■ Requirements for development	20
	■ Impacts of development	20
<b>Survey sheets</b>		<b>21</b>
Survey sheet S1:	<b>Conversations / observations log</b> (2 pages)	21
Survey sheet S2:	<b>Addresses</b> (2 pages)	23
Survey sheet S3:	<b>Published information log</b> (2 pages)	25
Survey sheet S4:	<b>Resources log</b> (2 pages)	27
Survey sheet S5:	<b>Reconnaissance of area</b> (including existing water usage situation, features of the source, requirements for development, constraints and impacts) (6 pages)	29
	■ Regional orientation	29
	■ Settlement orientation	30
	■ Demographics, water usage and water demands	31
	■ Logistics	32
	■ Physical features including yield and quality	33
	■ Management, legal, security, socio-political and cultural issues	33
	■ Requirements for development	34
	■ Impacts of development	34

<b>Section 3</b>	<b>Longer term supply</b>	<b>35</b>
<b>Procedures and selection</b>		<b>37</b>
Flowchart L1:	<b>Steps for assessing longer term supply</b>	37
Flowchart L2:	<b>Pre-selection of sources for further investigation</b>	38
	<b>Water treatment process selection for longer term supply</b>	39
	■ Introduction	39
	■ How to use this section	40
	■ Water treatment process selection tools for longer term supply	44
	<b>Source selection for longer term supply</b>	46
	■ How to use this section	46
	■ Source comparison tool for longer term supply	49
<b>Checklists</b>		<b>53</b>
Checklist L1	<b>Background information gathering and identification of working environment before departure and in-field</b>	53
	■ Background information gathering before departure and in-field	53
	■ Identification of working environment	54
Checklist L2	<b>Reconnaissance of the area</b> (including existing water usage situation, logistics and resources)	55
	■ Regional orientation	55
	■ Settlement orientation	55
	■ Demographics, present water usage and water demands	56
	■ Availability of resources / logistics	57
Checklist L3	<b>Features of the source</b> (excluding water quality)	59
	■ Physical features including yield	59
	■ Management, legal, security, socio-political and cultural issues	59
Checklist L4	<b>Features of the source</b> (water quality)	60
	■ Water quality assessment	60
Checklist L5	<b>Requirements for development and impacts summary</b>	61
	■ Physical requirements	61
	■ Impacts of development	62
Checklist L6	<b>Confirmation of assumptions made during the selection process</b>	63
	■ Resources, logistics, legal, security, social-political and cultural issues	63

Checklist L7	<b>Groundwater investigation</b>	64
Checklist L8	<b>Rainwater investigation</b>	66
Checklist L9	<b>National government / local government / NGO / international organization</b>	68
	■ National or local government	68
	■ Non-governmental organizations and international organizations	69
Checklist L10	<b>Affected population / local population issues</b>	70
Checklist L11	<b>Water treatment works and urban water supply systems</b>	72
	■ Urban water supply system inventory	72
	■ Resources / spares checklist	74
	■ Water treatment works operational checklist	74
<b>Survey sheets</b>		<b>79</b>
Survey sheet L1	<b>Conversations / observations log</b>	79
Survey sheet L2	<b>Addresses</b>	81
Survey sheet L3	<b>Published information log</b>	83
Survey sheet L4	<b>Resources log</b>	85
Survey sheet L5	<b>Reconnaissance of area</b> (including existing water use situation, logistics and resources)	87
	■ Regional orientation	87
	■ Settlement orientation	88
	■ Demographics, present water usage and water demands	89
	■ Logistics	90
Survey sheet L6	<b>Features of the source</b> (excluding water quality)	91
	■ Physical features including yield	91
	■ Management, legal, security, socio-political and cultural issues	94
Survey sheet L7	<b>Features of the source</b> (water quality)	95
	■ Water quality assessment summary	95
	■ Water quality analysis	96
	■ Treatability tests	97
	■ Industrial pollution laboratory analysis	97
Survey sheet L8	<b>Requirements for development and impacts summary</b>	98
	■ Technical and O & M requirements and time of set up	98
	■ Resources and costs	99
	■ Impacts of development	100

<b>Section 4</b>	<b>Supporting information</b>	<b>101</b>
<b>Guidance on undertaking assessments and report writing</b>		<b>103</b>
■ Assessments		103
■ Report writing		104
<b>Management, legal, security, socio-political and cultural issues with case studies</b>		<b>108</b>
■ Management, legal, security, socio-political and cultural issues		108
■ Case studies		111
<b>Typical water source features</b>		<b>125</b>
<b>Requirements for development</b>		<b>131</b>
■ Technical		131
■ Resources / logistics		131
■ Time of set-up		131
■ Operation and maintenance (O&M)		132
■ Costs		132
<b>Impacts of development</b>		<b>136</b>
<b>Water quantities</b>		<b>141</b>
<b>Measurement of yield and water levels</b>		<b>143</b>
■ Groundwater - wells and boreholes		143
■ Groundwater - springs		145
■ Surface water - streams & rivers		146
■ Surface water - lakes and ponds		146
<b>Water quality assessment routines</b>		<b>148</b>
■ Introduction		148
■ Catchment mapping		148
■ Local knowledge including local medical information		149
■ Sanitary investigation / observation		149
■ Water quality analysis routine		151
■ Biological surveys		153
<b>Catchment mapping: Maps and symbols</b>		<b>154</b>
■ Catchment mapping: regional		154
■ Catchment mapping: local		156
■ Camp mapping		158
■ Detailed sketch of source		159
■ Mapping symbols		160

<b>Catchment mapping: Surveying</b>	<b>161</b>
■ Trigonometry	161
■ Pacing and using the vehicle mileage meter	162
■ Compass traverse	162
■ Measuring inaccessible distances	163
■ Using an aneroid barometer or an altimeter	164
■ Using a clinometer or Abney level	164
■ Using the Global Positioning Systems (GPS)	167
<b>Water quality analysis</b>	<b>169</b>
■ Introduction to physical, chemical and microbiological analyses	169
■ Water quality parameter summary tables	170
■ Water sampling	174
■ Treatability tests	176
■ Industrial pollution	181
■ Industries and activities and associated pollutants	185
■ Recommended water sample preservation techniques	193
■ Draft letter to laboratory requesting assessment	195
■ Draft letter to interpreting organisation	196
■ Organisations which may be able to interpret industrial pollution data	197
■ WHO drinking-water guideline values	198
<b>Biological survey</b>	<b>204</b>
■ Introduction	204
■ Small water animals	204
■ Other water animals, plants and algae	206
<b>Water treatment: Treatment processes and health and safety</b>	<b>214</b>
■ Features of treatment processes	214
■ Health and safety information	224
<b>Background to groundwater and aquifers</b>	<b>230</b>
■ Soils and rocks	230
■ Hydrological cycle	230
■ Water in soils and rocks	231
■ Groundwater	234
■ Aquifer characteristics	235
<b>Rock and soil identification</b>	<b>235</b>
■ Identification of rocks and aquifers	236
■ Aquifer properties	237
■ Unconsolidated sediments (soil) identification and infiltration rates	238
<b>Groundwater investigation</b>	<b>249</b>
■ Groundwater levels and interaction between water sources	249
■ Indicators of the presence of groundwater	252
<b>Rainwater harvesting</b>	<b>253</b>

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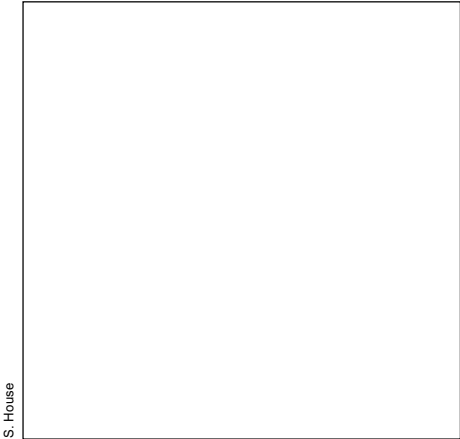
**Section 5      Equipment and addresses      255**

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<b>Glossary</b>	<b>257</b>
<b>Water quality analysis and surveying equipment</b>	<b>261</b>
■ General equipment (surveying, yield measurement etc.)	261
■ Makes and suppliers of general equipment	261
■ Water quality analysis equipment	262
■ Makes and suppliers of water quality testing equipment	269
■ Equipment selection	277
■ Example total kit list	277
<b>Water treatment: Mobile treatment units and modular kits</b>	<b>283</b>
■ Details	283
<b>Useful addresses</b>	<b>285</b>
■ Organisations which may be able to interpret industrial pollution data	285
■ Equipment manufacturers and suppliers	286
■ General	289
<b>Bibliography</b>	<b>291</b>

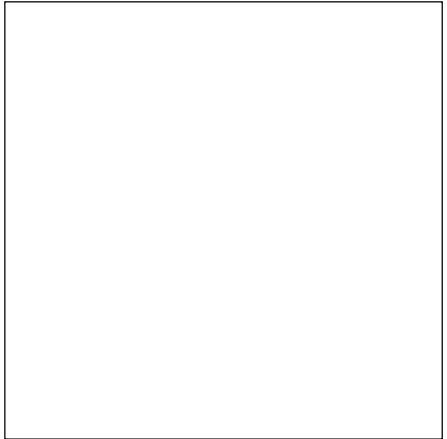
# ACRONYMS

ARRA	Administration of Refugee and Returnee Affairs (Ethiopia)
CEU	Construction Enterprise Unit
DFID	Department for International Development
GPS	Global positioning system
HCR	Shortened version of UNHCR
ICRC	International Committee of the Red Cross
IFRC	International Federation of the Red Cross and Red Crescent Societies
MSF	Médecins sans Frontières
NGO	Non-governmental organisation
NTU	Nephelometric Turbidity Units
O&M	Operation and maintenance
RAEWS	Rapid Assessment of Emergency Water Sources
REDR	Register of Engineers for Disaster Relief
RSF	Rapid sand filtration
SRS	Sanitary risk score
SSF	Slow sand filtration
THM	Trihalomethane
TU	Turbidity Units
TDS	Total dissolved solids
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNPROFOR	United Nations Protection Force
UNIDO	United Nations Industrial Development Organization
UTM	Universal Transverse Mercator
WEDC	Water, Engineering and Development Centre
WHO	World Health Organization



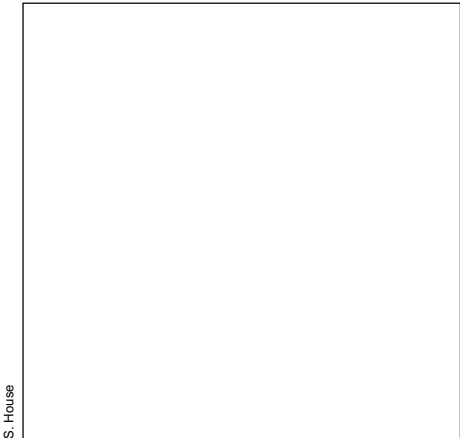
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Lungutu River, Eastern Zaire



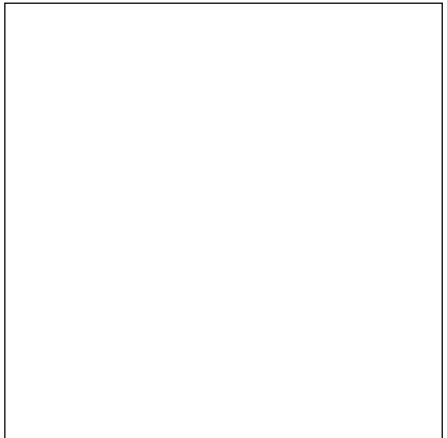
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Shallow groundwater, Teferi Ber, Eastern Ethiopia



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Shallow well under construction, Teferi Ber, Eastern Ethiopia



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Rainwater stored in *birka*, Kebri Beyah, Eastern Ethiopia

## Water sources

