UK progress towards World Health Organisation targets on health and the environment
UK progress towards the nine health and environment targets within the World Health Organisation’s 38 targets for Health for All by the Year 2000. Target used are those set by the WHO in their 1991 revision.

Contents

Introduction 1
Target 11 Accidents 4
Target 18 Policy on Environment and Health 11
Target 19 Environmental Health Management 18
Target 20 Control of Water Pollution 25
Target 21 Control of Air Pollution 32
Target 22 Food Quality and Safety 40
Target 23 Control of Hazardous Wastes 48
Target 24 Human Ecology and Settlements 51
Target 25 Working Environment 57
Notes & References 63

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Based on research for Friends of the Earth by the South East Institute for Public Health
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Introduction

Over the last few years there has been growing recognition of the need to tackle environmental and health problems in an integrated manner. Calls by the World Health Organisation for more action and integrated policy making in this critical area for sustainable development have been echoed by the Chartered Institute of Environmental Health, the Public Health Alliance and Friends of the Earth. Governments have responded to some degree - we have a European Charter of Environment and Health, a National Environmental Health Action Plan (NEHAP), and the last Government was about to make the Environment a “Key Area” in its Health of the Nation Strategy. But this process of integration must continue - for there are many remaining problems.

This report assesses of the scale of these problems, to help policy makers judge where actions need to be focused. It takes, as a framework, the UK’s commitments to World Health Organisation targets in its Health for All programme. Fifteen years ago, the UK and other European countries signed up to nine World Health Organisation targets on environment and health to be met by 2000. The Labour Government has made clear its support for the Health for All process, which includes these targets. Below Friends of the Earth presents an analysis of whether the UK will meet these targets, in part based on expert research undertaken for us by the South East Institute of Public Health. This analysis makes it clear that the UK will not meet 7 of these targets, and cannot be entirely confident of meeting the other two. Inequality is a major problem, running through all nine areas. Environment problems remain major threats to health - killing tens of thousands of people prematurely each year, and reducing the quality of life of millions. These problems impact disproportionately on poorer people within our society. Tackling these problems is critical to ensure progress towards sustainable development.

However, the recent publication of two Government consultation papers - Our Healthier Nation (OHN), and Opportunities for Change (OFC) - raise serious concerns that environment and health are not being dealt with in an integrated manner by the new government. This is not because they are ignored - for there are fine statements in both documents, especially the new drive to tackle health and environmental inequalities - but because the policy framework does not appear to cater for the action necessary to tackle them. OFC refers health actions within the environment to
UK progress towards World Health Organisation targets on health and the environment

OHN, but although OHN recognises the problems, it offloads them and environmental actions on health back into OFC and onto a proposed revision of the NEHAP. Actions which remain appear as either afterthoughts or emollient, or have few specific proposals for how to tackle the problems identified.

We feel that the integrated issues of health and environment are fundamental to sustainable development, and that Government should not postpone action in this essential area until after the main policy frameworks have been set out. The Sustainable Development Strategy and Public Health Strategy must together set out how it is intended to tackle integrated health and environmental problems - this is critical to ensuring progress on the overarching goals of both strategies:

- Social progress which recognises the needs of everyone
- Effective protection of the environment
- To improve the health of the population as a whole
- To improve the health of the worst in society and to narrow the health gap

If these strategies are going to be able to meet their goals, they must explicitly tackle the problems identified here. The UK is hosting the third Ministerial Conference on Environment and Health in London in 1999 - the theme being implementation of plans to tackle Environment and Health problems. If the Government uses the Public Health White Paper to establish the legislative and policy framework needed to tackle these problems, the UK will rightly be seen as being at the forefront of action on environment and health in Europe. But if these new strategies do little more than reiterate the actions and policies of Health of the Nation and the old Sustainable Development strategy, then they will show the present Government to be either unable or unwilling to tackle the legacy they have been left with.

The analysis below shows that the two major failings of policy on health and the environment, running through all nine target areas, are

- A failure to integrate policies and approaches
- A failure to address inequalities, especially those that are environment related
Overall, the impacts of these failures are worse health and reduced quality of life, for the country as a whole. However the impacts are borne disproportionately by poorer people, exacerbating health inequalities. The disadvantages of poor quality housing, air quality, access to services and healthy food and other environmental influences combine with lack of employment and a decent income to create and worsen social exclusion, which threaten to create a real underclass of people in the UK. Policies to tackle inequalities and social exclusion must integrate health and environment concerns, or they will not succeed.
Target 11: Accidents

By the year 2000, injury, disability and death from accidents should be reduced by at least 25%

2 Introduction

As this report is concerned with UK progress towards on health and the environment, this section will focus on road accidents. Accidents at work and in the home are considered in other sections.

Deaths from road accidents are at their lowest levels since 1929, when records began. Steven Norris MP introduced the 1995 Road Safety Report by saying “We continue to have the best road safety record in the European Union”. However, he missed the point somewhat here - being the best does not mean much when all records are terrible, despite the large falls in road deaths. The death toll is still over 3,500 people each year, and over 300,000 people are injured.

The UK has adopted a more stringent target than that set by WHO - to reduce accidents by one third by 2000, and this has been met for road deaths and serious injuries. There is a great advantage in having a single up-front target to focus attention - as the progress towards the Government’s one-third reduction in road accident casualties has shown. However the
disadvantage is that it is does not indicate any priorities within that target. Recent Government assessments show that major problem areas remain:

“Looking at experience elsewhere, Great Britain has one of the best road safety records in the EU on almost every measure. However, our record for pedestrian and cyclist safety remains relatively poor, particularly for child pedestrians where we are amongst the poorest performers”\(^2\)

For despite improvements, 1000 pedestrians are killed each year and road accidents are the major cause of death for 1-14 year olds. And looking further within these figures shows that there are more issues to be tackled - not only have the improvements not been as good for pedestrians and cyclists in absolute terms, but when expressed in terms of accidents per mile travelled, cycling and walking improvements are almost non-existent. For some groups even, cycling is more dangerous than 20 years ago. Also, danger and perceived danger from traffic have increased, reducing people’s, and especially children’s, independence and quality of life. And there are great inequalities within accident figures - children in social class V are at five times greater risk than those in social class I.

As the Government is moving towards setting new targets for accidents, implementing an integrated national transport strategy and leading a drive to reduce inequalities, all of these issues could be addressed. The rest of this section looks at the sorts of measures on accident reduction which can tackle these inequalities and increase quality of life as well as reduce the number of accidents.

**Strategies for accident reduction**

The aim of any progressive strategy on accidents should be to increase safety and thus reduce the number and severity of accidents. There is a danger that these aims can be contradictory - for example, if pedestrians do not use a road because it is getting more dangerous, then there will be an decrease in accidents and a decrease in safety. An ideal situation would see decreases in accidents, and increases in walking and cycling rates. These are not incompatible aims, despite past practice.
But safety measures have been skewed somewhat in favour of car users. Anti-speeding and drink driving campaigns have had positive effects for all road users. But other safety measures - bull bars, air bags, rear-seat belts and side-impact bars - have been almost exclusively for the benefit of car-users. It seems almost as if the falls in cycle and pedestrian deaths - as a result mainly of falling rates of use of these forms of transport - have precluded other actions to increase their safety. For when accidents are presented per mile travelled, the figures show that cycling for children is now more dangerous than 20 years ago. For all cyclists there are now more injuries per mile travelled than there were 20 years ago, although the increase is not as dramatic as for children.

The Royal Commission on Environment and Pollution say: “The implications are that the accident risk for pedestrians may have remained much the same, and the disruptive effect of

road traffic on social contacts and community life may have intensified”.

The RCEP also discusses the efficacy of various international methods on road safety:

"Denmark has sought to reduce deaths among child pedestrians through traffic restraint policies which involve reducing speed limits in urban areas and designating zones in which pedestrians have priority. In contrast, the UK, the USA and New Zealand have placed the emphasis on
educating children in road safety. A comparison of trends in child pedestrian mortality over the last 20 years suggests that traffic restraint policies have been a more effective approach".3

The other interlinked and adverse effects of the failure to take a traffic restraint approach in the last two decades have been plain to see. Increasing provision for cars has led to planning decisions favouring out-of-town development. Large retail chains offering greater choice at lower prices have put great pressures on small inner city businesses and markets: the implications are severe for those without access to cars4, and for the permanence of community life in cities5. Increased motor traffic, with less cyclists and pedestrians may mean less contact between these three groups, and less accidents, however there are knock-on effects for targets on children’s health and quality of life in towns and cities. Fear of road traffic has lead to more parents driving their children to school, and parks are often separated from communities by busy roads, which parents forbid their children to cross without an escort. There are clear implications here for the quality of life, freedom and long-term health of today’s children6. Whitelegg and Adams report that “Transport policies in all motorised countries have been transforming the world for the benefit of motorists, but at the cost of children’s freedom and independence to get about safely on their own ... we have created a world for our children in which safety is promoted through fear”. There are effects for adults in communities also, for traffic volume and speed increase community severance. On the busiest streets, people know less and see less of their neighbours than on streets with less traffic7 - this has well documented negative effects on health. The effects of such policies have
also exacerbated the problems of inequalities. As well as marginalising people without access to a car, accidents affect poorer communities to a greater extent.

The interlinked effects of such policies are again seen in the effects of an increased dependence on sedentary car-dependent lifestyles on physical health. 53% of men and 44% of women are overweight, and the most active in society are 20% less likely to have had a cardiovascular disorder than the least active. The Health Education Authority report that if everyone adopted recommended levels of physical activity, nearly one third of all coronary heart disease would be prevented. As a result, the lack of provision for cycling and walking in favour of car use has an adverse effect on the health of the population. The BMA reports that “even in the current hostile traffic environment, the benefits gained from regular cycling are likely to outweigh the loss of life through cycle accidents”. Hillman’s research concludes that “The benefits gained from regular cycling outweigh the loss of life in cycling fatalities by a factor of around 20 to 1”.

In an integrated approach, multiple benefits of reduced accidents, increased safety, less pollution, reduction in inequalities and all the areas mentioned above, would be sought at the same time. To achieve this, the priorities have to shift towards traffic reduction, and making explicit provision to protect vulnerable road users. This approach has been shown to work. York has a “priority road user hierarchy” where pedestrians, disabled people and cyclists are put at the top. The results of this approach have been summarised by Potter:

“The integration of safety for all modes with demand management transport policies has resulted in York easily outperforming the UK average for casualty reduction. This comparison raises the issue of whether it is possible at all to achieve anything like a one-third reduction in transport casualties outside an integrated transport planning framework. Within such a framework, even better reductions (approaching a half) seem achievable”

With traffic calming, pedestrianisation and cycle routes and facilities, the number of road casualties in York from 1981-85 to 1992 has decreased by 43%, compared with a 3% decrease nationwide:
UK progress towards World Health Organisation targets on health and the environment

<table>
<thead>
<tr>
<th>Changes in road casualties in York and the UK (% change), 1981-5 to 1992</th>
<th>York</th>
<th>UK</th>
</tr>
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<tbody>
<tr>
<td>All casualties</td>
<td>-43%</td>
<td>-3%</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>-41%</td>
<td>-18%</td>
</tr>
<tr>
<td>Pedal cyclists</td>
<td>-33%</td>
<td>-13%</td>
</tr>
<tr>
<td>Car drivers</td>
<td>-3%</td>
<td>+40%</td>
</tr>
<tr>
<td>Car passengers</td>
<td>-12%</td>
<td>+14%</td>
</tr>
</tbody>
</table>

A shift in policy, to meet broad and interlinked health and environmental objectives, is required to attempt to meet the challenge put down by WHO and Our Healthier Nation, to improve health, quality of life and reduce inequalities.

**New indicators**

While past approaches have brought about limited successes, new indicators and targets are needed. For cycling for example, the Royal Commission on Environmental Pollution (RCEP) say, new indicators are needed “to remove the possibility that a target for reducing casualties could be met by policies which merely lead to a further fall in the already low level of cycling in the UK”\(^{13}\). New indicators could therefore look at rates per mile travelled as well. This could be extended to other areas, to identify areas where improvement is needed. As an example, research from the Department of Transport shows that, per mile, company car drivers are 41% more likely to have an accident than ordinary motorists\(^{14}\). If company car drivers were just as likely to have accidents as other motorists, there would be 27,000 less accidents each year. Judicious use of indicators could help target key areas where improvement is most needed.

**Conclusion**

It seems likely that the WHO target will be met for serious injuries and deaths. However, it is unlikely that the target will be met for other injuries. Moreover the manner in which progress is being made towards this target is at odds with the spirit if not the letter of the target. Transport policies centred around providing for the motorist have reduced the carnage on the roads, but
have not made them safer, particularly for cyclists and pedestrians. Indeed these policies are shown to be having an adverse effects on other WHO targets - notably those on quality of life, inequalities, human ecology and settlements, health of children and young people, and reduction of cardiovascular disease. These varied and wide-ranging health problems stem at least in part from the same policy failures - providing for car traffic to the detriment of other forms of transport, and allowing traffic levels to grow unchecked. As the Government has recognised, an integrated transport policy is required, but to meet health needs, such a policy must be based around meeting peoples’ need for access and on reducing traffic levels. Particular attention must be directed at improving the conditions for pedestrians and cyclists.

This assessment indicates clearly the failure of the UK to integrate health and environmental policies effectively. Not only have limited health improvements (lower death rates from accidents) been achieved at the cost of environmental decline from increased car use, but that outcome and the mechanisms that have led to it have worsened other health problems - notably worsening quality of life, increased cardiovascular disease through sedentary lifestyles, and respiratory disease through poor air quality.
UK progress towards World Health Organisation targets on health and the environment

Target 18 - Policy on Environment and Health

By the year 2000, all Member States should have developed, and be implementing, policies on the environment and health that ensure ecologically sustainable development, effective protection and control of environmental health risks and equitable access to healthy environments.

Progress towards Target 18

Over the last five years there have been many events in environment and health policy. The UK signed up to the Rio declaration and Agenda 21, which defined sustainable development, and linked health and environmental problems. The UK followed up these international commitments with a national sustainable development strategy. There have been two WHO European conferences on Environment and Health, in Frankfurt in 1989 and Helsinki in 1994. At these conferences the UK and other countries again restated their commitment to WHO Health For All targets, and to the European Charter on Public Health. As part of the preparation for the third of these conferences, to be held in London in 1999, the UK has been one of six countries to produce a National Environmental Health Action Plan (NEHAP). This document provides a comprehensive overview of current actions on environmental health issues. The Health of the Nation strategy, launched in 1992 failed to set environmental targets - as the health risks from environmental problems were not at the time believed to be a major problem. In late 1996 the Government consulted widely on the need for bringing environmental targets into the Health of the Nation Strategy. More recently the Government has made welcome clear and bold statements (but with no new commitments to action) on the need for integration of health and environmental policy, with the newly created Minister for Public Health saying that15:

“Poverty, unemployment, bad housing, social isolation, pollution, ethnic policy minority status and gender have for too long been regarded as peripheral to health policy. Public health has been marginalised and its laws and structures have been neglected”

In many respects, therefore, the UK has made good progress on integrating environment and health. However, there is a major difference between paper promises at international conferences
and making policies for action on the ground. Even the ground-breaking NEHAP, which saw integration between the Departments of Health and Environment, is only an overview of current actions, with little analysis of the extent of problems or discussion of actions which are needed. In many ways, true progress towards ecologically sustainable development is still hamstrung.

**Sustainable development**

The Government is committed to Sustainable Development. However, this term has come to be badly misinterpreted—often as sustainable economic development, or sustainable growth. Indeed, the main driving goal of the UK and other Western Governments is to increase economic growth. Yet this model is threatening the global environment, increasing inequity and damaging quality of life. Conventional development is taking us to environmental limits— we see this for climate change, deforestation, depletion of the ozone layer and of fishing stocks. It is increasing global and national inequalities— global inequity has more than doubled since 1960 leaving around 1.3 billion people in poverty. And increasingly the gains in standard of living for the more affluent are being outweighed by losses in quality of life— for example from the effects of road traffic in cities.

Sustainable development requires us to keep within environmental limits, and to allow all people, nationally and globally, to have access to enough resources to meet their needs. To achieve this we need to have a more sophisticated approach to the purpose of our economic development. Traditionally, Governments focus solely on quantity and not quality of growth. But economic growth, as measured by GDP, goes up when oil tankers crash into our coasts, when we spend more on asthma treatments, when we buy security alarms, or pay for more jails. The UNDP on the other hand recognises the need for a discriminating approach to growth which rejects ‘jobless’ growth (which does not create jobs), ‘ruthless’ growth (which gives most of the benefits to the rich), ‘voiceless’ growth (which does not lead to empowerment), ‘rootless’ growth (which destroys cultural identities), and ‘futureless’ growth (which plunders the environment).

The first step to fully integrating health, environment and economy is to change what we define as progress. GDP, by almost every possible measure, is a flawed measure of progress. As the Labour Party’s Environment Policy statement, *In Trust for Tomorrow*, says, “we need to
measure the quality as well as the quantity of economic growth”. Work is being done both to adjust GDP so that it does not count societal ills as benefits, and also to develop completely different indicators - that attempt to measure well-being and quality of life. This needs to be taken up more whole-heartedly by Government. When such indicators are used in newspapers and on television and by Governments, then we might have the basis to make decent policies. Below, GDP is presented alongside the Index of Sustainable Economic Welfare - which subtracts spending to offset social and environmental costs and adds in unpaid labour, among many adjustments.

This is not an argument against growth, but instead that it should not be the main goal for policy. As long as health, the environment, quality of life and other concerns remain subsumed beneath a goal of increasing economic growth, full integration of policies is not possible, and sustainable development is not achievable. The UK has explicitly acknowledged this - it has signed up to the European Charter on Environment and Health, and repeatedly reaffirmed its commitment to it. One of the charter’s main principles is that “The health of individuals and communities should take clear precedence over considerations of economy and trade”.
Equality

Another principle from the European Charter is that “The health of every individual, especially those in vulnerable and high-risk groups, must be protected. Special attention should be given to disadvantaged groups”. From the perspective of sustainable development, tackling inequality within and between nations now is as important as looking after the rights of future generations.

However, the UK is one of the most unequal countries in the developed world. Since 1977, only New Zealand has seen a faster rise in inequality. The Kings Fund has calculated that the gap in life expectancy between the poorest and the most affluent is eight years. If the poorest 10% lived as long as the richest, there would be 42,000 less deaths each year. By many measures the poorest 10% of households are now poorer than they were at the start of the 1980s. Much of this inequality is caused by income differences and unemployment, but environmental factors, and the interplay between them, are a major determinant in exacerbating and deepening these inequalities.

Two examples of how environmental factors can exacerbate inequalities are food and housing.

Food poverty affects millions of people. Over thirteen million people live in households with income below 50% of the UK average, i.e. less than £120 a week. Access to a healthy diet is not just determined by income, but also by transport, retail and planning policies. And it is critical for good health - as Our Healthier Nation notes, one-third of all cancers are diet-related. Dowler summarises:

“The food market in the UK reflects the needs of those who can afford to spend money in it. If you live on a large, isolated local authority housing estate there are usually very limited shopping facilities and little cheap public transport to decent shops and markets. Out-of-town shopping does little for the urban and rural poor, who have no access to a car, and for whom carrying bulky shopping on public transport is difficult with pushchairs or limited mobility”.

UK food policy has focused mainly (and ineffectively - see section on Target 22) on food safety and consumer information. In the context of equity, what is more important is food prices, affordable transport and tackling the limited choice of and access to a healthy diet.
Fuel poverty - the inability to heat your home to minimum health standards - affects nine million households in the UK. The standard of the housing stock is a national disgrace.

- 63% of all private rented dwellings in England have a SAP rating\(^{20}\) less than 30.
- 6 million households in England have SAP rating less than 30.
- 460,000 English households with an income less than £4,500 live in a house with a SAP rating less than 10.
- 39% of households’ spending on fuel is inadequate to meet the minimum health based heating standard.
- At average winter temperatures, just 5% of households with SAP ratings less than 20 are warm enough to meet the minimum health based heating standard\(^{21}\).

Inequality and a poor environment does not just damage our health, it damages quality of life as well. The effects of inequality on social cohesion are major determinants of individual and societal health - as shown in the pioneering work by Wilkinson\(^{22}\) and others. And also, poorer people often live in the most polluted environments, ironically in the case of transport, environments often polluted by richer people living in the suburbs driving through their communities to work.

The Labour administration is aiming to tackle inequalities - it is a core plank of Our Healthier Nation, a main objective in the revised sustainable development strategy, and a Social Exclusion Unit has been set up. However it is not clear that these initiatives are adequately linked together, or that the interlinked nature of the problems which exacerbate health inequalities has been fully realised. It seems that Our Healthier Nation wants to reduce health inequalities, but will not adequately address many of the causes - access to a healthy diet, poor quality housing for example. It is perhaps that the targets in Healthier Nation are so removed from the causes of ill-health that the actions proposed seem so vague. Maybe if strategies were set out in terms of the essential bases for everyone’s right to good health, then the actions required to protect public health and reduce inequalities could be better set out and integrated. The Public Health Alliance sets out a Charter for Public Health which is an excellent framework for this \[see box\]
Public Health Alliance Charter for Public Health

The following are the essential basis for every citizen’s right to good health

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOME</td>
<td>which provide the material means to stay healthy</td>
</tr>
<tr>
<td>HOMES</td>
<td>that are safe, warm, dry, secure and affordable</td>
</tr>
<tr>
<td>FOOD</td>
<td>that is safe, nourishing, widely available and affordable</td>
</tr>
<tr>
<td>TRANSPORT</td>
<td>that permits accessible, safe travel at reasonable cost and encourages</td>
</tr>
<tr>
<td></td>
<td>fuel economy and a clean environment</td>
</tr>
<tr>
<td>WORK</td>
<td>that is properly rewarded, within or outside of the home, which is</td>
</tr>
<tr>
<td></td>
<td>worthwhile and free from hazards to health and safety</td>
</tr>
<tr>
<td>ENVIRONMENTS</td>
<td>which are protected from dangerous pollution and radiation, and</td>
</tr>
<tr>
<td></td>
<td>planned to preserve and enhance our quality of life</td>
</tr>
</tbody>
</table>

[Plus criteria on public services, education and information, comprehensive health services, equal opportunity, security and social policy]

Effective integration

To protect the environment, health, and reduce inequalities, thereby achieving sustainable development, environmental, social and economic aims need to be reconciled and integrated - not traded off. Over the last twenty years, Government has attempted to balance what it saw as conflicting aims, aiming for a “least worst” compromise. Instead, ways need to be found to achieve mixed objectives simultaneously - so called ‘win-win’ solutions.

This old culture is gradually changing. For example, the UK’s transport system epitomises unsustainability. It is wrecking the environment - locally and globally - exacerbating inequality, damaging people’s health and reducing people’s quality of life. Piecemeal ‘solutions’ to problems, such as the Roads Programme and technical fixes for cars and lorries, have not worked. The solution here is an integrated programme involving land-use planning, investment in alternatives, and financial incentives to reduce traffic levels. This conclusion was reached by the Royal Commission on Environmental Pollution’s 1994 report “Transport and the Environment”, which
set out a detailed integrated strategy to make our transport system sustainable. The new Labour administration has now supported legislation aiming to reduce national traffic levels, but it remains to be seen whether traffic reduction and improving access will be the central planks of the new transport strategy due out this summer.

However, in other areas, there is even less progress towards sustainability. Housing policy is in need of a major programme to tackle energy inefficiency - delivering environmental, health, quality of life, financial and employment benefits. But the NEHAP did not mention this - because of the short term costs to the exchequer of such a programme. It did not mention the disgraceful problems of fuel poverty which burdens the UK, and instead glibly listed the inadequate sums being spent on energy efficiency projects. While the erosion in spending on energy efficiency has now been halted, in the Green Paper Our Healthier Nation, the effects of fuel poverty are perhaps downplayed even more\(^2\), and it does not even class the home as a “healthy setting”, alongside schools, workplaces and neighbourhoods. And the role and effect of the economic policy on this area, and almost all others within Health of the Nation, has been ignored.

**Conclusion**

Although much progress has been made in integrating health and the environment, these two have not been integrated with the economy, which retains an unwarranted primacy over people’s health and environmental issues. It must be acknowledged that economic policy’s main functions is to meet social needs - it is a means, not an end in itself. As a result, fuelled by increased inequality and by gaping holes in some policy areas, current policies on health and the environment are not delivering sustainable development or adequate protection from environmental health risks for the population as a whole and for the poor in particular. The UK therefore cannot be said to be set to meet Target 18.
Target 19 - Environmental Health Management

By the year 2000, there should be effective management systems and resources in all Member States for putting policies on environment and health into practice

Introduction

This section explores this target by looking at how environment and health problems are assessed and acted upon in the UK. It will focus predominantly on the application of the precautionary principle - which is the main principle which Government has committed to use in deciding whether to take action on specific health and environmental problems. The World Health Organisation comments that achieving this target will require "criteria for the assessment of data in relation to control procedures". Analysis of progress towards other targets has shown that in practice, current procedures do not adequately protect health. Thus the question of how the Government decides whether to implement existing or new control procedures on the basis of the data available as to the nature and scale of any given problem, is a fundamental issue in determining whether this target can be met.

Many of the other issues covered by this target - such as monitoring systems - are dealt with in other Target areas - for example on air and water pollution.

Risk and the precautionary principle

The UK has repeatedly committed itself to taking action on environment and health based upon the precautionary principle. The last Government’s definition of the precautionary principle was that:

“where there are significant risks of damage to the environment, the Government will be prepared to take precautionary action to limit the use of potentially dangerous pollutants, even where scientific knowledge is not conclusive, if the balance of costs and benefits justifies it”.

In practice, this definition is fundamentally flawed. It is not possible to calculate costs and benefits
if the scientific knowledge is inconclusive. The inadequacy of existing economic methodologies for calculating costs and benefits has meant that precautionary action has been delayed - in direct contradiction to the purpose of acting on a precautionary basis.

However, even setting aside this flawed emphasis on costs and benefits, applying the precautionary principle in practice is very difficult. Decisions have ostensibly been made on the basis of “sound science”, but this hides the fact that almost all judgements are political, involving many different factors. For example, for some environmental pollutants (such as pesticides in drinking water), standards are set with a safety factor of 100 below the lowest observed effect. For other standards - such as lead in drinking water or particulate matter in the air, health standards are set at a level well over that known to cause adverse health effects. It is no surprise to discover that these much less stringent standards reflect the complexity and short-term expense of tackling these problems further.

There are tens of thousands of synthetic chemicals used today. Science cannot give us enough information quickly enough to judge chemical toxicities and health and environmental risks of these chemicals. The sooner it is accepted that judgements of what is acceptable are political judgement not purely scientific ones, the sooner we can get a more pluralistic and open process for determining what to do about environmental and health risks.

**Guinea pigs: Bisphenol A in food cans**

Dr Welshons on the UK Committee on Toxicity of Chemicals:

“They are saying that there is uncertainty, therefore we will ignore the problem...the result is that bisphenol A will be tested on humans rather than animals. We could never get an ethics committee to agree to experimental human exposures in the range which people will actually be exposed to”

The approach we currently use is flawed. In the absence of full scientific knowledge we need to find a way of dealing with risk. As a brief history, traditionally, action on pollution is taken when health or environmental problems become apparent - for example the smogs of the 1950s and the effects of DDT on wildlife. However it is morally indefensible to use people and the environment
as guinea pigs in this way. It was only when problems of a global scale emerged that a more precautionary approach was advocated. Global problems involve massive risks because we have only one planet, with only one ozone layer and one atmosphere. This understanding has begun to be extended to persistent chemicals - once they are in the environment, there is very little remediation which can be done - a strong argument to limit their dispersal if there are potential health or environmental threats. And as the arguments of sustainability - protecting future and present generations - have gained international legitimacy, the arguments for a precautionary approach have been strengthened. In practice, as science has advanced and our understanding grows, the effects of pollution on health are generally being shown to be more severe than previously thought. For example, in 1979, air pollution from traffic was not considered a health threat. In 1995 the Government estimated that air pollution was killing several thousand people a year. By 1997, estimates had grown to 24,000 people. There are similar stories for other concerns, including lead standards, and radiation.

However, despite increased acceptance that a wide range of precautionary measures are needed, a non-precautionary approach continues to be taken. The burden of proof is still stacked against people and the environment. There have been rapidly growing concerns over the effects of organophosphate chemicals - in “dipping flu” amongst sheep farmers, and Gulf War Syndrome amongst soldiers for example. The adverse effects of these chemicals are so well acknowledged now that victims of the use of these chemicals have successfully won court cases. And a wide range of hormone-mimicking chemicals - endocrine disruptors - have been associated with a wide-range of adverse health effects - such as reduced sperm counts. This would seem like the perfect case for the application of the precautionary principle: potentially horrendous health effects, no likelihood of establishing a causal link or lack of one for some time, unknown synergistic or additive effects, and persistence of the chemicals in the environment - so if a link is found, much of the damage is irreversible. However, there is no precautionary action here either.

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<thead>
<tr>
<th>John Gummer</th>
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<tbody>
<tr>
<td>1990: There is no reason to believe that BSE will be any different from scrapie</td>
</tr>
<tr>
<td>1996: There is no reason to believe that the genetic modification of maize will give rise to any adverse effects on human health from its use in human food</td>
</tr>
</tbody>
</table>
The lack of clear dividing lines for when action should be taken has meant that these decisions have been driven primarily by the short-term financial concerns of companies and industries who would lose out by precautionary measures. As one commentator has said “The costs of curbing a hazard are immediate and quantifiable, and they fall heavily on a distinct and vociferous industry; the benefits of avoiding a putative epidemic are unprovable and hard to assess, and scattered among the population”. But by constantly crying that scientific evidence is not strong enough to take action, Governments are putting the economic evidence of a small minority ahead of the health of the whole population. It is not adequate to wait and let the general public be guinea pigs. If it were accepted that decisions were mainly political, and should be participatory, and not solely scientific, then the onus of responsibility would surely be shifted to protect the majority, who are currently forced to accept risks for the benefit of a minority.

While risk assessment may be useful, it needs to be dropped as the ostensible mechanism for determining use of chemicals. For example, the World Wide Fund for Nature suggests that the burden of proof should be shifted to chemical manufacturers, and suggests that risk assessment should be redefined as a “methodology for keeping untested chemicals off the market”, with chemicals of most concern being “eliminated in an orderly and timely fashion” instead of being allowed to remain in commerce until proved harmful.

### Risk: more than just numbers

We have a very unhealthy climate for discussing risk in this country. “No evidence of risk” is repeatedly called “zero” or “inconceivably low risk”; “No evidence of risk” is often portrayed as “evidence of no risk”; people mentioning potential risks are accused of “scare-mongering”. The problems occur in large part due to the “ownership” of the whole risk issue by the scientific community, and poor translation of issues which are intrinsically uncertain to a public which expects and demands certainty, and a media which wants polarization and certain positions. The solution is to have a much more open discussion of risk. Scientists and Government repeatedly complain that “public perception of the risks attached to ---- seems to be at variance with known facts”, as has happened with radiation. However, there is rarely any acknowledgement by scientific elites that risk is not simply reducible to a 1 in xx chance. There are differences between unavoidable risks and imposed risks, differences when a risk is imposed on a community for private gain, and the same risk imposed for a community’s benefit; and fears are rarely “irrational”. The sooner risk strategies become more democratically based tools, the better.
A different approach is needed. In the face of uncertainties, the main focus should be on risk prevention and reduction, not risk assessment and control. Risk control implies that some level of risk is acceptable, and a price worth paying for the benefits obtained (economic activity or whatever), and that what is required in dealing with risk is that things should be balanced. This is analogous to the broader issue of sustainable development, where for example traditionally the economy and environment were treated as conflicting issues to be balanced or traded-off. Now, a more sophisticated approach to sustainable development accepts that mixed objectives can be integrated and met simultaneously, rather than having to accept some “least worst” compromise. The same goes for issues of risk.

New approaches

“And what of risk assessments and governmental controls over chemicals in the environment? We seem to have it backwards. Instead of defining a societally acceptable risk to humans from ingesting contaminants, and then appointing allowable risk to each contaminant and discharge, we grant each chemical a risk level, and do not even make the effort of calculating cumulative risk of all chemicals to humans. If the latter is impossible, it is an argument for zero discharge industries.”

For almost all applications, the services required or the needs provided by a particular product could have been delivered by a less toxic process, or using a less toxic chemical. The way forward for risk is to operate on a risk reduction/avoidance programme for chemicals use. Dissipative uses of toxic or persistent chemicals are inherently unsustainable, and strategies should be put in place to reduce their use. This approach gets round the major practical flaw with the risk assessment approach - that there are simply too many chemicals to test, too many end-points, too many confounding issues, too many difficulties equating different costs and benefits to supposedly equivalent measures, and too few resources to attempt to tackle these problems. For example, over 100,000 chemicals are classified as existing substances under EU regulations. Just over 100 have been selected as requiring priority attention, but “not one assessment has reached the stage of agreed action,” according to a UK presidency paper prepared for a meeting of EU Environment ministers in April this year. Many people, including the British Medical Association have suggested that new processes should be constrained by the principle of “social need”. Indeed, this is embodied in the European Charter on Environment and Health: “New policies, technologies
and developments should be introduced with prudence and not before appropriate prior assessment of the potential environmental and health impact. There should be a responsibility to show that they are not harmful to health or the environment”

New applications of the precautionary principle: i) Sweden

Sweden’s Chemicals Policy Committee have drawn up a new chemicals strategy. It builds on the Esbjerg declaration (from the 4th Ministerial conference on the North Sea), that discharges of toxic, persistent and bioaccumulative substances should be reduced with a view to eliminating them by 2020. The Swedes’ report has proposed stricter timelines, tighter thresholds on whether a substance is persistent or bioaccumulative, and dropped the toxicity criteria - an explicit acknowledgement of the need to act not wait on uncertainties. They say that experience “tells us that new, unexpected forms of toxicity may be uncovered in the future. For substances that are persistent and bioaccumulative, that knowledge will come too late. To act only when that knowledge becomes available is not prevention. We therefore conclude that known or suspected toxicity is not a necessary criterion for measures against organic man-made substances that are persistent and liable to bioaccumulative. Such substances should in the future not be used at all”31.

New applications of the precautionary principle: ii) “safe beyond reasonable doubt”

Friends of the Earth believes that chemicals should be safe beyond reasonable doubt. In our opinion "reasonable doubt" can be discovered by the results of well-designed in vitro tests. In these circumstances a chemical should be listed as being under suspicion, to allow, initially, a voluntary phase out to begin. If industry disputes the results they can attempt to dispel the reasonable doubts through their own testing. Further testing might be necessary before the chemical's licence is withdrawn.

Conclusion

There is a patent need to implement the precautionary principle, rather than simply re-endorsing our commitment to it. But neither the Sustainable Development revision or Our Healthier Nation
mention the precautionary principle, or preventative action. Failure to adequately implement the precautionary principle is putting people’s health after economic gain - in direct conflict with the goals of the European Charter on Environment and Health, that “*the health of individuals and communities should take clear precedence over considerations of economy and trade*”. Also the adverse effects of this failure are often borne more heavily by those who are most vulnerable, or who gain least from a given practice - as this is the case for example for road traffic particulates affecting the health of the elderly - people who do not create the majority of these pollutants. This exacerbates inequalities. These are omissions which the Government must tackle, and the failure to integrate preventative actions into policies on health and the environment means that the UK is not meeting Target 19.
Target 20 - Control of Water Pollution

By the year 2000, all people should have adequate access to adequate supplies of safe drinking-water, and pollution of groundwater sources, rivers, lakes and seas should no longer pose a threat to health.

Introduction

This target looks at the three main requirements implicit in the World Health Organisation target:

i) People have access to drinking water
ii) Drinking water is safe
iii) Pollution of seas and freshwater does not threaten health

There are few acute dangers to health from drinking water in the UK (in comparison with other countries - such as in the Former Soviet Republics). However, there are still chronic dangers to health, and implications for other World Health Organisation targets - mainly Target 1, on equity.

This review only gives a snap-shot of the current situation - for example issues of fluoride, aluminium, pesticides and polyaromatic hydrocarbons in drinking water are not covered. Essentially, policy in these areas should be informed by adherence to the precautionary principle (See Target 19).

i) Access

99% of homes are connected to mains water, and many of the remainder to private supplies. Yet even for some with homes, access to drinking water is still an issue. Disconnections in England and Wales have fallen heavily in the last 4 years, to 3,148 in 1996-7, and are still falling. There has been some concern though that this gain is offset by large numbers of “informal” disconnections, where water supplies are voluntarily cut off because households cannot afford to use their pre-pay water meters. There are 32,000 such meters in England and Wales, and a MORI poll suggests that 40% of pre-payment meter users in the Severn Trent region have been
disconnected at least once. The recent high court judgement which makes such informal disconnections illegal is a welcome move - it now remains to be seen whether formal disconnections will rise again. From a public health and equality perspective, all disconnections should be illegal - access to water should be a basic right. This is the case in Scotland, and the same should apply throughout the UK - this position is endorsed by many organisations, such as the British Medical Association and the Chartered Institute for Environmental Health.

ii) Drinking water safety

The National Environmental Health Action Plan reports that “the quality of these [mains water] supplies is very high and all are safe to drink”. This is not true. The plan also states that “in 1995 99.5% of tests complied with drinking water quality standards”. However this is not an adequate indicator of whether drinking water is safe, for two main reasons. First, not all of the standards are health standards, second, the standards are in some cases not adequate to protect health.

a) adequacy of standards

Existing quality standards are not adequate to protect health. The most glaring example is for lead. The existing indicator and standard for lead, used to justify that “the quality of these supplies is very high and all are safe to drink” is that samples should not exceed 50 µg/l. This is not a measure of safety of lead levels in water, and should not be used as an indicator for this purpose. It is an old standard, which does not take into account the last 20 years of neurological research into lead and health. The World Health Organisation has set a target five times lower than this. In a wide-ranging review of lead and public health, Millstone reports that “The British Government has a well deserved reputation for believing what its chosen scientists tells it when the advice conforms with minister’s prejudices, and for ignoring the evidence and advice when they do not. The evidence that blood levels in children as low as 10 microgrammes/dl can significantly damage their mental performance and development has strengthened to such an extent, and such a strong scientific consensus has developed, that it is becoming increasingly difficult even for British ministers to avert their gaze from unwelcome facts”. The Water Research Centre concluded in 1992 that to meet the WHO’s 10 µg/l drinking water target, the only practical solution would be the replacement of all lead pipes.
The last UK government’s repeated failure to tackle adequately the problems of lead in drinking water is a disgrace. There are no detailed policy goals, no explicit public health strategy, and no blood lead monitoring strategy. Statements on lead have invariably played down its effects on health, and presented misleading and erroneous statistics as justification that there is little reason for public concern. Millstone concludes that “the implicit strategy of the British government has been, and remains, one of neglect and irresponsibility. Insofar as standards have been set, they have never been set until they have either already been met, or until the means for showing they are not met have been dismantled”.

The new Government appears not to want to deal properly with lead in drinking water either. The Our Healthier Nation green paper\textsuperscript{33} sets out three actions:

- a standard of 10 µg/l for lead in drinking water, as supplied to homes, to be met within 15 years
- water suppliers to treat water to ensure that water at the tap does not exceed 25 µg/l
- Prepare advice for homeowners to help them make an informed decision on options for action if they have lead pipes within their homes.

High lead levels are mainly due to lead pipes in people’s homes. From a health perspective, what matters is levels at the tap, not that supplied by water companies to people’s homes; 25 µg/l is not an adequate standard (although it is better than the current 50 µg/l standard); and most critically perhaps, the Government is not planning to ensure that people who can’t afford to have their homes’ lead pipes replaced do not continue to receive health-damaging doses of lead. This is all the more surprising given the level of commitment given to tackling inequalities within Our Healthier Nation. Lead is known to depress IQ, at levels which are found in UK water supplies (see box below). This damages mental development, and permanently disadvantages children - contributing to social exclusion.
Lead, health and public policy

Lead has neurotoxic effects. It damages mental development, and damages an even wider range of biochemical functions in adults. It is believed that levels of lead in blood of 10 µg/dl damage health, causing “neurobehavioural deficits in infants”. Available evidence suggests that between 5 and 10% of the British population have blood lead levels over 10 µg/dl, and that this figure becomes 10-15% for young children. The UK has a blood lead “action level” of 25 µg/dl (compared with 10 µg/dl in the USA and France).

The World Health Organisation’s public health target for drinking water is 10 µg/l. This is set so that, along with other sources of lead, total blood lead is less than 10 µg/dl. There is no UK Government policy to identify those people who are receiving high levels of lead in their drinking water, let alone find ways of dealing with them.

b) Aggregation of data

The 99.5% compliance figure for drinking water is an aggregation of all tests on drinking water - from lead levels, pesticides, colour, coliforms, taste and many others. Aggregating data in this way biases the average towards the failure rate of the biggest number of samples. When used as an indicator of health, this method is patently not acceptable, as more tests are made for parameters with no health component.

<table>
<thead>
<tr>
<th>Drinking water quality figures, 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>Colour</td>
</tr>
<tr>
<td>Turbidity</td>
</tr>
<tr>
<td>Hydrogen ion</td>
</tr>
<tr>
<td>Total pesticides</td>
</tr>
<tr>
<td>Lead</td>
</tr>
<tr>
<td>Poly-aromatic hydrocarbons</td>
</tr>
<tr>
<td>....</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
iii) **Safety of bathing waters**

Bathing water continues to improve in the UK. 90% of coastal bathing waters comply EU regulations\(^{38}\). However, there are some significant problems which still remain, in monitoring, reporting, and health impacts:

a) Reporting. Aggregated figures conceal significant regional variations. For example, Anglian and Wessex regions reach over 95% compliance, but North West reaches only 61%.

![Compliance with EC Bathing Water Directive for coliforms](chart.png)

b) It is only a partial indicator - there is no measure of how safe freshwater bathing sites are. The UK is the only EU member state not to designate any freshwater bathing sites, so compliance with the EC directive does not apply to them, even though contaminated freshwaters are used for bathing and watersports.

c) Compliance with the directive is not necessarily adequate to protect health. For example, the Guideline value for faecal streptococci is 100/100ml; however streptococci densities as low as 35/100 ml are associated with gastro-intestinal symptoms. The Department of Health has
accepted this finding, but argued that the odds ratio\textsuperscript{39} (1.5) was so low at this level that there was only a "borderline" risk at worst, and that the illnesses involved were "trivial and self-limiting"\textsuperscript{40}. However, an average of four days diarrhoea is not trivial for most people, and the research shows an odds ratio of 5.0 at 70/100ml, well below the current 100/100ml guideline limit.

**Pollution of seas and rivers**

Discharges of endocrine disrupting chemicals have been shown to be affecting wildlife in UK rivers\textsuperscript{41}. Developing rainbow trout show reductions in testicular size and produce female egg yolk protein\textsuperscript{42} when exposed to 30 µg/l of either nonylphenol, alkylphenol ethoxylates or alkylphenoxy carboxylic acids. The effects on wildlife in rivers highlights the potential impact that endocrine disrupting chemicals may be having on humans. There is increasing evidence of adverse trends in several endocrine-related conditions, including reducing sperm counts\textsuperscript{43}, and increasing rates of testicular, prostate\textsuperscript{44} and breast cancers\textsuperscript{45}.

It is time for Government to take strong precautionary action against endocrine disruptors, to protect the health of both humans and the environment. The best way to do this is to get industry to introduce a timetabled plan to stop production of alkylphenolic compounds.

The Environment Agency should increase its monitoring programme into alkylphenols and other endocrine-disruptors, and set environmental quality standards for all alkylphenolic compounds\textsuperscript{46}; these limits should be set at 1 µg/l, moving towards zero as use is phased out.

**Conclusion**

Current use of indicators to suggest overall progress is misleading. However, despite this drinking water quality in the UK is improving, as is sea-bathing water quality.

Problem areas remain. These include lead in drinking water and various aspect of bathing water quality. A large proportion of the UK population receives water well over the WHO's recommended health limit: it is estimated that between 10 and 15 per cent of all young children in the UK have blood lead levels above 10 µg/dl\textsuperscript{47} - a level above which adverse effects on mental
development are seen. This will be disproportionately affecting poorer households - who are unable to afford the costs of replacing the lead piping in their homes. There is little monitoring of where problem areas exist, or grants for pipe replacement. This is exacerbating health inequalities and social exclusion.

Coliforms, enteroviruses and streptococci in bathing waters are a health problem, and the partial monitoring of bathing water sites and the selective methods of determining compliance give a misleading impression that current improvements are adequate. Freshwater sites need to be designated, as they are in other EU countries.

More improvements are necessary, but it is possible that the UK could meet the spirit of the target if a lead in drinking water was acknowledged as being a problem, action taken to meet the WHO target of 10 µg/l, and strong precautionary action was taken on hormone-mimicking chemicals. This requires better integration of health and environmental policy than exists at present.
Target 21 - Control of air pollution

By the year 2000, air quality in all countries should be improved to a point at which recognised air pollutants do not pose a threat to public health.

Introduction

The UK Committee on the Medical Effects of Air Pollutants concluded this year that the air pollutants sulphur dioxide, ozone and PM10s\(^{48}\) cause up to 24,100 premature deaths and 23,900 hospital admissions each year in Great Britain\(^{49}\).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Premature deaths</th>
<th>Hospital admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM10</td>
<td>8,100</td>
<td>10,500</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>3,500</td>
<td>3,500</td>
</tr>
<tr>
<td>Ozone</td>
<td>12,500</td>
<td>9,900</td>
</tr>
<tr>
<td>Total</td>
<td>24,100</td>
<td>23,900</td>
</tr>
</tbody>
</table>

They accept that this is probably still an underestimate of the actual impact of air pollution on health, as it does not include the effects of long term exposure to pollutants, or to the uncertain effects of pollutants such as NOx, carbon monoxide, and carcinogens such as benzene. Clearly this target is not currently being met. This section briefly examines whether and how it could be met in the future.

Causes

While industrial emissions cannot be disregarded, a common theme for air pollutants is the major overall contribution by road transport, and the even larger contribution made in urban areas where the worst pollution is, and where most people live\(^{50}\).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Contribution of traffic(^{51})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
</tr>
<tr>
<td>Benzene</td>
<td>72%</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>75%</td>
</tr>
<tr>
<td>NOx</td>
<td>46 %</td>
</tr>
<tr>
<td>PM10</td>
<td>25 %</td>
</tr>
</tbody>
</table>
UK progress towards World Health Organisation targets on health and the environment

Air pollution levels

Health standards for a range of pollutants are regularly broken for all over the country. The scale of the problems in 1997 are shown below:

<table>
<thead>
<tr>
<th>Ozone standard</th>
<th>Monitoring station</th>
<th>Number of days exceeding health standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lullington Heath (Sussex)</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Rochester (Kent)</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Harwell (Oxfordshire)</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Eskdalemuir (South Scotland)</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nitrogen dioxide standard</th>
<th>Monitoring station</th>
<th>annual level (21 ppb is the standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Glasgow Kerbside</td>
<td>36 ppb</td>
</tr>
<tr>
<td></td>
<td>Lincoln Roadside</td>
<td>33 ppb</td>
</tr>
<tr>
<td></td>
<td>London Victoria</td>
<td>31 ppb</td>
</tr>
<tr>
<td></td>
<td>Leeds Centre</td>
<td>27 ppb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Particulate standard</th>
<th>Monitoring station</th>
<th>Number of days exceeding health standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Belfast Centre</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>London Camden</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Glasgow Kerbside</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Port Talbot</td>
<td>47</td>
</tr>
</tbody>
</table>

In addition, at least one air pollution health standard was broken at every Government monitoring site in London in 1997.
Action on air pollution: integration needed

Air pollution highlights the inconsistent way in which environmental health effects are tackled. If pesticide residues in food are found which break standards, action is taken through MAFF and the HSE to reduce pesticide use. Moreover, these standards are set at levels which are believed to give a safety factor of 100 over known health effects. However, when standards in air are broken, very little action is taken, and for example the particulate standard is set well above levels known to cause health effects.

Actions on reducing air pollution in recent years have focused on technical fixes to vehicles56 - fitting catalytic convertors, fuel switching, cleaner fuel. While these have led to some improvements, when considered alongside the growth in road traffic, the problems are nowhere near resolution. And often, problems have merely been switched around - the growth in use of diesel has led to lower sulphur dioxide and nitrogen dioxide pollution, but increased PM10 emissions. Without an integrated programme to reduce traffic, air pollution from road traffic will continue to cause health problems, despite technical improvements.

A wider issue in environmental health is the lack of integration: at present actions are only taken on individual point sources of problems - cleaner petrol, reducing use of a particular pesticide, switching from organophosphate sheep-dip to pyrethroids. When the problem requires wide-ranging actions - such as urban air pollution requiring traffic reduction strategies - Government is ill-equipped to tackle them, as there is very little culture of co-operation between Government departments, and few guidelines on the objectives of an overall health and environmental policy, to allow integrated strategies to be put in place.
Air pollution and the precautionary principle

It has been acknowledged for a long time that air pollution can damage health. However, scientific
evidence of what these effects are, who they affect, and by what mechanism, are uncertain. Even with
much greater scientific knowledge, we are still unsure of these effects today. In the face of this
uncertainty, successive Government’s have adopted the “precautionary principle”, that when there are
significant risks of damage to the environment or health, precautionary action should be taken to
reduce these risks, even where scientific knowledge is not conclusive. However, they have failed to
implement it: lack of scientific evidence has been used as a justification not to take action - in direct
contradiction to the precautionary principle. This has happened for air pollution, radiation, climate
change, oestrogenic chemicals and in many other areas (See section on Target 19). Policy making in all
areas needs to act upon rather than just reiterate the precautionary principle. Otherwise we will see
repeated the type of sad farce played out over the last decade in the case of air pollution from transport
which shows how not to implement a precautionary approach - growing evidence of the harm caused
was ignored by successive governments, and thus exposing many thousands of British people to
unnecessary suffering. Even now the action taken is far from commensurate with the health costs.

1979: Minister of Transport-
“The effects of pollution by motor vehicles can be summarised: there is no evidence that this type of
pollution has any adverse effect on health”

1992: Chair of Department of Health Advisory Group on Medical Aspects of Air
Pollution Episodes
“Levels of particulate matter are low and are not thought to pose a significant threat to health”

1994: Chair of Department of Health Advisory Group on Medical Aspects of Air
Pollution Episodes-
Recent research “provides convincing evidence for a link between mortality and PM10 levels”

1997: Department of Health-
“Air pollution is at present responsible each year for several thousand advanced deaths; for ten to
twenty thousand hospital admissions and many thousands of instances of illness, reduced activity,
distress and discomfort”

1998: COMEAP-
“In Great Britain, air pollution from PM10, nitrogen dioxide and sulphur dioxide brings forward
24,100 deaths from all causes, and leads to 23,900 hospital admissions, brought forward or additional,
from respiratory causes”
Monitoring

The Government introduced a new public information system for air pollution in November 1997. This system, while a great improvement on the previous system, still downplays air pollution problems. Particulate levels below 50 µgm\(^3\) are classified as “low”, i.e. that “effects are unlikely to be noticed even by individuals who know they are sensitive to air pollutants”\(^{57}\). However, these levels do cause health effects, as noted by the World Health Organisation\(^{58}\):

<table>
<thead>
<tr>
<th>Health Effect Indicator- for a 5% change in-</th>
<th>Estimated Change in Daily Average PM(_{10}) Concentration Needed for a Given Effect (µg/m(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Mortality</td>
<td>50</td>
</tr>
<tr>
<td>Hospital Admissions for Respiratory Conditions:</td>
<td>25</td>
</tr>
<tr>
<td>Numbers of Asthmatic Patients using Extra Bronchodilators:</td>
<td>7</td>
</tr>
<tr>
<td>Numbers of Asthmatic Patients Noting Exacerbation of Symptoms:</td>
<td>10</td>
</tr>
</tbody>
</table>

For Winter Air Pollution Episodes, the DETR recommends that:

“Elderly people are advised to spend less time out of doors and keep warm. People who in the past have noticed that their breathing is affected by traffic fumes should avoid busy streets during the episode as far as possible”.

This situation highlights how environmental inequality directly affects health in this country. Elderly people are advised to stay indoors because of poor air quality, yet three million pensioner households in England - over half of them - don’t spend enough on fuel to achieve even minimum health based housing standards. Inadequate energy efficiency is the main cause of this, as discussed in depth in the housing section. In effect poor housing quality and poor air quality are denying many people their right to live in any healthy environment, despite the principle in the WHO European Charter on Environment and Health that “The environment should be regarded as a resource for improving living conditions and increasing well-being”. And the people most
affected are the vulnerable, suffering from multiple deprivation - or social exclusion. The European Charter also says that “The health of every individual, especially those in vulnerable and high-risk groups, must be protected. Special attention should be given to disadvantaged groups.”

Our Healthier Nation stresses that “People need to know that if they don’t smoke, or if they are giving up smoking, then the Government, Local authorities and businesses are also taking action to ensure that general pollution is not harming their health and that the quality of the air they breathe is good”.

Ensuring that the Government’s economic and other policies do tackle this problem, whereby elderly people can’t go indoors or outdoors without damaging their health, is a key requirement of Our Healthier Nation, and one which is not addressed in the Green Paper.

**Costs and benefits**

The costs and benefits approach taken to air pollution measures has several deficiencies. The first, linked to the above points, is that the costs of air pollution are disproportionately borne by the people who benefit least. Young children and elderly people are known to be particularly vulnerable to pollution, yet are likely to make less use of cars than adults in their thirties and forties. Also, people who have less access to cars often live in the most air polluted areas - by main roads, in inner cities - bearing the pollution from people who are driving through their communities. A costs and benefits approach ignores these detrimental effects on inequalities, inequalities which affect the health of all society, not just that of the poor.

Also, the uncertain nature of the costs makes a cost-benefit approach unsuitable. Costs are largely unquantified, and often difficult to translate to a financial calculus. Also, with hindsight (as shown above), estimates of costs are usually underestimates - allowing inefficient decisions to be made. Instead, a strategic and integrated approach is required, which sets out the goals that policy wants to achieve. In setting out these goals it is worth stressing another two of the European Charter’s principles that the UK has repeatedly signed up to, namely that:
“The health of individuals and communities should take clear precedence over considerations of economy and trade”.

and

“*The preferred approach should be to promote the principle of "prevention is better than cure".*

As a final point, even when ostensibly operating according to a costs and benefits approach, people’s health, the environment, and inequalities are not addressed. Maddison’s latest work estimates that the costs of air pollution alone from road transport are £19.7 billion per year\(^{60}\). This figure will be even higher if the Department of Health’s new figures for air pollution deaths are used.

**Lead**

One relative success has been the falling levels of lead in air, mainly as a result of the introduction of unleaded petrol, the increasing price incentive to use it, and reductions in the amount of lead allowed in leaded petrol. Although road transport still accounts for 72% of all lead emitted to air, maximum levels on busy roads are of the order 0.2 - 0.3 µg/m³ - less than the WHO guideline of 0.5 µg/m³. Lead levels will fall further as unleaded petrol increases its market share. Some problems do remain however from lead emissions from industrial sites. For example a site in Walsall has airborne lead concentrations twice the WHO standard, despite a threefold reduction in 7 years.
Conclusion

The National Air Quality Strategy aims to meet targets for eight pollutants by 2005. The strategy itself acknowledges that there is a policy shortfall for meeting some of these targets, and this shortfall is estimated to be even greater in an analysis by the National Society for Clean Air.61 These shortfalls are such that in urban areas substantial traffic reduction will be needed to adequately tackle health problems from benzene, particulates and nitrogen oxides. And in much of Southern Britain, preventing forecast traffic growth will be needed to minimise the incidence of ozone smogs.62 The missing and essential ingredient in any sustainable strategy to tackle air pollution is an effective integrated transport strategy. The forthcoming strategy in this area needs to ensure that health problems and particularly health inequalities are reduced - for at present the areas with the worst air quality tend to be in poorer parts of Britain. For now, the gross health problems remaining mean that the UK will not meet the WHO target.
Target 22 - Food Quality and safety

By the year 2000, health risks due to micro-organisms or their toxins, to chemicals and to radioactivity in food should be effectively controlled in all Member States

1 Introduction

This section will look at some of the many food-related health issues, to provide a snap-shot of the current situation. One area which has been omitted from this section is BSE and CJD - an area which is way too complex for a short briefing, and indeed one in which the level of health risks is still unknown due to the long and uncertain incubation period of CJD. The main reason for its omission is that the most likely cause of risk to health was consumption of meat products in the eighties and early nineties. Risks that remain from eating meat products now, such as those highlighted in the ‘beef-on-the-bone’ issue, appear to be much smaller than those we have already been exposed to.

The BSE-CJD fiasco does have implications for future policy making, and can hopefully point the way to more sustainable food production practices. It is likely that BSE was caused by feeding animal products to cows. Allowing this to take place without any knowledge of the effects it would have on the health of cattle and humans, for the sake of short term economic expediency, has been a disaster. The lessons of the BSE crisis are clear. We need to consider what is the purpose of new processes or practices - does it pass the ‘fourth hurdle’ - that of social need. Taking a more precautionary approach, not putting the environment and the health of the majority into second place behind the short term economic interests of a minority, should be the aim of sustainable policies. Whether a different approach will be taken will soon be seen with the new Government’s approach to Genetically Modified Organisms - a new technology whose rapid development has raised many health and environmental concerns, and whose proponents - in whose interests it is being developed - have yet to put forward any convincing case for its social necessity.

This section will address four issues - microbiological food borne disease, pesticides, dioxins and additives in food.
2 Microbiological foodborne disease

The number of cases of food poisoning in Britain has more than quintupled in the last 15 years, to around 100,000 cases a year. Campylobacter and salmonella account for over 90% of these cases. In recent years, the fastest growing problem has been E.Coli 0157 - the number of cases has doubled to over 1,100 in the last 5 years. Although nothing like the number of salmonella cases, E.Coli is of great importance as it causes more serious illness - 20 people died in the 1996 outbreak in Central Scotland.

The reasons for this steep rise in food poisonings are not fully known. For example, it is not known why food poisoning rates appear to be so much lower in Northern Ireland than in England, Scotland and Wales, or what has caused the sudden emergence of E.Coli 0157 - which was virtually unknown before the 1980s.

Factors in part responsible for these dramatic increases could be the more intensive rearing of chickens and farm animals in unhygienic conditions, poor hygiene in abattoirs, the lengthening and complexity of the modern food chain, the rise in consumption of fast food, and the emergence of more virulent bacteria. It seems likely that there is a "whole web of causation", and that a focus on a small number of areas will not be enough. For example, as 33-41% of all chickens on retail sale are contaminated with salmonella, there is a need for better hygiene in production systems from farm to factory, as well as in the kitchen.
UK progress towards World Health Organisation targets on health and the environment

Campylobacter cases

E. Coli cases
3 Pesticides in food

Around 99% of food samples have pesticide levels within Maximum Residue Levels (MRLs). These MRLs are set with the aim that likely intakes from all foods for a particular pesticide should be well within health-based Acceptable Daily Intakes (ADIs). This is an ostensibly impressive figure, yet there are some problems - both with the reporting and monitoring of data, and with the setting of MRLs. These issues are discussed below.

i) Setting of MRLs

MRLs are set based on “good agricultural practices and are designed to ensure that pesticide levels are as low as possible”\(^6\).\(^4\)

In 1992, 10 out of 61 samples of carrots exceeded the MRL of 0.1 mg/kg for triazophos. This MRL was increased to 1 mg/kg in 1994, due to “assessment by the ACP of new toxicology and residues trial data”. However, in 1995 the Pesticide Safety Directorate reported that acute intakes of triazophos exceeded ADI (acute) values by 280% for adults and 220% for infants, for individual carrot samples\(^6\).\(^5\)

The Pesticide Safety Directorate concluded that “the calculations show that consumption of individual carrot roots containing the highest residues found in carrots from commercial sources would have resulted in the ADI (acute) being exceeded by up to about 3 times in approximately half of the cases considered for each of the consumer groups”. The safety factor of 10 for ADI (acute)\(^6\)\(^6\) is thus going to be exceeded for some members of the population.

In summary, the MRL for triazophos was exceeded: implying bad agricultural practice and the need to reduce triazophos levels. Instead the MRL was subsequently increased - this created the impression that the detected residue levels were within good agricultural practice. But as a result ADIs were exceeded creating an acute health risk, and the Pesticides Safety Directorate has since reduced the amount of pesticide treatment allowed for carrots (and still advises consumers to peel carrots before eating because of pesticide residues). Clearly, increasing the MRL was not good practice: if action had been taken when the original MRL was first exceeded, then the acute
problem would never have arisen.

ii) Aggregation of data

Although overall figures for MRL exceedences are good, once again aggregation of data masks individual problems. For example, none of 301 samples of cereals exceeded MRLs, but 20% of 70 winter lettuce samples exceeded MRLs in 1995.

Pesticide residues in lettuce have been a problem for many years now. The Government Working Party on pesticide residues has had little success in making growers reduce pesticide levels. They note that “The Working Party is disappointed that in spite of drawing the attention of the UK lettuce growers over some years to exceedences and to areas where Good Agricultural Practice and approval conditions have not been followed, the situation has not improved.”

iii) Uncertain effects

The chronic and long-term effects of pesticides on health are not well understood. Non-cancer effects - such as immune system damage - and the effects of combinations of pesticides are particular grey areas. In the absence of scientific evidence, adopting a precautionary approach (in accordance with the World Health Organisation Charter) means taking action to reduce levels of pesticide use: this is action to reduce health risks. As there is no timetable for reduction of pesticide use in this country, or any assessment of the costs and benefits of doing so, the UK is not meeting this target with respect to pesticides in food.

Alternatives to pesticide use are well established. A German study has found that pesticide use in German agriculture is not justified in economic terms and recommends the introduction of pesticide taxes. The UK Government should pursue a pesticide reduction programme on precautionary grounds, using fiscal mechanisms such as pesticide taxes to promote alternatives to pesticides use.
4 Dioxins in food

The Ministry of Agriculture, Fisheries and Food believes that there is very little health risk from dioxins in food. In May 1997, the Chief Medical Officer agreed, that “levels in food are so low that they pose no threat to health”.

However, the standard used in Britain (and by the WHO) is much less stringent than used in the United States. For example, US EPA scientists believe it is 100 times too high to protect against non-cancer risks. Two different models are used to determine human safety limits from laboratory experiments. The problem with the WHO approach is that in this case it appears not to apply adequate safety factors.

The controversy continues over what is the appropriate standard. The WHO is re-evaluating its standard of 10 pg/kg bw/day. But in this controversy, protection of public health seems to have been largely missed. Dioxins are highly toxic, ubiquitous and long-lived in the environment, and responsible for reproductive, endocrine, carcinogenic and immune system health effects which are not fully quantified. Schechter argues that “The construction of ‘biologically more realistic models’ should not be used as an excuse for inaction or delay. Instead of spending another decade arguing about the shape of the dose-response curve, we believe that the focus of policy needs to shift toward simply reducing exposure. The most sensible approach is pollution prevention - elimination of sources.”

In May 1997 the Department of Health recognised that PCBs have similar effects to dioxins, and this reclassification means that total dioxin equivalent doses for adults were 6.8 pg TEQ/kg bw/day in 1982 and 2.4 TEQ/kg bw day in 1992. This is below the 10pg TEQ/kg bw/day WHO and DOH standard. However, as discussed above, this does not mean that human health is protected.

What is of even more concern is that children and babies have much higher dioxin equivalent intakes. Infants aged 1.5 to 2.5 years had intakes of 6 pg/TEQ/kg bw day in 1992, and two month old babies have 168 pg/TEQ/kg bw/day -well in excess of the limit. The Chief Medical Officer takes the view that these intakes “would have a negligible impact over a lifetime”. However the
US EPA have concluded that “it is reasonable to assume that the developing organism may be particularly sensitive to adverse impacts from temporary increases above background levels”73.

So, although intakes have fallen by over 70% in the last ten years74, levels in all our bodies are well within an order of magnitude of health limits which are 100 times less stringent than in other countries, and risks are worst for children. A recognition of the uncertainties and a more open discussion of risk is required than just bland reiterations that these levels are “safe” or “pose no threat”.

5 Additives in food

There is not sufficient information on either the health effects or amounts of additives in food to say whether there is a danger to public health. A policy of encouraging a reduced reliance on food additives would be consistent with the WHO’s Food quality and safety targets.

It would be helpful to know the aggregate quantities of different kinds of food additives, for example synthetic colourings and antioxidants, entering the food supply. There is some evidence that synthetic colourings are amongst those additives which can provoke acute adverse reactions in a so far undetermined proportion of the population. Yet MAFF has resolutely opposed asking food additive suppliers to report the quantities which they market. This information should be made available.

On the issue of artificial sweeteners, MAFF have a lot of relevant data which they have repeatedly refused to disclose75. The publication of this information is unambiguously in the public interest.

The DOH should conduct serious research into the acute adverse effects of additives in food. Information either needs to be made available, or the information needs to be gathered. Health effects from additives need to be adequately researched, and their use reduced. As this has not happened, it cannot be said that the target is being met.
Conclusion

Health risks due to micro-organisms in food are not adequately controlled in the UK. Cases have quintupled in the last 15 years. This alone means that the UK is not meeting this target. However, progress on additives and pesticides is not adequate either, for a sufficiently precautionary and preventative approach is not being taken. These are example of a general failure to apply an integrated approach to food policies, an approach which takes into account all impacts - for example on health, the environment, inequalities and on employment. Integrated policies - reducing the extent of intensive agriculture and promoting sustainable alternatives would have overall benefits for public health, the economy and the environment. The need for such integrated, precautionary, “joined-up” policies is even more apparent when the BSE issue is considered - here, despite the uncertainty of what level of human health effects there will be, the effects of isolated policies based on short-term economic expediency on animal welfare, the environment and the economy are plain to see.

There has been a welcome fall in levels of dioxin in our diet. However there is considerable uncertainty as to whether existing standards adequately protect health. To adequately protect human health, there needs to be a focus on eliminating sources of dioxin pollution.
Target 23 - Control of hazardous wastes

By the year 2000, public health risks caused by solid and hazardous wastes and soil pollution should be effectively controlled in all Member states

Introduction

A comprehensive review of this target would have to cover soil pollution from agro-chemicals. However, these tend to generate health problems principally via food or water, so these issues are covered in the relevant other sections (Targets 20 and 22).

Here we focus on health risks from wastes. In practice it is very difficult to assess such risks: a major problem arise from lack of monitoring and data in the UK, both on wastes generated and on exposures. This section therefore looks more generally at the overall sustainability of the waste industry in the UK to offer a brief snapshot of UK progress.

Waste disposal

Around 26 million tonnes of municipal waste is produced every year in England and Wales. Data in this area is very weak, and it is difficult to establish time trends. Most municipal solid waste is landfilled (83%) or incinerated (9%). 7% is recycled.

The health implications from landfill sites are not known. In 1994, the DOE published a report on the health effects from hazardous waste landfill sites. The intention of the report was to assess a method of evaluating the health effects associated with existing landfill sites. The report concluded that for the majority of existing landfill sites, there was simply insufficient information available on the contents of the landfill to assess, to any degree, the potential health hazard posed by the sites.

The leaching and contamination of soil and groundwater from pollutants in landfill is a major and largely unquantified problem. One Government-commissioned study of 100 landfill sites revealed that, of those sites which have monitoring, half had experienced surface or groundwater pollution
and of these only half had taken action to try to control the problem. A recent report by the Environment Agency indicated that a third of groundwater pollution incidents are due to landfill. It is worth noting also that all landfills leak.

Modern incinerators are required to meet strict standards on emissions, and emit far fewer dioxins and other toxic chemicals to air than previously. However, incinerators still generate large quantities of ash - 300 kg of bottom ash, and 25-40 kg of fly ash for every tonne of incinerated waste. This ash contains dioxins, PCBs, cadmium, lead, arsenic and other heavy metals and is sent to landfill. Incineration does not simply make waste and all toxic substances vanish.

Data on contents of waste discharged to land is very weak. In a wide review of dioxin releases to land and water, the Environment Agency concluded that “The data on PCDD/F in solid and liquid discharges is extremely limited. In many cases no tests have been conducted in the UK, in some sectors no tests were found anywhere in the literature, or through contacts with researchers or industry. Even for processes for which data was found, it is very difficult to extrapolate the data and apply it to industry sectors.” The Environment Agency’s estimate of dioxin releases to land was 1,500 to 1,200 g TEQ/yr - more than that to air (1,000 g). No estimate was possible for releases to water. Comprehensive pollution inventories are required to highlight the sectors where most urgent emissions reductions are required, for levels of dioxins in all our bodies are well within an order of magnitude of health limits which are 100 times less stringent than in other countries.

So although new incinerators may be emitting less pollution to air, the fundamental issue that toxic and persistent pollutants are being dispersed in the environment is not being tackled. To make progress towards the WHO target the UK needs to put in place a strategy to reduce the amounts of waste produced. Recycling targets are part of that strategy (although these exist, progress towards them is slow), but without targets and mechanisms to reduce the amount generated, the progress that will be made by recycling alone will be limited.

Targets also need to be set for reducing the amounts of special and hazardous wastes produced and sent to landfill or incinerators. Time trends for special waste arisings are available, but difficult to interpret, as there are large fluctuations. There is no discernible downward trend in these arisings however. Special waste production is at around 2 - 2.5 million tonnes a year.
Waste disposal: nuclear waste

Reprocessing spent nuclear fuel from power stations is creating a large and growing stockpile of plutonium in the UK. The stock is 54 tonnes, predicted to be 100 tonnes by 2010. There is no national strategy to deal with this plutonium - continuing to produce it is unsustainable. It is a growing burden for future generations, and there are risks for the current generation. The Royal Society reports that “the chance that the stocks of plutonium might, at some stage, be accessed for illicit weapons production is of extreme concern”, concluding “The stockpile can be viewed as a strategic and environmental risk, as well as an open-ended legacy for future generations”. The UK needs to plan to stabilise and then reduce this stockpile.

Conclusion

The waste and hazardous waste disposal industries still rely on using the environment as the ultimate sink for wastes. We should not tolerate production methods that produce wastes whose only option is either incineration, landfill or other dispersion in the environment. The UK does not have a systematic waste reduction strategy, or even adequate data on the wastes being produced and where they are disposed. Integrated policies are needed which recognise the benefits to health, the environment and to the economy of pursuing waste reduction strategies.

Another implication of waste policy is the potential effects on health inequalities. Data in the UK is limited, but in the USA, research has found that toxic waste dumps, incinerators and other pollution sources were concentrated in poor and primarily black neighbourhoods. The interactions of inequality, ill health and environmental quality suggest that in the UK, improving the environment would deliver more benefits for the poor than the rich. But so far, Government has not shown much interest in this argument. Agyeman has asked: “in the UK how much research has been done by...The Department of the Environment on the environmental quality enjoyed (sic) by black people. A Department official, when asked this question, replied ‘it’s not the kind of research we do’”.

On precautionary, inequality and integration grounds, the UK is not meeting the WHO’s target for waste.
**Target 24 - Human Ecology and Settlements**

*By the year 2000, cities, towns and rural communities throughout the Region should have physical and social environments supportive to the health of their inhabitants*

**Introduction**

This is a diffuse target that overlaps onto many other of the WHO environmental targets, particularly Target 11 (accidents), and Target 22 (air pollution). It also relates strongly to the first two WHO Health for all Targets, Target 1 (equity) and Target 2 (quality of life). For example, in the UK, housing conditions have been demonstrated to interact with other factors, such as poverty, to produce and exacerbate inequalities in health\(^{86,87}\). The key issues measuring success are whether people’s homes and their neighbourhoods adequately promote good health.

1 **Housing warmth**

There are around 40,000 Extra Winter Deaths in the UK each year\(^{88}\). Twice as many people die in a particularly cold January compared with a very warm August\(^{89}\).

Hypothermia is popularly regarded at the major cause of winter mortality. But in fact only about 300 excess deaths per year are directly attributable to hypothermia\(^{90}\). The majority of excess winter deaths are due to coronary and cerebral thrombosis and respiratory diseases that are known to be precipitated by cold living conditions, with the majority occurring amongst the elderly population\(^{91}\). Even slightly lowered core temperatures and cold extremities can produce dangerous, short term increases in the blood pressure of older people. Such temperatures can also reduce dexterity among older people. When combined with blood pressure and haemoglobin factors, this may explain the greater incidence of falls and injuries among old people in the winter\(^{92}\) - accidents indoors have been found to be 350% higher in the winter compared with the summer\(^{93}\).

Boardman has shown\(^{94}\) that this excess mortality does not occur in colder climates where homes are warmer. Marked seasonal variations are also not reported in cold countries with adequate insulation, such as Sweden\(^{95}\). Comparisons with other countries suggest that this excess mortality
may be preventable. In 1991, Henwood stated that “Britain’s appalling performance in this international league is obviously not explained by its severe weather”.

In 1988, the British Geriatric Society recommended a temperature of 21°C for older people. In 1993 however, Arblaster and Hawtin reported that 84% of over 65 year olds live in temperatures less than 18.3°C, and 64% of these lived at less than 16°C. In 1991, the Department of Environment energy survey reported that when the outside temperature fell below -1°C, approximately 20% of households had inside temperatures of less than 12°C. These houses are more likely to experience condensation problems and mould growth. Mould has been related to asthma, sore throats, coughs, headaches and fevers.

The main cause of fuel poverty is energy efficiency. In England, 7.5 million households’s fuel spending is not adequate to achieve the minimum health-based heating standard. The following table shows that the poor are particularly badly affected, but by far the most common theme for fuel poverty is houses which are energy inefficient. At average winter temperatures, 95% of the 2.85 million households with SAP rating less than 20 fail to meet the DOE’s minimum health based heating standard:

<table>
<thead>
<tr>
<th>Household Group</th>
<th>Percentage failing</th>
</tr>
</thead>
<tbody>
<tr>
<td>All households</td>
<td>51.2</td>
</tr>
<tr>
<td>75%+ of income from state benefits</td>
<td>65.8</td>
</tr>
<tr>
<td>Income under £4,500</td>
<td>75.8</td>
</tr>
<tr>
<td>Private rented households</td>
<td>&gt;80</td>
</tr>
<tr>
<td>Households with SAP less than 20</td>
<td>94.7</td>
</tr>
</tbody>
</table>

The elderly are also badly hit. 940,000 pensioner households have SAP ratings less than 20. The breakdown is worst for pensioners who are private tenants - 60%, 200,000 households, have SAP ratings less than 20.

Comprehensive data is not available for Scotland, Wales or Northern Ireland, but energy
efficiency standards are not likely to be better. Fuel poverty may be an even greater problem in Scotland - the average SAP rating (33) is lower than in England (35).

The Government needs to put in place a targeted strategy to increase the energy efficiency of homes, focusing first on the homes of the ‘fuel poor’. This delivers quality of life, health, employment, environmental and financial benefits. In 1991, the report of the conference of the Health of the Nation recommended that at least £1000 million a year should be spent by the Government on the renovation of private housing. The Warm Homes and Energy Conservation (15 Year Programme) Bill currently before Parliament offers a way of making such an investment cost-effectively.

2 Housing stock, repair and renewal

The 1991 English House Condition Survey found that around 1,500,000 dwellings in England were unfit - this is a decrease of around 10% over the 1981 figure.

However, in a report on housing within the South East Thames region, it is suggested that current housing stock is deteriorating faster than it is upgraded, and estimates that 1 million people, from a total population of 3.7 million, may be inadequately housed\(^5\). If this trend is mirrored in other regions, problems of this magnitude could have considerable implications for the population’s health. It certainly has implications for the adequacy of the standards for unfit housing.

In 1995, a DOE report\(^6\) recognised that spatially concentrated unemployment, poverty and deprivation are particularly marked across a wide range of urban areas. The housing market has been seen to concentrate those who are least able to compete in the labour market within the poorest inner-city housing and peripheral estates. A housing profile for the inner cities contrasts with the outer areas, with lower rates of owner-occupation, more council and housing association owned properties and higher levels of disrepair. So, provision and improvement of property will continue to be important to inner-city areas. This is particularly critical given that areas of poor housing are often associated with other deprivation. The creation of ghettos of social exclusion in which lack of employment and services are reinforced by poor housing and poor environmental quality reinforce multiple deprivation and exacerbate health inequalities. The issue of supply at
affordable prices and suitable locations will continue to be an important issue well into the next millennium.

3 Planning and the built environment

Transport policy has a major effect on physical and social environments and hence on people’s health. The figure below shows that, over recent years, there has been a substantial reduction in the number of miles travelled by bicycle and walking and an increase in car usage.

Over the last three decades, transport policies have steadily promoted car travel at the expense of public transport, cycling and walking, and contributed to the rapid increase in out-of-town retail space, and the flow of people and services from inner cities to the suburbs, with increased distances for access to facilities. This has had a profound effect on inequalities and people’s quality of life, especially for the 32% of households - mainly elderly, disabled or poorer people - who do not have access to a car.

This point about access and inequalities is critical. 50% of people in the bottom two income quintiles do not have access to a car\(^\text{107}\) - so transport and planning policies which have been built around provision for motorists (all too often at the direct expense of decent public transport and safe cycling and walking conditions) greatly exacerbate the problems of inequality in the UK, by denying easy access to facilities and essential services, with particular problems for obtaining a healthy diet. This issue of “food poverty” is discussed more below.

The growth of suburbia and suburban commuting has had terrible effects on community life: suburbs are empty by day, cities deserted by night and at weekends, with the cars of the affluent choking and wrecking the environment in between where poorer people live. The effects of these planning disasters, and the effects of stress and isolation on people’s quality of life and mental health, is well documented by Freeman\(^\text{108}\) who outlines the “endless spread of housing on the periphery of cities and towns meaning that more and more travel is necessary for essential human activities” and how this makes “informal social support, which is a feature of older communities, very difficult to obtain”. Social support is one of the critical determinants of health and quality of life.
In areas where there is heavy traffic, community severance is also a problem. Appleyard’s famous study in the seventies showed that on the most heavily trafficked streets, people knew fewer and saw less of their neighbours than on lightly trafficked streets\textsuperscript{109}. Low levels of social support have been associated with higher levels of death and illness\textsuperscript{110}. Wilkinson’s wide-ranging review of the causes of ill-health and inequality found that social cohesion and a sense of community were critical determinants of societal and individual health\textsuperscript{111}.

Food poverty and planning

Retail developments, especially supermarkets, have relocated out of town centres. This has made it increasingly difficult for many people to obtain a healthy diet. The transport policies discussed above have been a major cause of these changes. There are now two main problems:

- “shopping deserts”, where there are no nearby shops selling fresh fruit and vegetables
- Inadequate or expensive transport facilities making it too difficult for people without cars to get to supermarkets.

Lack of access to a healthy diet is a critical cause of ill-health, and contributes heavily to health inequalities. These “shopping deserts” are often in areas of other deprivation, again exacerbating social exclusion. Access to a healthy diet is acknowledged in the Our Healthier Nation Green Paper as a key area for Government intervention in its contract to prevent heart disease and stroke. There is very little detail on how this will be achieved, but a major element will have to be to use planning to tackle lack of access.

As well as the major planning and transport changes outlined above, there need to be commitments in local plans to protect the diversity of local economies, and local shops. High streets and other local indoor/outdoor markets should also be revitalised\textsuperscript{112}. These actions can also be assisted by measures to increase urban housing densities, through aggressive policies to tackle the problems of:

- Empty homes (997,000 in the UK),
- Empty commercial space, and empty space above shops,
- Low housing densities in development, which promotes reliance on car-use,
- Development on green-field sites, also promoting car-use, and damaging nature sites,
- The dearth of redevelopment (action could include removing the VAT differential where new build housing is not charged VAT, but refurbishment and redevelopment is)\textsuperscript{113}.

It is widely acknowledged\textsuperscript{114} that increasing residential densities in cities can have multiple benefits, from reduced car dependency and safer streets, to more locally provided services and a better community life.

**Conclusion**

In conclusion, there is a strong need to bring people’s work, and facilities - food shops, libraries, cinemas - closer to their homes. Planning policies which increase accessibility and reduce the need to travel will bring essential services within reach of those currently excluded - reducing the effects of inequality and improving health. A national strategy to reduce traffic levels and improve access is urgently required. This will not just bring environmental benefits, but people’s health and quality of life would improve, and unacceptable inequalities would be reduced.

Also, the quality of the national housing stock needs to be improved. The existence of fuel poverty in the UK, and the strong links between fuel poverty, ill health, environmental damage, worsened inequalities and eroded quality of life are perhaps the clearest example of why we need integrated policies. At present, fuel poverty is still only dealt with in a piecemeal and short-term manner at a national level.

It is the lack of integrated policies here and in housing quality which are preventing the UK from meeting this target on healthy homes and settlements. Integrated policies would tackle health and environmental problems together, which would help to greatly reduce health inequalities.
Target 25 - Working Environment

By the year 2000, the health of workers in all Member States should be improved by making work environments more healthy, reducing work-related disease and injury, and promoting the wellbeing of people at work.

Introduction

In 1992, the Faculty of Public Health Medicine of the Royal College of Physicians identified eight sub-areas in this area in an attempt to measure progress towards this World Health Organisation target. In practice, although targets were set in some of these areas, it is still difficult to assess progress in most of them. For example, rates of occupationally derived diseases are very difficult to establish. There are two main problems. First, there is often a lack of a direct causative link, due to either a change of job or retirement prior to diagnosis, other possible causes of symptoms, a long latency period or a chronic condition which is a sub-clinical for a number of years, or even that the causative link is not established or recognised. Second, there are also often failings in reporting systems. There are many reasons for this, such as a lack of a requirement for reporting, no perceived benefits in reporting, disincentives to reporting as a failure to use appropriate measures is often an offence and that there is only a partial list of reportable occupational diseases. As a consequence, the data available are deficient, and there is believed to be considerable under-reporting of occupational disease.

Here we first provide a summary of an assessment of progress to these eight sub-areas based on research by the South East Institute for Public Health. Then we look briefly at the occupational health effects of the use of organophosphate chemicals by farmers in dipping sheep - this is an area which highlights some of the difficulties in assessing levels of ill-health, and shows strong links with other policy goals identified in other sections of this report.
## Sub areas

<table>
<thead>
<tr>
<th>Sub-area</th>
<th>Target</th>
<th>Progress</th>
<th>Will target be met?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Respiratory diseases: asthma</td>
<td>30% reduction in cases by the year 2000</td>
<td>The SWORD project changed the method of data collection in 1992, and 1993, resulting in a doubling in the reported cases of occupational asthma (to around 1000). This target can’t be assessed at present.</td>
<td>Unknown</td>
</tr>
<tr>
<td>1.2 Respiratory disease: asbestos related</td>
<td>A downward trend in the incidence of mesothelioma by 2000</td>
<td>The number of cases is continuing to increase. This target is not achievable due to the very long latency period of the disease. No new cases of asbestosis attributable to exposure since 1975.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White asbestos is still imported into Britain, for goods for which alternatives are readily available.</td>
<td></td>
</tr>
<tr>
<td>1.3 Respiratory disease: pneumoconiosis and allergic alveolitis</td>
<td>No more than 10 cases of coal workers pneumoconiosis from exposure since the implementation of COSHH in 1990. A 30% reduction in the incidence of allergic alveolitis.</td>
<td>Directly comparable data are not available.</td>
<td>unknown</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>2. Dermatological diseases</td>
<td>cases of occupational dermatitis down from 60,000 to 45,000 by 2000.</td>
<td>Directly comparable data are not available.</td>
<td>unknown</td>
</tr>
<tr>
<td>3. Musculo-skeletal disorders</td>
<td>No specific target given.</td>
<td>There is no national monitoring system.</td>
<td>unknown</td>
</tr>
<tr>
<td>4. Noise-induced hearing loss</td>
<td>i) by 2000 elimination of unprotected at work to noise greater than 85 dBA ii) elimination of all compensable cases of noise-induced hearing loss attributable to working conditions extant in 1991</td>
<td>The targets are not assessable using current data sources.</td>
<td>unknown</td>
</tr>
<tr>
<td>5. Occupational mental health</td>
<td>No specific target given.</td>
<td>No direct assessment is possible</td>
<td>unknown</td>
</tr>
</tbody>
</table>
### UK progress towards World Health Organisation targets on health and the environment

<table>
<thead>
<tr>
<th>6. Acute poisons</th>
<th>A reduction of the 20 - 30 fatalities per year in Great Britain to a target of not more than five fatalities per year.</th>
<th>The current level of fatalities from poisoning and gassing has not altered significantly over the last few years. It is unlikely that the sub-target will be achieved.</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Occupational cancers</td>
<td>There should be no deaths from angiosarcoma, epithelioma from cutting oils and bladder cancer from naphthylamines by 2000. Lung cancer from asbestos and nasal and sinus cancer in workers exposed to wood dust and nasal cancers in boot and shoe workers should also be virtually eliminated</td>
<td>It is considered unlikely that the incidence of asbestos related lung cancer will be virtually eliminated by the year 2000. The reported level of nasal and sinus cancer is very low and elimination of this occupational disease by the year 2000 is feasible.</td>
<td>No</td>
</tr>
<tr>
<td>8. Occupational injuries</td>
<td>The rate of fatal injuries to employees at their place of work should be less than 1.0 per 100,000 employee per year (equivalent to about 220 deaths per year).</td>
<td>This sub-target is already being met, although fatalities rose in 1996-7</td>
<td>Yes</td>
</tr>
</tbody>
</table>
2 Organophosphate sheep dips

MAFF and the Government believe that, with proper precautions, use of OP sheep dips should not cause acute health effects. OPs are known to cause acute effects, but as long as they are “used according to manufacturers’ instructions” there should be no danger to health. Whether such abrogation of responsibility from manufacturers and the Government onto farmers is acceptable is debatable, given that the safety equipment required is cumbersome and affects farmer’s ability to adequately use the chemicals. However, the possibility of long-term effects due to chronic exposure is perhaps of a greater importance from a policy perspective. The Government has stated that “it has also been suggested that prolonged, low level exposure without immediate symptoms can cause chronic ill-health but scientific studies have so far revealed scant evidence of this”. However, this is a highly controversial area. It is always very difficult to establish causal evidence of long-term low-exposure to chemicals, given the large number of confounding effects, and the expense of monitoring and of epidemiological studies. What is clear is that the Government still operates on the basis that the burden of proof is on the individual affected - there is still no more than a paper commitment to the precautionary principle.

The priorities for policy should be switched so that most effort is put into reducing risks by substitution and reduced use of OP chemicals, rather than in the first instance calling for more research. This delays action - in direct contradiction of the aims of the precautionary principle. The scientific case against OPs is not yet strong enough to state that there is a definite causal link between exposure and long-term effects. But there is now such a weight of evidence of these chronic effects that the British High Court has found that exposure to OPs has caused long term damage, and this and other evidence is more than enough to justify precautionary measures to reduce OP use.

The Pesticides Trust, reporting on this court case, said:

“There has always been an insistence on scientific proof of harm of OPs before recognition that they may cause illness. Perhaps the judge has now ushered in an era of common sense, when it is recognised that an onus of proof based on the balance of probabilities is more realistic than on an onus of proof based on scientific causation.”
Conclusion

Although progress is being made on occupational injuries, major problem areas remain - including those for asbestos-related diseases and farmers who use organophosphate sheep-dips. Cases of asbestos-related diseases are still rising, and there is still no ban on white asbestos in the UK, as there is in other countries such as France. The continued failure of the Government to take precautionary action on organophosphate chemicals is indicative of a wider failure to take an integrated sustainability approach to chemicals use. This is disappointing given the Government’s demands in opposition for a moratorium on the use of OPs as sheep-dip.
UK progress towards World Health Organisation targets on health and the environment

Notes & References

4. Affecting WHO Target 1 on equity
5. Affecting WHO Target 24 on Human ecology and settlements
6. WHO Target 7- Health of children and young people
7. With effects for Target 24, and Target 2 on Quality of life
9. and WHO target 9 on reduction of cardiovascular disease
13. RCEP, 1994. 18th report, HMSO
14. Some possible reasons for this are that their cars are more powerful and faster than privately owned cars, they don’t own them, the cars will be insured on a fleet policy.
15. Press conference for launch of health strategy, 7/7/97
17. GDP was not defined as an indicator of progress or welfare, however it is being used as such.
20. SAP is the standard energy efficiency rating for houses - going from 0 to 100.


23. It states “about a million homes in the UK have inadequate standards of energy efficiency” - whereas nearly 3 million households in England alone have a SAP rating less than 20 - a level under which 98% of households are unable to meet minimum health based heating standards.

24. Nonetheless, that process must be underpinned by best scientific evidence.

25. ENDS, 1997. Dispute over oestrogenic hazards from food can linings. No 273, p-34


27. ENDS, 1997. Industry and scientists in cross-fire on endocrine disrupting chemicals


29. The sheer number of chemicals in the environment has other effects on policies in the UK. For example, there is not a comprehensive monitoring system for chemicals in the environment. For example, MAFF do not want to monitor chemicals in food generally, but instead look for specific chemicals. Their explanation is that “It was suggested that chemicals which have not yet undergone testing should be included in the surveillance programme. However...if a survey is conducted then MAFF must be able to give advice on the implications of the results based on the evaluations carried out by the COT or other expert evaluations”. In other words, if they don’t know what its effects are, they’re not going to look for it.

30. ENDS Daily, 1998. EU mulls over precautionary chemicals policy. 27 April.


36. in air for example


38. with the coliform standard in the EC bathing water directive 76/160/EEC

39. Odds ratio in this instance is the ratio of the odds of a bather falling ill divided by the odds of a non-bather falling ill, for a given symptom
UK progress towards World Health Organisation targets on health and the environment


44. Testicular cancer up by 55%, prostate cancer up by 40% (1979-1991) in England and Wales. Data from Cancer Research Campaign.

45. Breast cancer has been estimated to have increased by 1% per year since the 1940s in the USA, and has increased in Denmark by 50% between 1945 and 1980; Institute for Environment and Health, 1995. Environmental oestrogens: consequences to human health and wildlife.

46. A standard of 1 µg/l will soon be set for nonylphenol - however this is just one breakdown product of alkylphenol ethoxylates. The Environment Agency does not even monitor for carboxylate breakdown products, though these can be up to 85% of the alkylphenolic compounds in a river.


48. Particulate matter less than ten micrometers in diameter.

49. COMEAP offered a lower estimate, of 12,300 deaths and 14,500 hospital admissions, based on different assumptions for the effects of ozone. However, they use the higher estimate, stating: “The no threshold approach has been assumed by the World Health Organisation in their assessment of health effects of ozone and we believe this is the correct approach to take”. Also COMEAP do not set a definition of “premature” - it is unknown at present how premature these early deaths are.

50. Although summertime smogs, caused by ozone, are worst in rural areas


53. 50 parts per billion as a mean over any 8 hour period

54. 21 parts per billion as an annual mean

55. 50 microgrammes per cubic metre as a mean over 24 hour period

56. Vehicles being the major source of urban air pollution, when urban air pollution is the main source of the health problems.
UK progress towards World Health Organisation targets on health and the environment


58. WHO, 1994. Update and revision of the Air Quality Guidelines for Europe. The paper notes that there is no known threshold for these effects.


64. MRLs are not just toxicologically based, but have an agricultural basis to their determination.


66. based on human data, over a no effect level (to allow for variations within the human population)


68. It states that: “The upper bound estimate of the average daily intake of PCDDs and PCDFs of 125 pg TCDD equivalents/person/day by the adult general population reported by the Working party is well below the TDI of 10 pg/kg bw day TCDD equivalents (equivalent to 600 pg TCDD equivalents/day for a 60 kg adult) and consider that there is unlikely to be a health risk at these intake levels”. From MAFF 1992. Dioxins in food. Food Surveillance no 31. London, HMSO. [notes- PCDDs = polychlorinated dibenzo-dioxins, PCDFs = polychlorinated dibenzofurans. Relative toxicity of the 210 PCDD and PCDFs are expressed in terms of toxic equivalency factors, summed to give toxic equivalents of 2,3,7,8 TCDD, the most toxic dioxin. pg/ kg bw/day = picogrammes per kilogramme body weight per day]

69. From a “no observable adverse effect level” of 1000 pg/kg bw day in rats, WHO set a limit of 10 pg/kg bw day for humans - a safety factor of 100. The WHO calculates that for humans to receive the same level of dioxin in the liver (where effects were observed in rats) “the daily dose/kg bw is one tenth of the dosage to rats. This is a “kinetic” factor for dioxins, based solely on the fact that dioxins last longer and accumulate more in humans than in rats. WHO also state that “Because of the poor data base on reproductive effects in humans, an uncertainty factor of 10 was employed. So, the WHO’s 100 safety factor is taken up by kinetic and reproductive factors only - leaving no safety allowance for any inter-species differences between humans and rats other than that dioxins last longer in humans, and no safety factor for intra-species variation. (WHO state that: “In addition, safety factors may also have to be employed to account for inherent species differences in the susceptibility of the target organs”, and “Considering other uncertainties eg possible species differences and inter-individual variation in sensitivity
among humans, a safety factor must be applied. However, since some of the inter-species differences were already taken into account (ie the toxicokinetic differences) the group felt that an uncertainty factor of 10 was sufficient. Thus the TDI would be 10 pg/kg bw body weight). ref: WHO, 1992. Toxic Substances Journal. Tolerable daily intake of PCDDs and PCDFs. WHO, London.

70. picogrammes per kilogramme body weight per day
74. Due in part to reductions in emissions from incinerators, and from less fat in our diets.
77. The Environment Agency refused to provide Friends of the Earth with details of which landfills were responsible. Refusing access to information, in FOE’s view, stifles debate and hinders society reaching quality judgements on how waste should be dealt with in the future
80. Dioxins
82. Eg there was a fall from 3 million to 2 million tonnes between 1991/2 and 1993/4 because of the reduction in contaminated soil due to the completion of redevelopment at Chatham Docks.

87. Public Health Alliance of Scotland and Shelter, 1993. Housing and health in Scotland

88. Data from Office of National Statistics


101. Fuel poverty is the inability to heat your home to health-based heating standards. It depends on a range of factors, predominantly the energy efficiency of the home, and income.

102. English House Condition Survey 1991. DOE,1996, A11.8. This is for spending which is inadequate by more than 10%.

103. SAP is an energy efficiency rating - going from 0 (worst) to 100 (best).

UK progress towards World Health Organisation targets on health and the environment


117. Surveillance of Work-Related and Occupational Respiratory Disease.


