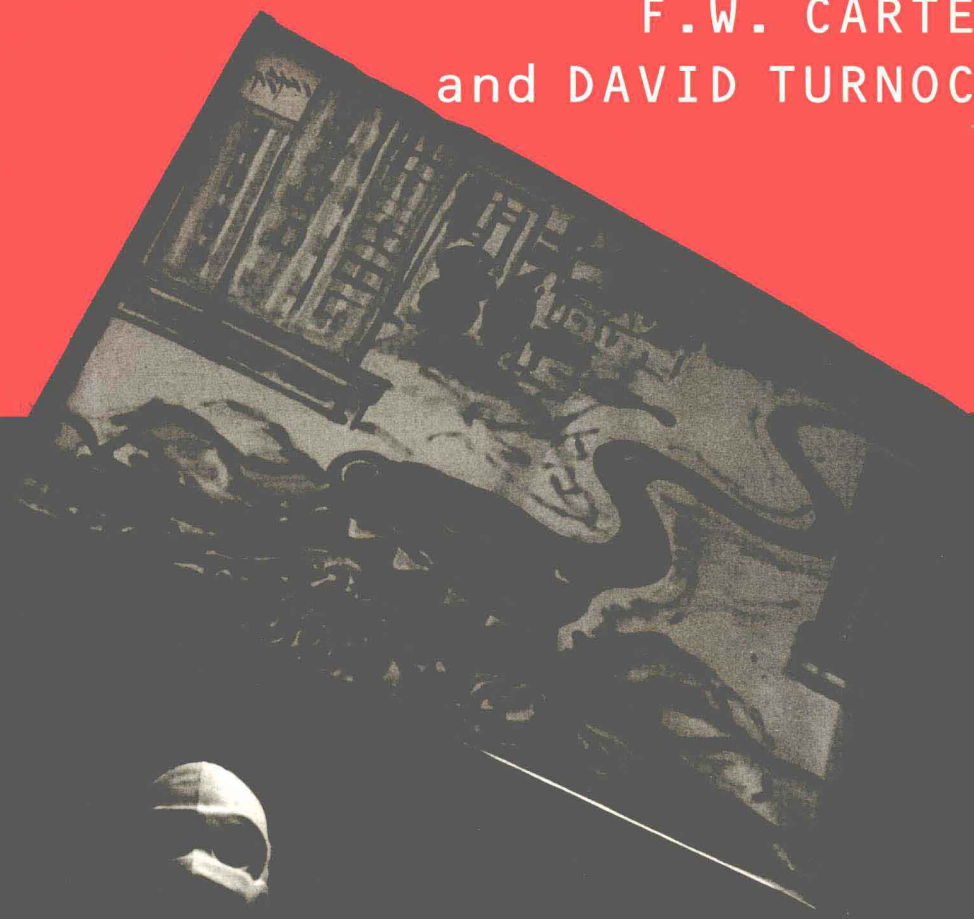


environmental problems in eastern europe

F.W. CARTER
and DAVID TURNOCK



UPDATED EDITION

ROUTLEDGE



ENVIRONMENTAL PROBLEMS IN EASTERN EUROPE

Edited by F. W. Carter and D. Turnock



London and New York

First published 1993
by Routledge
11 New Fetter Lane, London EC4P 4EE

Simultaneously published in the USA and Canada
by Routledge
a division of Routledge, Chapman and Hall, Inc.
29 West 35th Street, New York, NY 10001

© 1993, 1996 F. W. Carter and D. Turnock

Typeset in 10/12 pt September by
Leaper & Gard Ltd, Bristol
Printed and bound in Great Britain by
T.J. Press (Padstow) Ltd, Padstow, Cornwall

All rights reserved. No part of this book may be reprinted or
reproduced or utilized in any form or by any electronic,
mechanical or other means, now known or hereafter
invented, including photocopying and recording, or in any
information storage or retrieval system, without permission in
writing from the publishers.

British Library Cataloguing in Publication Data

A catalogue reference for this title is available from the British Library

ISBN 0-415-13757-8

Library of Congress Cataloging in Publication Data

Environmental problems in Eastern Europe / edited by F.W. Carter and
David Turnock

p. cm. – (Routledge natural environment–problems and
management series)

Includes bibliographical references and index.

1. Pollution–Europe, Eastern–History–20th century.
2. Transboundary pollution–Europe, Eastern–History–20th century.
3. Environmental health–Europe, Eastern–History–20th century.
4. Pollution–Europe, Eastern–Case studies. I. Carter, Francis W.
II. Turnock, David. III. Series.

TD186.E58 1993
363.73'2'0947–dc20

92-35163
CIP

ENVIRONMENTAL PROBLEMS IN EASTERN EUROPE

Environmental problems and transboundary pollution are now of international concern. Recent political changes in Eastern Europe have revealed how extensive has been the environmental damage of four decades of socialism. This legacy is one of the region's chief obstacles in the transition to a market economy.

Environmental Problems in Eastern Europe presents case studies of Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania and (former) Yugoslavia. Each chapter describes and analyzes the major causes and consequences of air, water, soil and vegetation pollution. The book focuses in particular on the effects on the peoples of Eastern Europe and on the environmental quality of life.

F.W. Carter is Head of Department of Social Sciences at the School of Slavonic and East European Studies, London University.

D. Turnock is Reader in Geography at the University of Leicester.

**ROUTLEDGE NATURAL ENVIRONMENT:
PROBLEMS AND MANAGEMENT SERIES**

Edited by Chris Park

Department of Geography, University of Lancaster

Offering a contemporary treatment environment topics, this series adopts an interdisciplinary international approach, and is an important source of information for the academic, the practitioner, and the student of environmental affairs.

THE ROOTS OF MODERN ENVIRONMENTALISM

David Pepper

ENVIRONMENTAL POLICIES

An international review

Chris C. Park

THE PERMAFROST ENVIRONMENT

Stuart A. Harris

THE CONSERVATION OF ECOSYSTEMS AND SPECIES

G. E. Jones

**ENVIRONMENTAL MANAGEMENT
AND DEVELOPMENT IN DRYLANDS**

Peter Beaumont

CHERNOBYL

The long shadow

Chris C. Park

NUCLEAR DECOMMISSIONING AND SOCIETY

Public links to a new technology

Edited by Martin J. Pasqualetti

GREEN DEVELOPMENT

Environment and sustainability in the Third World

W. M. Adams

**ENVIRONMENTAL POLICY AND IMPACT ASSESSMENT IN
JAPAN**

B. Barrett and R. Therivel

RADIOACTIVE WASTE

Politics and technology

Frans Berkhout

THE DIVERSION OF LANDS

Conservation in a period of farming contraction

Clive Potter, Paul Burnham, Angela Edwards, Ruth Gasson and Bryn Green

WASTE LOCATION

Spatial aspects of waste management, hazards and disposal

Edited by Michael Clark, Denis Smith and Andrew Blowers

LAND, WATER AND DEVELOPMENT

River basin systems and their sustainable management

Malcolm Newson

CONTRIBUTORS

Francis W. Carter is Head of the Department of Social Sciences at the School of Slavonic and East European Studies, London University. He has written extensively on East European problems in both the contemporary and historical perspective, especially in the urban context. Present interest is focused on contemporary changes in the area, with particular reference to energy problems, environmental degradation and urban conservation.

Derek R. Hall is Head of the Geography Unit at Sunderland University. He has been interested for many years in the socialist states of both Europe and the Third World but has specialized on the geography of Albania since the mid-1970s. Despite travel difficulties he has visited the country on several occasions and published papers on all aspects of human geography, especially tourism and transport. He is currently studying the potential for tourism in various parts of Eastern Europe in association with international organizations such as the World Conservation Union.

Don Hinrichsen is an author and consultant (for environment, development and conservation issues) based in London. He is engaged by several UN agencies. He was previously Editor-in-Chief of the *World Resources Report* published in Washington; and editor of *AMBIO* (the international journal of the human environment) published by the Royal Swedish Academy of Sciences in Stockholm. He has also served as foreign correspondent for radio, newspapers and magazines in Athens, Berlin and Copenhagen; and has written a number of books: most recently *Our Common Seas: Coasts in Crisis* and *WWF Atlas of the Environment*.

Barbara Jancar-Webster is Professor of Political Science at the State University of New York at Brockport. She is the author of *Environmental Management in the Soviet Union and Yugoslavia* which received the International Studies Association's 'Sprout Award' in 1990 for the best book in the field of comparative/international studies published in that year. She has studied and travelled widely in east-central Europe and the former Soviet Union and has published over fifty articles on environmental problems, women's issues and other matters relating to

CONTRIBUTORS

the former Communist countries. In 1992 she was SUNY–Moscow University exchange scholar in the Department of Environmental Economics of the MGU's Faculty of Economics.

Istvan Láng is Secretary-General of the Hungarian Academy of Sciences based in Budapest, having previously been Deputy Secretary-General of the Academy's Biological Section and a scientific researcher at the Hungarian Institute for Soil Science and Agricultural Chemistry. He has contributed to international organizations as a member of the World Commission on Environment and Development (Brundtland Commission); at present he is a member of the Executive Board of the International Council of Scientific Unions and of the Editorial Advisory Board of the World Resources Institute in Washington.

David Turnock is Reader in Geography at Leicester University. He has been researching on the geography of Eastern Europe since the 1960s and has published widely on a range of economic and historical themes. His particular interest is Romania where he is currently engaged in an ESRC-funded research project dealing with the consequences of the transition to a market economy in the Carpathian regions of the country.

PREFACE

This book was planned during the 1988 Anglo-Bulgarian Seminar which was held at the University of London's School of Slavonic and East European Studies. We felt that environmental problems in Eastern Europe were gaining increasing recognition both inside and outside the region. Therefore it seemed an opportune moment to undertake a review of the situation in each country and to offer a comprehensive view to complement the *ad hoc* surveys already available. We were pleased when Routledge took up the idea with their series on 'Environmental Studies' in mind, and wish to record our thanks to Tristan Palmer of Routledge and the series editor Chris Park (Lancaster University) for their support and encouragement. The book was planned at a time when few commentators anticipated the early demise of state socialism and so we are pleased to find that we can cater for the great increase in interest in East European problems in general since the revolutions of 1989. But we must stress that the research does not take detailed account of current trends, being primarily a 'base line' study of the environmental situation which is just one of a complex of issues complicating the transition to a market economy in each country of Eastern Europe.

We are grateful to our four contributors who have been free to present their assessments in their own way so as to take full advantage of their experience and expertise. The differences in structure and illustration reflect the lack of any rigid plan – an approach which we considered appropriate in view of the differences in source material between the various countries. We regret that there is no detailed coverage of the former German Democratic Republic: although the unification of Germany has in a sense detached this component from the old bloc of socialist countries it was our intention that coverage should be given and it is unfortunate that material could not be secured in time to meet the requirements of the publication schedule. We also regret that the Yugoslavia chapter was prepared before the process of disintegration in that country had escalated to the point of secession by several constituent republics, therefore we are unable to recognize the independence of Croatia and Slovenia through provision of chapters on these two countries aside from the discussions dealing with the former Yugoslav state as a whole. Similar sentiments must be issued with regard to Bosnia-Herzegovina

PREFACE

and Macedonia whose quest for recognition by the world community was gaining momentum when these notes were written.

Francis W. Carter and David Turnock
March 1992

PREFACE TO THE 1996 EDITION

As editors, we are very pleased that the book has been sufficiently well received for a paperback edition to be justified. Unfortunately, the tight production schedule has made it impossible to revise the chapters which first appeared in the 1993 edition. We have been able to add two new chapters: one to review the general situation which has unfolded during the transition years and another to present a case study of environmental action, both indicating the range of approaches that are now being adopted. This compromise, however, is particularly unfortunate in that it again fails to recognize events in the Former Yugoslavia where the collapse of the old federation was evident even before the first edition appeared. Also it fails to acknowledge properly the 'Velvet Divorce' and breakup of Czechoslovakia which occurred in January 1993. All we can do is hope that continued interest in the book will be sufficient to allow a more comprehensive revision to be made in due course, so that the present political realities can be fully taken into account.

Francis W. Carter and David Turnock
August 1996

CONTENTS

<i>List of figures</i>	vii
<i>List of tables</i>	ix
<i>List of contributors</i>	xi
<i>Preface</i>	xiii
1 INTRODUCTION	1
<i>F. W. Carter and D. Turnock</i>	
2 ALBANIA	7
<i>D. R. Hall</i>	
3 BULGARIA	38
<i>F. W. Carter</i>	
4 CZECHOSLOVAKIA	63
<i>F. W. Carter</i>	
5 HUNGARY	89
<i>D. Hinrichsen and I. Lang</i>	
6 POLAND	107
<i>F. W. Carter</i>	
7 ROMANIA	135
<i>D. Turnock</i>	
8 FORMER YUGOSLAVIA	164
<i>B. Jancar-Webster</i>	
9 ENVIRONMENTAL ISSUES IN THE NITRA VALLEY OF SLOVAKIA	188
<i>D. Turnock</i>	
10 A REVIEW OF ENVIRONMENTAL ISSUES IN THE LIGHT OF THE TRANSITION	206
<i>F. W. Carter and D. Turnock</i>	
<i>Bibliography</i>	252
<i>Index</i>	285

FIGURES

1.1	Eastern Europe: major pollution centres	2
2.1	Pollution in Albania	8
3.1	Pollution in Bulgaria	39
3.2	Nature conservation regions (ZPT) in Bulgaria	41
3.3	Relief and hydrology of the Sofia Basin	55
3.4	Tourism on the Black Sea coast of Bulgaria, 1985	60
4.1	Pollution in Czechoslovakia	64
4.2	Czechoslovakia: transboundary movement of major air pollutants (excluding former USSR), 1987	67
4.3	The North Czech region: industries and communications	78
4.4	Prague: relief	82
4.5	Dust fall-out in Prague, 1966	83
4.6	Prague's recreation regions	85
4.7	The West Slovakian region: industries and communications	86
5.1	Areas of Hungary affected by sulphur dioxide pollution	93
5.2	Areas of Hungary affected by nitrogen dioxide pollution	93
5.3	Areas of Hungary affected by dust	94
5.4	Water use in the Hungarian national economy, 1970–84	98
5.5	Nitrate concentrations in the Danube downstream of Budapest, 1870–1985	100
6.1	Pollution in Poland	108
6.2	Gas and dust emission from industry in Poland, 1973–84	111
6.3	Cracow: spatial distribution of mean pH and SO ₂ values, January 1975 to December 1977	129
6.4	Air pollution in the Cracow region, 1979	130
7.1	Pollution in Romania	137
7.2	Major pollution concentrations in Romania	140
7.3	Romania's Danube delta	145
7.4	Green spaces in Romanian towns	151

FIGURES

7.5	Nature reserves in Romania	154
7.6	Ecology parties in the Romanian elections of 1990	160
8.1	Pollution in former Yugoslavia	165
8.2	Water quality of former Yugoslavia's major rivers	167
8.3	Protected areas in former Yugoslavia	170
9.1	The Upper Nitra Valley	190
9.2	Aspects of land use, settlement and pollution in the Prievidza area	194

TABLES

2.1	Protected areas in Albania	12
2.2	Growth of use of chemical fertilizers in Albania, 1950–88	28
3.1	Emissions of SO ₂ in Bulgaria	43
3.2	Recorded gas emission levels in Ruse, Bulgaria, 1982–7	57
4.1	Air pollution in Czechoslovakia, 1986	65
4.2	Major sources of pollution in Czechoslovakia, 1988	68
4.3	Forest damage in Czechoslovakia, 1970–2000	72
4.4	Life expectancy in the North Bohemian region, 1989	81
5.1	Areas of polluted air in Hungary and the population affected	91
5.2	Areas of polluted air in Hungary as percentages of the total area and population of the country	92
5.3	Land use patterns in Hungary, 1950–86	103
6.1	Dust and gas emissions in Poland, 1980–90	110
6.2	Poland: river pollution classification, 1964–89	113
6.3	Poland's contribution to Baltic pollution, 1989	116
6.4	Land reclamation in Poland, 1975–90	118
6.5	Recorded caesium 137 and strontium 90 in Poland, 1980–90	119
6.6	Poland: life expectancy, 1965, 1985, 1990	121
7.1	Green spaces within urban building perimeters in Romania	150
7.2	Romanian towns classified according to population size and provision of green space, 1980	150
9.1	Study area profile, 1990	189
9.2	Pollution in Slovakia: the counties of the study area and other counties badly affected in 1990	195
9.3	Planning for the Nitra Valley settlements	200
10.1	Emission of sulphur and nitrogen oxides	209
10.2	Sulphur emissions from the 100 biggest sources	210
10.3	Results of forest damage surveys: percentage of trees with more than 25 per cent defoliation	224
10.4	East–Central Europe: commitment to sulphur reduction	246

INTRODUCTION

F.W. Carter and D. Turnock

This book was planned in 1988 at a time of increasing public awareness about the serious environmental problems of Eastern Europe. More recently, European environment ministers have urged governments of the former Eastern bloc countries to establish a critical timetable for new standards to bring local principles into line with those in the rest of Europe. As we progress towards a more unified continent, there is a need for a comprehensive overview of the growing environmental menace in Europe resulting from the requirement of air pollution control, water and waste-water treatment, reclamation of contaminated land and hazardous waste treatment and disposal. In east-central Europe much of this situation can be laid at the feet of four decades of central planning by Communist parties, which failed to adhere to declared priorities for sound environmental management; instead, there was serious ecological damage of the sort previously attributed only to Western capitalist regimes.

Admittedly, some pollution black spots already existed in this area prior to the Second World War but they were mainly confined to the limits of the Budapest–Łódź–Leipzig industrial triangle. The early years of post-war development saw the initiation of projects under socialism which were relatively harmless environmentally; however, there was a powerful urge to rapidly develop their economies and eliminate areas of material underdevelopment. There ensued a proliferation of large-scale programmes of mining and heavy manufacturing which increased the risks of environmental damage by alarming proportions. Adoption of the Stalinist model of economic development led to emphasis on heavy industry, including cement, chemicals and metallurgy, along with the drive to exploit all available energy resources through domestic thermal power-stations, which all helped to take their toll on the environment. Moreover, the Marxist concept of regarding natural resources as ‘free goods’ has only added to the problem by encouraging waste.

Over several decades naturalists have issued warnings about the impact of high-level environmental damage, while doctors have increasingly stressed the dangers of polluted air and water on the health of the population. Economists similarly appreciate the heavy costs afflicted by pollution in agriculture, forestry and tourism, whilst sociologists are conscious of the spin-off on the quality of life

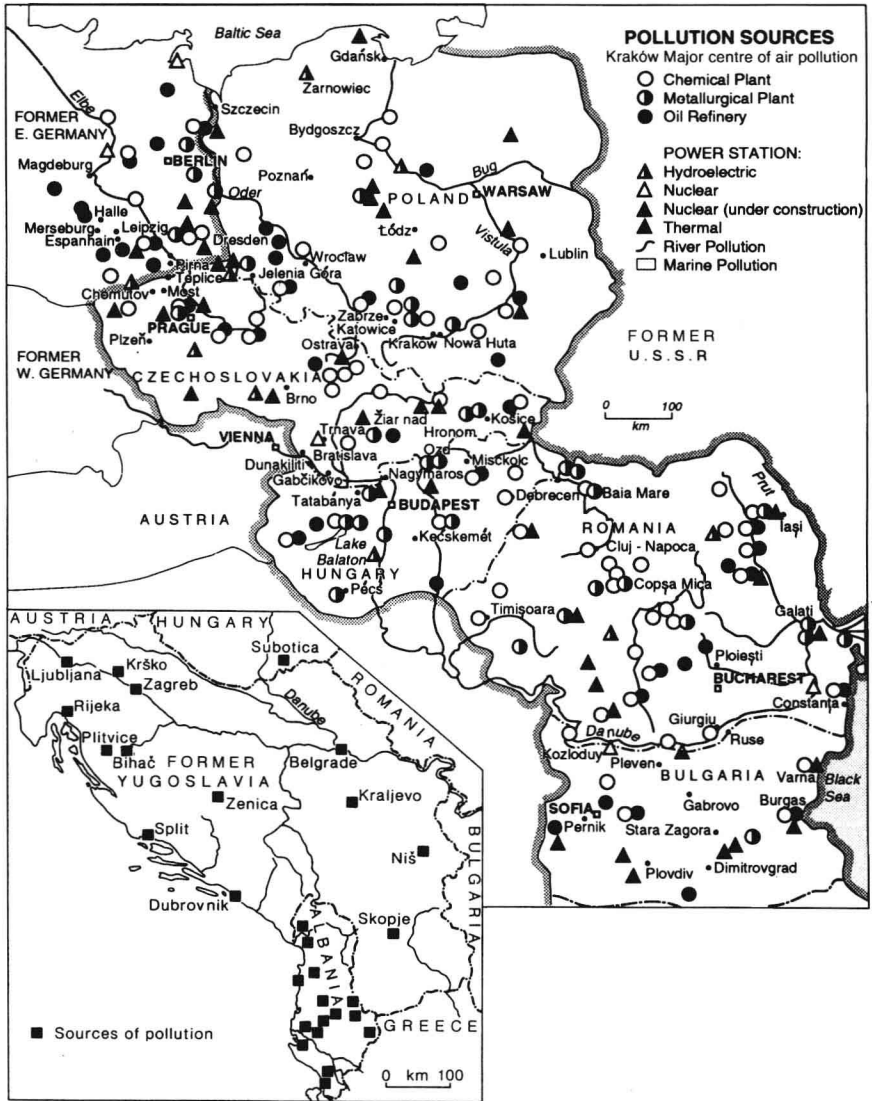


Figure 1.1 Eastern Europe: major pollution centres

Source: Based on J. Thompson (1991) 'East Europe's dark dawn', *National Geographic* 179 (6), p. 44.

INTRODUCTION

created by a blighted environment. Unfortunately, these socialist governments saw the financial expenditure on reducing pollution levels as unacceptably too high and replaced them with less effective palliative measures. In fact, these governments tended to protect themselves from the realities of environmental degradation by giving a low priority to pollution research and monitoring. This has resulted in a lack of reliable data which is so necessary for the preparation of a realistic strategy – now so urgent in these countries – and has led to a confusion about contemporary strategies and aims, and lack of accord both at domestic and international policy levels, to effectively deal with the regional degradation of the environment. In fact, in the past, publication of pollution material was deliberately deterred, whilst factory employees were dissuaded from commenting on the weaknesses of certain industrial processes.

The combination of large natural deposits of sulphurous brown coal/lignite, a wasteful and unyielding ideological and economic system, and the adherence to an outmoded and inadequate heavy industrial infrastructure, all contributed to an easily identifiable problem of environmental degradation sometimes reaching severe proportions. Fortunately, during the 1970s and 1980s there was increasing awareness placed on pollution control, although the accompanying legislative support was often found wanting; nevertheless, this experience has been useful in demonstrating what was needed in the immediate future if problems were to be solved. It is now realized that more research is needed if pollution forecasts are to improve. It is absolutely imperative that government legislation lays down clear standards which can be applied over a wide range of conditions, and these laws must be implemented by state courts.

There are indications that these lessons have already been learnt, because even before the revolutionary upheavals of 1989 new legislation was being introduced in many east-central European countries. Even so, there are still fears that Western companies may try to take advantage of the more relaxed legislation in east-central Europe, encouraging the deliberate selling and use of technologies which are at present prohibited in the exporting country. There is obviously a need for legislation to protect these former Communist countries from unclean Western industries migrating eastward. However, without the liberalization of trade it would be difficult for countries to exert pressure on the monopoly companies which in the past were mainly responsible for high pollution emission rates, particularly in the so-called 'black triangle' covering Czechoslovakia, Poland, and the former East Germany.

The scale of transboundary pollution has also come under closer scrutiny. East-central Europe has not only signed trade agreements with Western companies to dispose of waste material, it has also been obliged to import air and water pollutants from Western Europe as well as those generated by immediate neighbours, as was seen in the case of Poland with transboundary deposits from the eastern parts of the former East Germany adding to its own pollution problems. It is hoped that the European Commission's important changes in attitude to environmental research through the Environment Research

Programme initiated in June 1991 by the Council of Ministers, will open all parts of the programme to the countries of east-central Europe, whose environmental problems are of concern to the whole continent. By means of a clause in the council's decision, these countries may be included in specific projects, as appropriate, without the need for separate agreements. Special arrangements will also be made to finance them.

Environmental damage can be seen in all parts of east-central Europe, but commentators are agreed that there are quite massive variations in the levels of air, water and soil/vegetation pollution which constitute the heart of the problem. It should therefore be a straightforward task for the geographer to highlight the uneven distribution. However, it is extremely difficult to produce a set of maps showing the extent of the variations according to a range of criteria. As this book will show, much published research deals with local problems and a simple collation of this material cannot provide a satisfactory overall view. Official statistical yearbooks vary a great deal in the attention given to pollution and while some countries like Hungary and Poland are relatively forthcoming, other states such as Albania and Romania have virtually nothing to say on the subject.

However, the emission of atmospheric pollutants correlates closely with thermal power stations and units of heavy industry, where sulphur dioxide is a key criterion, although all large cities are significant contributors, along with nitrogenous oxides, because of the prominence of motor traffic and domestic heating systems. Atmospheric pollution largely arises from the types of energy resources which have been available and the ways they have been utilized. For example, in the former East Germany and in Czechoslovakia, these states have been bequeathed by nature with an abundant supply of brown coal/lignite. As a result of the Communist states' propulsion towards self-sufficiency, together with the relative dearth of alternative resources of energy, one should not be amazed at the obvious heavy exploitation they have received, particularly as the basis for all kinds of industrial development.

Typical of such a situation is the former state of East Germany. Whilst the unification of Germany has made a special chapter on this country less appropriate, its impact should not be ignored. The centre of the problem in that country lay with the use of lignite, a soft, brown, low-quality coal found and used there in abundance. It provided over two-thirds of the state's domestic energy needs and was used largely as a raw material for the chemical industry and as a fuel in thermal electric power-stations. By 1978, hard coal reserves were virtually worked out, resulting in greater use of the only other fuel in profusion, namely lignite, with its large burn-off rate, mostly in the form of acrid fly ash and noxious sulphur dioxide.

The inevitable result was an ever-present cloud of dust and soot which enveloped the country (see Figure 1.1). For example, Leipzig was covered in 400,000 tonnes of SO_2 annually, life expectancy was six years less than the national average, and four-fifths of the children aged below 7 years developed