

~~EA-MISC~~

## ENVIRONMENT SECTION

075284

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## **Introduction**

The quality of the environment has a bearing on the attractiveness of an area as a place to invest, live and work in, and also to visit. Any increase in inward investment, development and tourism can, however, lead to an increase in pressures on the environment in terms of land use, transport, use of natural resources and generation of waste and pollutants.

The Objective 2 programme covering the GMLC area for the period 1997 to 1999 has the potential to generate sustainable improvement in the quality of the environment, particularly in the context of:

- ▶ regeneration of derelict land
- ▶ encouraging the use of public transport, by developing cycling and walking at appropriate sites
- ▶ promoting initiatives to improve the quality of the environment so as to increase the potential for tourism
- ▶ improving environmental awareness and environmental best practice through training programmes
- ▶ facilitating research activities in areas of clean technology, energy efficiency and waste minimisation

As required under EC Regulation 2081/93, this section provides a prior appraisal of the potential environmental impact of the proposed GMLC Objective 2 programme.

The Appraisal consists of the following parts:

- ▶ A profile for the GMLC Area providing baseline information for selected key environmental themes
- ▶ An environmental appraisal carried out at measure, priority and programme level. This section incorporates the legislative and administrative framework within which the Objective 2 programme will operate as far as the environment is concerned.

**PART 1:**  
**ENVIRONMENT PROFILE FOR THE**  
**GMLC OBJECTIVE 2 AREA**



# 1 AIR

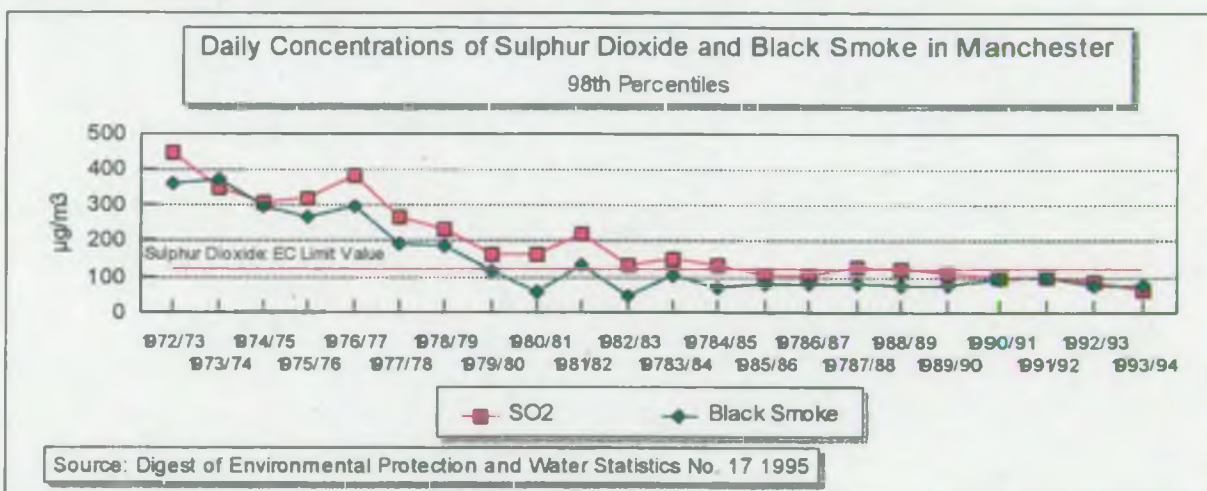
Air quality within the Objective 2 Area can be characterised by information from Manchester's air quality monitoring network. This network includes sites which measure 'typical' urban, suburban and semi-rural pollution levels and also sites designed to investigate particular problems.

Current EC Directives provide standards for smoke, sulphur dioxide, lead and nitrogen dioxide. The Directives lay down methods of monitoring the pollutants and compulsory limit values that must be met by member states.

## 1.1 Smoke and Sulphur Dioxide

The major sources of smoke and SO<sub>2</sub> stem from the burning of fossil fuel. Since measurements began in Manchester in 1959, winter smoke has been reduced by 95% and SO<sub>2</sub> by 92%, the bronchitis death rate has more than halved, and the available winter sunshine has more than doubled. Large reductions in the 1960s and 70s were achieved by the enforcement of the powers contained in the Clean Air Acts and through the progressive implementation of Smoke Control Orders. Nowadays, the dominant influences on SO<sub>2</sub> and smoke levels include the severity of the winter, fuel usage patterns and daily meteorological conditions that can affect dispersion.

In recent years smoke and SO<sub>2</sub> levels in Manchester have complied with EC limit values. Guide values, intended as long term air quality objectives, are not always met; exceedances that occur being mainly in the winter when there are increased emissions and adverse weather conditions for the dispersal of pollutants.



Concentrations of SO<sub>2</sub> in some other towns in the Objective 2 Area are shown in the table below. All are well within the EC limit value of 120µg/m<sup>3</sup>. Although there are marked reductions in pollution levels, the synergistic effect of smoke and SO<sub>2</sub> is still promoting structural damage in buildings and concern about people's health.

Sulphur Dioxide Concentrations in Objective 2 Area Towns, (µg/m <sup>3</sup> )		
Town	1992	1993/94
Accrington	49	46
Cheadle and Gatley	59	19
Eccles	43	35
Ellesmere Port	28	21
Wigan	35	21
EC Limit Value 120µg/m <sup>3</sup> EC Guide Value 40-60µg/m <sup>3</sup>		

Source: NETCEN

### 1.2 Deposited Grit and Dust

Detailed analysis of airborne particles at a single monitoring site in the centre of Manchester indicates that some heavy metals concentrations are elevated. However, there is no significant short term danger to public health from the inhalation of the measured levels of the contaminants in the airborne dust. UK standards are anticipated for PM<sub>10</sub> (fine particles less than 10µm in diameter) under the national air quality strategy. Manchester has been chosen as a location for future monitoring of PM<sub>10</sub>.

### 1.3 Traffic Related Pollution

Pollution from road traffic can be classified as either primary, when emitted directly to the atmosphere from the vehicle, or secondary, when formed in the atmosphere as a result of chemical reactions between the primary pollutants and other chemicals present in the atmosphere. The combustion of fossil fuels liberates carbon dioxide and water vapour. In practice, fuel is only partly burnt, leading to the formation of carbon monoxide, unburnt hydrocarbons and nitric oxide. Fuel additives, impurities and oil constituents may form additional compounds that can be released to the atmosphere.

Exhaust emissions from road vehicles are a major source of pollutants including nitrogen oxides, particulates, lead and carbon monoxide. Monitoring sites provide measurements of background and peak kerbside concentrations of traffic related pollution to which people are exposed.

A comparison between petrol and diesel exhaust emissions illustrates that diesel engines emit less carbon monoxide and hydrocarbons but more sulphur dioxide and particulates.

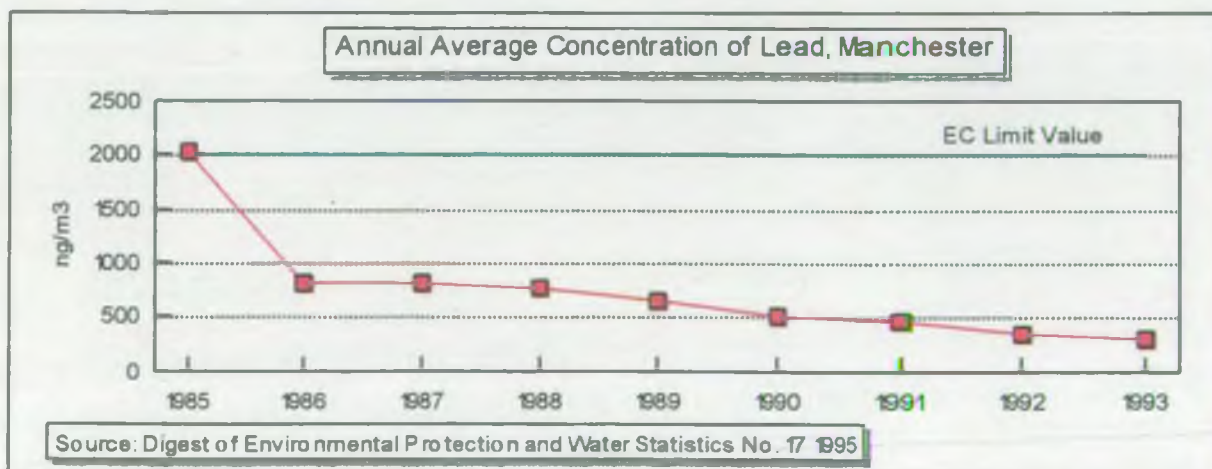
Comparison of diesel and petrol exhaust emissions					
	CO%	HC ppm	NO ppm	SO <sub>2</sub> ppm	Particulates g/m <sup>3</sup>
Diesel	0.1	300	4000	200	0.5
Petrol	10	1000	4000	60	0.01

Source: Manchester Area Pollution Advisory Council, 1993.

Information on the relative changes in diesel and petrol engines is not available for the Objective 2 Area. However, as approximately 1 in 5 of new car sales are diesel powered, the proportion of these vehicles is set to rise.

#### 1.3.1 Lead

The major source of lead pollution in the city is vehicle exhaust emissions. Levels of lead in air have reduced in the Objective 2 Area since the introduction of unleaded petrol in 1986, although increased traffic in Manchester city centre did lead to a gradual increase in lead in airborne dust in that location that peaked in 1989.

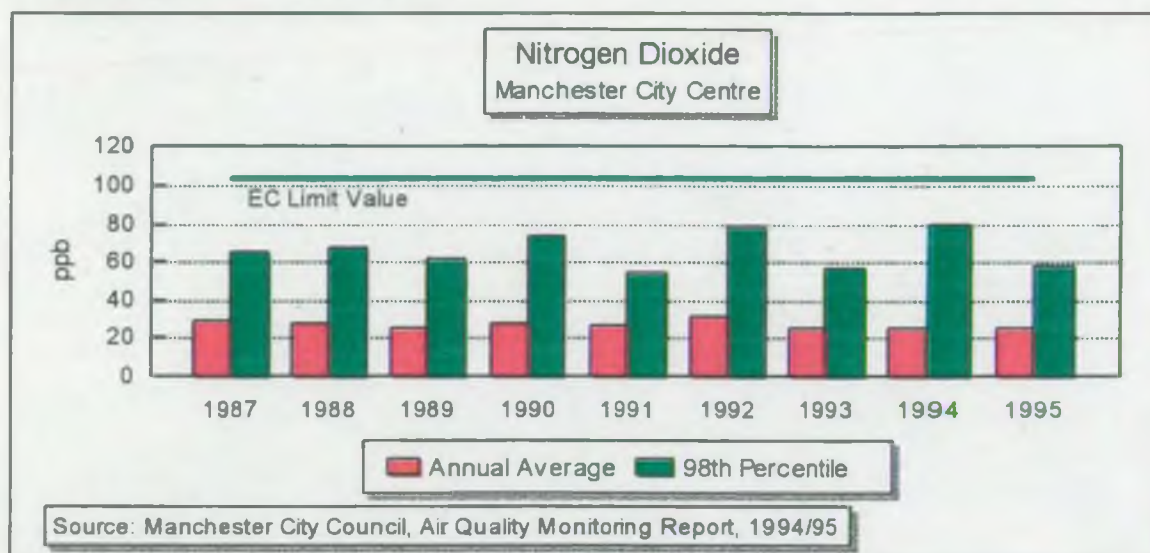




### 1.3.2 Nitrogen Oxides

Nitrogen oxides are produced by a variety of high temperature combustion processes. Nitrogen dioxide is the most relevant to health, being an irritant gas with the potential for damaging the respiratory tract. During poorer quality episodes, people suffering from heart and lung diseases are especially vulnerable, as are those who take part in outdoor activity. Levels of nitrogen dioxide are primarily traffic related, the highest weekly concentrations being recorded at a kerbside location within the city centre. Continuous monitoring of nitrogen dioxide in Manchester has not indicated an upward trend, although readings do indicate 'hot spots' at congested locations.

City centre monitoring of nitrogen oxides in Manchester is operated as part of the National Network of EC Directive sites. Monitoring commenced in 1987 and measurements have to date complied with the Directive's compulsory limit of 105 ppb (98th percentile of hourly means).



Low NO<sub>x</sub> firing programmes, which inhibit the formation of NO<sub>x</sub> by injecting the fuel at lower temperatures, have now been completed at major power stations. Without strict emission controls for cars and an effort to reduce the growing volume of traffic on roads, the relative contribution of cars to NO<sub>2</sub> pollution will increase.

### 1.3.3 Carbon Monoxide

Carbon monoxide monitoring has been carried out in Manchester City Centre since 1991. Levels have been found to be generally higher at roadside locations where daytime concentrations can exceed the World Health Organisation guideline of 10ppm.

### 1.4 Air Pollution Episodes

Pollution episodes in Manchester occurred in 1992 and in 1994 when cold, still weather conditions gave rise to high levels of both nitrogen dioxide and carbon monoxide over a two day period. During the episode in December 1994, carbon monoxide marginally exceeded the World Health Organisation's Guideline for an 8-hour average period. Largely as a result of these episodes, in 1992 and 1994 the 98th percentile for nitrogen oxides exceeded the EC guide value. However, these are exceptions to the normal situation where pollutant levels are generally below relevant standards.

### 1.5 Acid Emissions

The Pennines to the East and immediately North of Manchester form the uplands of the Objective 2 Area, are subject to intense anthropogenic acid deposition. This is primarily the result of emissions of SO<sub>2</sub> and NO from the burning of fossil fuels. Ammonia emissions from agricultural sources are becoming an increasingly important contributor.

Fiddlers Ferry Power Station, although lying just outside of the Objective 2 Area, is the largest point source of SO<sub>2</sub> and NO<sub>x</sub> to the area. Ince Power Station, which does lie within the Objective 2 Area is the second largest. Both stations have recently been retrofitted with low NO<sub>x</sub> burners. This, coupled with the closure of Agecroft, Carrington, Bold and Padiham power stations will reduce NO<sub>x</sub> emissions in the Objective 2 Area. However, this reduction is likely to be offset by the forecast growth in traffic levels of the Area.

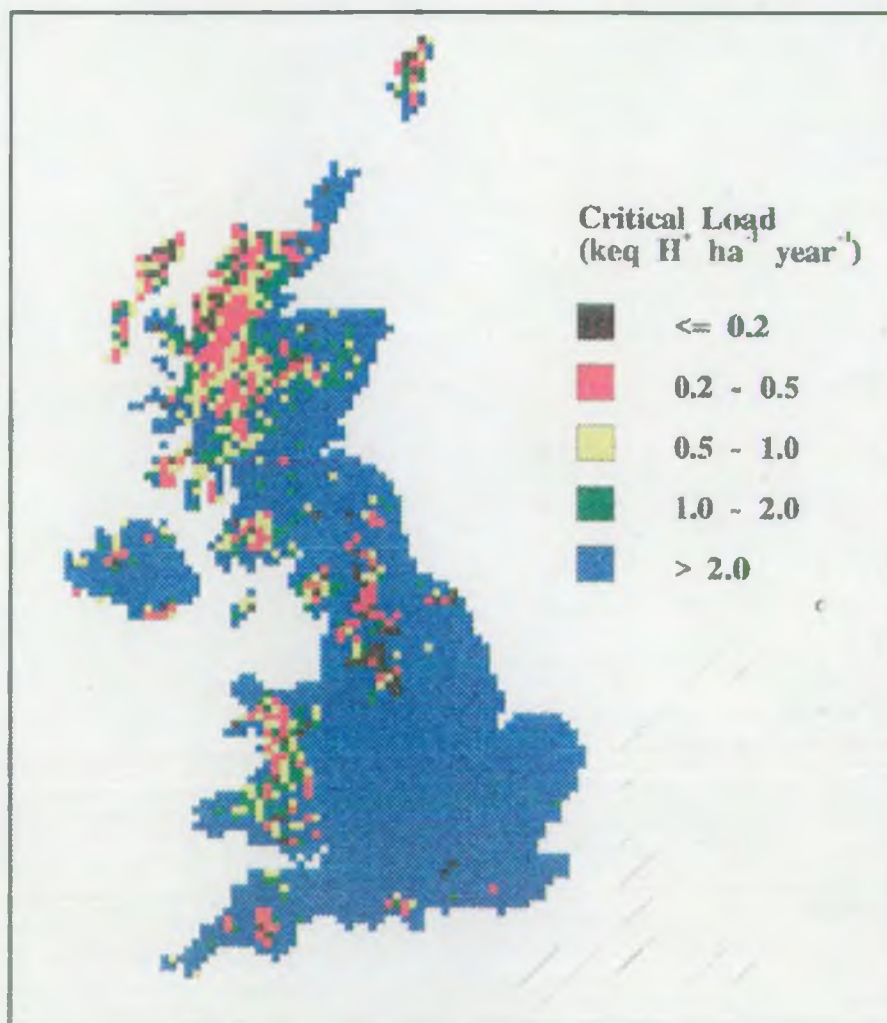
### 1.5.1 Critical Loads

The concept of critical loads is being used by the United Kingdom and the European Union as a guideline to formulate strategies to deal with acid rain pollution. In this way the control of acid rain can be addressed on a national and European basis.

The impact of acid rain on any given soil will depend on its composition. Soils that are high in minerals can easily neutralise acid rain and can tolerate very large deposition without showing adverse effects. These soils are said to have high critical loads. In contrast, where soils are low in mineral content the available stores of neutralising substances are small and these soils can quickly become acidic. Their critical loads are correspondingly low.

Maps have been produced which show the critical loads for freshwaters subject to acid rain. Soils and freshwaters are likely to be amongst the most sensitive receptors to acid rain. The accompanying map indicates the levels of deposition at which freshwater in different parts of the Area are vulnerable to acidification.

**Critical Loads for Deposition of Acidity to Fresh Water Bodies in the UK**



Source:NETCEN

Sulphur deposition exceeds the critical load on the Pennine Ridge where it is underlain with Millstone Grit, to the East and immediately North of Manchester, and where it is underlain with coal measures in the Rivington area. Any of the upland streams in the affected areas have an unnaturally acid chemistry, support only acid-tolerant invertebrates and contain no fish. There are other examples of acidified catchments in the North West although they are limited in extent.



Acid deposition from manmade sources has probably exceeded the critical load levels in some of the upland areas for many decades. This has coincided with measurable biological changes over the last century. Atmospheric nitrate deposition has increased fourfold since the last century in the Manchester region, and has reduced the diversity of mosses on upland mires. Elsewhere, fisheries have declined over recent years following acidification.

#### **1.6 Future Developments**

At an EC level, further Directives are expected over the coming decade addressing air quality management issues. The UK government is also in the process of formulating a national air quality strategy. Under this proposal, air quality targets are set for the year 2005, and where these are not met, local authorities would be required to designate an air quality management area for which improvement programmes would need to be drawn up.

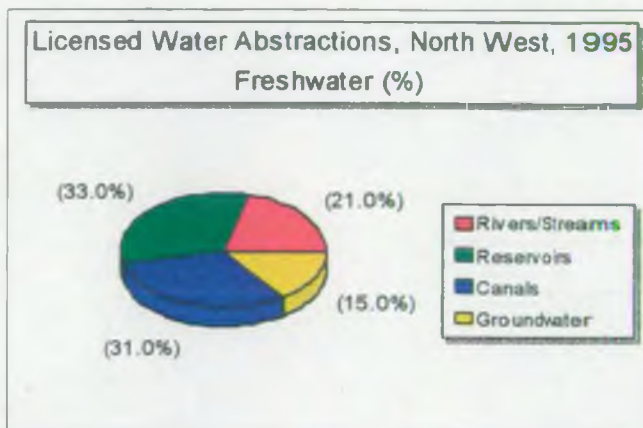
## 2 WATER

Water is a key resource which is essential to domestic, industrial, agricultural and recreational users, as well as being of vital importance to a thriving wildlife community. The two important aspects common to all of these uses are quantity and quality. With regard to both of these, there is a need to ensure that current and future management development is carried out in a sustainable manner.

### 2.1 Water Resources

#### 2.1.1 Sources

The total quantity of fresh water licensed for abstraction in the North West is 5348 Megalitres per day (ML/d). The relative amounts of this water extracted from each source are shown in the figure below.

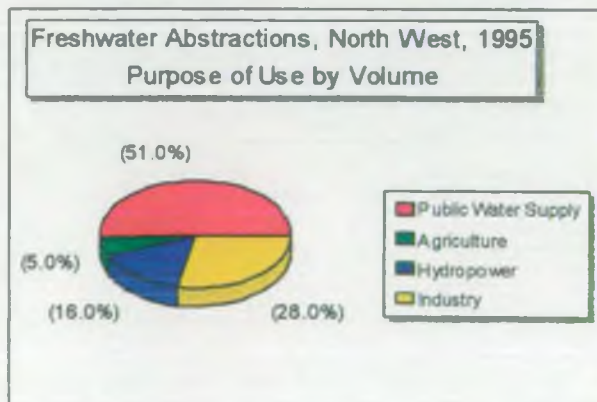


Saline water from tidal rivers is also abstracted at a rate of approximately 10,000ML/d and is generally used as cooling water for industrial purposes. It largely returns near to the point of abstraction.

Water from the Lake District, North Wales and the Pennines, together with groundwater abstractions, supply the Region's highly developed and integrated public water supply system. In view of this it is not possible to consider the Objective 2 Area in isolation and regional figures are presented. In the past, groundwater from some major aquifers in the industrial and population centres have been over-exploited. This has resulted in the movement of poorer quality saline water into the aquifers, reducing usefulness as a supply source.

#### 2.1.2 Use

The prime users of freshwater in the Region are the water company, North West Water Limited (NWW), for its industrial and domestic customers, industry, agriculture and for hydropower, as shown in the figure below.



In order to balance demand with availability of supply, nearly all abstractions have to be licensed. There are currently about 3,500 licenses in force in the Region. All licences carry a volume limit, and usually have other conditions

attached to them.

Most of the substantial direct abstractions by industries and hydropower are by long established license holders, and are dominated by the traditional chemical, bleaching and dyeing industries. This demand has shown a general decline over the last decade due to the economic recession and the increasing efficiency of industrial water use.

### **2.1.3 Demand Management**

Demand management is concerned with reducing waste, undue consumption or unnecessary use of water on customer premises. It is also important to the water companies and other users in terms of saving or deferring expenditure on the development of new water resource schemes, savings in revenue, and providing greater control over quantities and timing of supplies. Improvements can be achieved by:

- reducing demand through public education and awareness
- promotion of water saving devices
- promotion of efficient water use in industry and agriculture - waste minimisation
- leakage reduction and control
- domestic metering
- changed tariff structures
- modified standards of service

Many waste minimisation projects promoted in the Region have resulted in reduced water use. The projects have been successful in identifying savings in production costs and have also brought about consequential cost savings by reductions in water abstraction and discharge volumes. For example, 'Project Catalyst', started in 1992 under a DTi initiative, identified a potential reduction in demand of 5ML/d from 14 companies in the Mersey Basin.

Increased short term demands mostly occur in hot, dry weather due to increases in activities such as garden watering and in industries such as brewing. These peak demands have a significant impact on water usage and the adequacy of the water supply system. Local service reservoirs and interconnections between supply zones usually enable the water company to meet the peak demand over short periods, with potential shortages being driven by inadequate distribution systems rather than lack of water resource. However, there is a clear need to further develop the infrastructure to allow transfer of water for public supplies across the Region.

In addition, abstractors must be encouraged to operate more efficiently before developing new sources. The consequences of over abstraction can be low river and groundwater levels which can result in environmental damage. Rivers that pass within the Objective 2 Area where concerns have been expressed over low flow include the Douglas, Bollin, Dean and Gowy.

### **2.1.4 Future Demand**

Despite an anticipated increase in population and per capita consumption over the next 25 years, total demand for water in the North West is forecast to decrease by about 10% due to reduction in losses due to leakage. At present, a significant proportion of the water abstracted for public water supply is lost through leakage from distribution and trunk mains systems and customers supply pipes. The amount varies across the region, depending on the length of pipe, the number of connections, and the age of the system. NWW is committed to reducing total leakage by the year 2000, with reductions of approximately 60 ML/d in the Manchester area.

Industrial demand is tending to decrease slowly due to improvements in water use efficiency and plant closures. Exceptions are the use of water in agriculture which may increase slightly. Although this use is only a small proportion of the total water used in the Region, its impact on the local environment can be severe.

## **2.2 Flood Defence**

Effective flood defences are essential to protect people and property against the risk of flooding. In the North West Region, 68km of sea defences and 5,947km of main river are maintained. The historic development of waterside locations so as to benefit from water intake and effluent disposal routes has resulted in some of these sites being at risk from flooding. In the urbanised areas of the Objective 2 Area, many river channel lengths are characterised by having banks formed by buildings or other high retaining walls, as well as many bridge crossings. In addition, much development has occurred over culverted rivers in the area.



In 1946, over 5000 homes and 300 factories were flooded as water from the River Irwell covered over 500 acres of Salford's densely populated industrial heartland. Continued development in the Irwell catchment has led to an increased peak flow through Salford and, despite major investment to protect people and property, there remains the need for further investment.

The Manchester Ship Canal Company plays a major role in the provision of flood defence to the city centre, owning and operating sluices that enable flood water to be diverted into the canal.

### 2.3 Drinking Water Quality

The level of compliance based on analysis for all parameters specified in the E.C. Drinking Water Directive was 99.5% in the North West Region in 1995. However, within this overall figure there are some individual parameters that fail to comply more frequently, particularly lead, iron and manganese. For example, just over 5% of samples analysed for lead exceed the EC standard. Non-compliance in the Objective 2 Area is generally similar to the regional figures

Non-Compliance with Prescribed Concentration or Value, 1995		
	North West Region	Objective 2 Area
Lead	5.01%	4.5%
Iron	3.17%	3.3%
Manganese	1.04%	0.8%

Source: NWW, compliance report, 1995; NWW, Drinking Water Quality, Report to Local Authorities, 1995

To reduce the occurrence of these problems NWW encourage customers to replace lead pipes in their household plumbing by providing a free connection to the main. During 1994, 58,000 unsatisfactory communication pipes connecting households to the main were replaced in the North West region. Between 1995 and 2000, £60 million expenditure has been allocated to lead pipe replacement.

### 2.4 River Water Quality

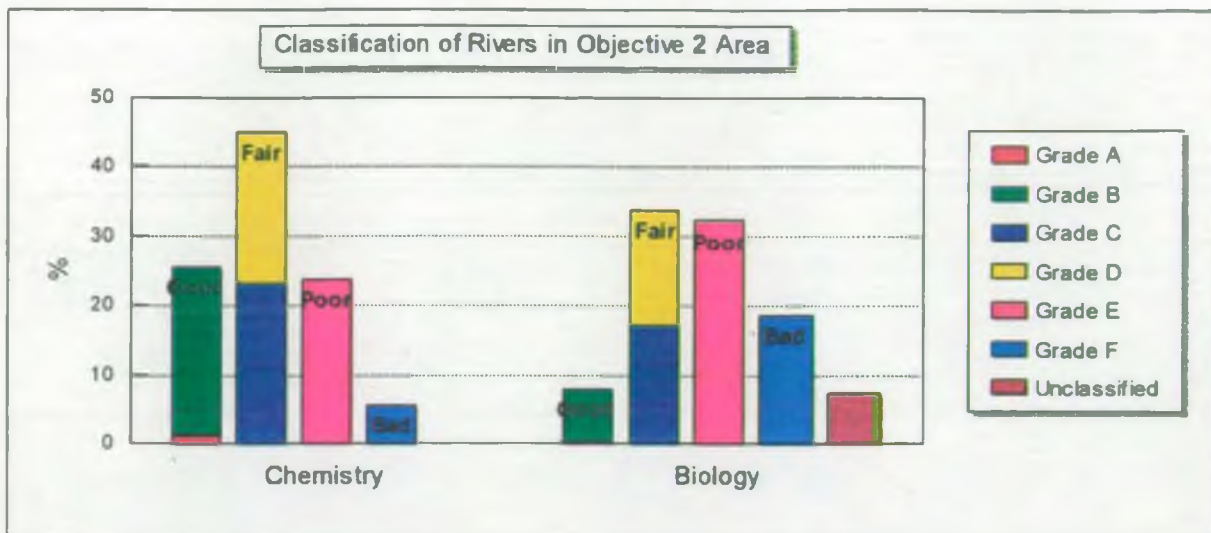
The pattern of river water quality in the North West clearly reflects the development and population density in the Region. The best quality rivers are mainly north of the Ribble, with poorer quality rivers such as the Mersey, Medlock and Irwell, draining the major urban areas in the south.

River water can be affected by point discharges of sewage or trade effluent, pollution incidents and the many diffuse sources of pollution, ranging from contaminated land, to runoff from roadways and agricultural land. These diffuse sources are often difficult to control by their very nature.

#### 2.4.1 Classification

The quality of all classified rivers in England and Wales is reflected by their General Quality Assessment (GQA) environmental grade. This classification system will operate in four discrete windows, each offering a varied perspective on the overall health of the river. The chemistry and biology windows have six categories ranging from 'A' and 'B' which represent good quality to 'F' representing bad quality. The aesthetics and nutrient windows are still under development.

Using the GQA Scheme it has been possible to identify a net upgrading both chemically and biologically of rivers within the North West region between 1990 and 1995. The upgrading is comprised of 14.5% chemical improvement along with significant biological improvement. These improvements have occurred mainly as a result of investments allowing improvements to sewerage and sewage treatment facilities, and less polluting emissions from agricultural sources. The figure below summarises the quality of the main rivers in the Objective 2 Area.



	Chemistry			Biology		
Class	Grade	Length (Km)	% of Total	Grade	Length (Km)	% of Total
Good	A	14.5	1.4	A	4.1	0.4
	B	250.6	24.1	B	78.8	7.6
Fair	C	240.8	23.2	C	176.1	17.0
	D	226.4	21.8	D	175.5	16.9
Poor	E	247.6	23.9	E	334.6	32.2
Bad	F	58.6	5.6	F	192.6	18.5
Unclassified	O	0.0	0.00	O	76.8	7.4
Total		1038.5	100.00		1038.5	100.0

Source: Environment Agency, 1996

#### 2.4.2 Water Pollution Incidents

Water pollution incidents are categorised by both cause and by the seriousness of their impact. The number of major and significant pollution incidents has shown a steady decline in recent years. Reported minor incidents have increased, but this may be attributable to increased public awareness resulting in more incidents being reported.

#### 2.5 Sewage and Sewerage

Many of the Victorian sewers in the Objective 2 Area are too small to cope with today's volumes of liquid waste. As a consequence, overflows, which are designed to act as relief valves on the sewer system in storm conditions, operate in dry weather conditions resulting in water quality problems. NWW programmed improvements include remedial work on a number of overflows in the centres of Manchester and Blackburn.

In a number of watercourses, because of limited dilution afforded to effluents, treated sewage forms a significant proportion of the flow and can have a detrimental impact. Additional water company expenditure has been targeted at a number of sites including Davyhulme STW, Oldham STW and Widnes STW.

The number of trade effluent discharges direct to river has declined within the Objective 2 area due to factory closures and diversions to sewer. Watercourses in urban areas can also be more locally affected by the wrong connection of domestic foul water or industrial trade effluent to surface water systems which flow directly to rivers without treatment.

Some parts of the Objective 2 Area are remote from the established sewerage network. In these situations, small sewage disposal facilities serving individual or small groups of houses can have a local impact, especially where several are grouped in a small area.

## **2.6 Sludge Disposal**

Approximately half of the sewage sludge generated within the North West Region is currently disposed of to sea in the designated area of Liverpool Bay. This practice is to cease by the end of 1998. There are plans for a sludge processing plant near Widnes which would take 60% of the sludge that is currently disposed of at sea, and would generate power for the national grid. The planned disposal route for the remaining 40% would be its use in agriculture, land reclamation, horticulture and landfill. Other current major disposal routes, for sludge not disposed of in Liverpool Bay, are agricultural land (25%) and landfill (13%)

## **2.7 Effect of Extractive Industries**

Historically there has been extensive mineral extraction in the Objective 2 Area. This has included mining for coal, limestone, sandstone, shales, clay and sand. Major coal extraction in the Lancashire coalfield has now ceased with the closure of the last deep mine prior to the privatisation of British Coal in 1994. This has left a major legacy of abandoned mine sites, many of which cause significant water pollution, with highly coloured (ochreous) discharges that can destroy stream life and cause aesthetic problems. The Environment Agency has produced a priority list of 35 sites for future remediation, 6 of which are in the Objective 2 Area. However, there are many more sites still awaiting evaluation. Spoil tips can cause similar pollution problems but as yet there is no priority listing. Any funding of projects to reclaim old sites such as spoil heaps must take account of water pollution.

Groundwater has also suffered from contamination. Past and present industrial land use, coal mining, abandoned mines and localised intrusion of saline water along the Mersey estuary caused by over- abstraction, are some of the main causes. With the reduction of groundwater abstraction, groundwater levels in some of these areas are rising. However, although this suggests quantities of water may be available, the quality is often poor.

There is some small scale coal extraction still practised via private mines and small scale opencasting. However there is the potential for major extraction of coal in the area if the market were to improve. Any operators would have to comply with more stringent environmental legislation, particularly if any site were to be subsequently abandoned after 1999. There is still fairly extensive limestone extraction, a number of sandstone/shale/millstone grit quarries and some clay/sand pits. Depending on site characteristics, sites generally end up as landfills when economic extraction is no longer viable. Potential exists for expansion but again this is market dependent.



### 3 WASTE

#### 3.1 Waste Arisings

A comprehensive data set for waste arising in the North West does not exist and the quality of information is poor. It is particularly difficult to obtain figures for the Objective 2 Area since it does not correspond with existing Waste Regulation or local authority boundaries. This should be borne in mind when considering the data presented below.

Waste Arisings in the Objective 2 Area, 1993-94, (000's tonnes)			
County	Domestic and commercial	Inert/ Construction and demolition	Industrial - general and special wastes
East Lancashire	153	630	220
Greater Manchester	935	850*	927*
Halton and Ellesmere Port & Neston	57	150	344

\* these figures are for deposits within Greater Manchester (including Stockport and Trafford which are outside the Objective 2 area) since no reliable waste arisings data is available; other data in the table is derived from Waste Arisings surveys carried out by Cheshire and Lancashire Waste Regulation Authorities and, for domestic waste in Greater Manchester, from returns produced by the GMWDA.

#### 3.2 Waste Disposal

##### 3.2.1 North East Lancashire

All waste disposal in the Objective 2 area is to landfill. Most of the household, commercial and general industrial waste produced in the Area is disposed of to strategic landfill sites at Whinney Hill which serves Hyndburn and Blackburn, and Rowley which serves Burnley and Pendle - waste from Pendle being transported to Rowley via a purpose built transfer station.

These sites also accept commercial and industrial waste and there are two other large sites, in Burnley and Rossendale, and 8 smaller landfill sites distributed through the area which accept commercial and industrial waste from a wide catchment area extending to Greater Manchester.

##### 3.2.2 Greater Manchester

Greater Manchester Waste Disposal Authority adopted a strategy for the disposal of domestic and commercial waste based on treating and pulverising the waste before long-haul transport to disposal at remote landfill facilities.

Incineration formerly played a significant role in dealing with Manchester's municipal stream but three of the four municipal incinerators have been shut down because they are unable to comply with current emission standards and the fourth may also have to close soon for the same reason. Currently some 70,000 tonnes of domestic and commercial waste per annum are being disposed of via the remaining municipal incinerator at Bolton, and the majority of the remainder of Greater Manchester's domestic and commercial waste (some 860,000 tonnes per annum) is being treated in pulverisation plants prior to disposal to landfill. One large landfill site in Greater Manchester - Pilsworth (Bury) - accepts commercial and industrial waste, and there are over 80 small sites which accept inert and construction/demolition waste, but all domestic waste is transported out of the area for disposal, most of it going to two sites in the Warrington district of Cheshire. Wigan is a waste disposal authority in its own right and disposes of its domestic and commercial waste to local landfill at the Kirkless site.

##### 3.2.3 North West Cheshire

There are no licensed landfill sites within the Objective 2 Area of North West Cheshire. However, with the exception of a small amount of material which is recycled, all the domestic, commercial and general industrial waste produced in the area goes to landfill. Waste from Ellesmere Port is disposed of at Gowy landfill site (Chester) just outside the boundary of the Objective 2 Area, and waste from Halton Borough is disposed of at Arpley landfill site, just across the area boundary in Warrington Borough. Arpley is one of the largest landfill sites in Britain with a total capacity

in excess of 20 million m<sup>3</sup> while Gowy is much smaller with a capacity of around 6 million m<sup>3</sup>. Both of these are strategic containment sites licensed to accept a wide range of domestic, commercial and industrial waste. Another large landfill site, located very close to the Area's boundary in the Chester district is licensed for the disposal of construction and demolition waste including some difficult contaminated material in a specially lined cell. One of only two special waste incinerators in the UK is sited within the Area. This facility accepts a wide range of difficult and special wastes from all over the UK and Ireland.

North West Cheshire is a centre of the UK chemical industry and includes a major oil refinery and a wide range of organic, inorganic and transorganic chemical plants. These activities present special waste disposal problems, in particular the need to dispose of large volumes of industrial liquids and sludges. The Manchester Ship Canal also runs through the area and generates large volumes of maintenance dredgings which must be disposed of. The traditional method of dealing with these wastes was disposal to lagoons where the water content (normally more than 95%) could be allowed to percolate or evaporate off, in some cases prior to landfill disposal. Facilities are owned by businesses and operated exclusively for their own use under license from the Environment Agency. There are a number of these facilities in this area mostly located along the banks of the Mersey Estuary. They are used to dispose of around 2 million tonnes of chemical wastes and around 500,000 tonnes of dredgings per year.

### 3.3 Recycling and Recovery

Industry is much better at recycling than the domestic consumer. Recent waste arisings surveys carried out in Cheshire and Lancashire suggest that some 20% of all industrial waste is recycled and that a further 5% is subject to energy recovery or re-use. Because of the concentration of heavy chemical and petro-chemical activities the Objective 2 Area of North West Cheshire has been particularly successful in energy recovery and waste minimisation and has been the location for a major DTI demonstration project - "Project Catalyst". This initiative was able to demonstrate a waste reduction potential of 12,000 tonnes per annum, an accompanying reduction in water usage of 19 million cubic metres, a potential reduction of 1.8 million tonnes of liquid effluent, and potential savings of £2.3m on its implementation in 1995 and an additional £3.4m (estimated) over the next 12 months.

Blackburn, in North East Lancashire, has also been the focus of a major industrial waste minimisation project, partly financed by the European Structural Fund under the Objective 2 Programme for 1994-96, and targeted at small and medium sized enterprises. Over one hundred firms were involved in the scheme aimed at improving their environmental performance and reducing both waste and impact on the environment. Average savings of around £9,000 per annum per firm were achieved. A further application for Objective 2 funds has been made to extend this project to involve over 300 businesses, with potential savings of £500,000 per annum.

The Objective 2 Area is also an important provider of recycling facilities. One of the UK's key paper recycling plants, the Bridgewater Paper Company is located at Ellesmere Port in North West Cheshire. This plant has the capacity to recycle 250,000 tonnes of waste per year, 8,000 tonnes of which is sourced from Cheshire, and is one of only two in the UK capable of de-inking and recycling used newsprint. It also has a sister company, Cheshire Recycling Ltd, which operates door to door paper collections, pushing up the domestic recycling rate achieved in the Ellesmere Port area. The Bridgewater plant disposes of most of its waste materials by spreading on farmland as a soil conditioning material. Over 300 waste licensing exemptions have been granted in Cheshire for the disposal of waste produced by this plant, 16 of them within the Objective 2 area.

In contrast to this relatively successful industrial activity, and despite ten years of attempts to improve the situation via the production of national targets and local recycling plans, less than 5% of domestic waste is currently being recycled. A number of local authorities, most notably Bury within the Objective 2 Area, have run pilot projects for separate kerbside collection systems to improve recycling rates from domestic refuse but the net result has made no real impact on the national 25% recycling target. The accompanying table indicates the amount recycled in each district of the Objective 2 Area. There has been no significant change in these figures over the last decade. The economic viability of recycling waste and producing waste derived products of suitable quality to create a sustained demand has been difficult. The introduction of the landfill tax, due in October 1996, will reduce the cost differential between landfill disposal and recycling and may make the latter approach more cost competitive.

### Household Waste Recycling in Objective 2 Area

District	Waste recycled (%), 1992
Blackburn	2.7
Hyndburn	1.0*
Burnley	2.9
Pendle	2.5
Rossendale	3.0*
Bohton	3.4
Bury	2.4
Manchester	1.0
Oldham	3.9
Rochdale	N/A
Salford	1.1
Tameside	N/A
Wigan	4.3
Halton	1.2*
Ellesmere port & Neston	5.9*

Source: Local Authorities   N/A = Not Available   \*1994/95

#### 3.4 National Targets

A new set of "indicative" targets has been set by the Government in "Making Waste Work" (the National Waste Strategy), including recovering the energy or value from 40% of domestic waste by 2010. Many of the Region's major co-disposal landfill sites are operated on containment principles and designed to support energy recovery from the landfill gas generated on site. However, with current operating practices, the best energy recovery rate from landfill is only around 20% of the energy contained in the waste, a much lower yield than anaerobic digestion (up to 40%) or combined heat and power schemes which both generate electricity and utilise waste heat and can recover up to 50% of the waste's total energy. As a result the Government's 40% target is likely to be achieved only if there is a wholesale move to incinerate domestic wastes.



## 4 ENERGY

The main energy sources in the Objective 2 Area are derived from fossil fuels in the form of coal, oil and natural gas.

### 4.1 Electricity Generation

Following the closure of Agecroft, Carrington, Bold and Padiham Power Stations, the Objective 2 Area contains only one large fossil fuel power station at Ince (480 Megawatts). Ince is a liquid fuel station and is operated using 'Orimulsion', an import fuel based on emulsified bitumen.

Fiddler's Ferry Power Station (1410 Megawatts), which is mainly coal-fired, lies just outside the Objective 2 Area of Halton District, but is a large supplier of the region's electricity needs.

### 4.2 Energy Use

Data for the Objective 2 Area are unavailable, but illustrative figures for the North West Region as shown in the table below, indicate several patterns that are likely to be mirrored in the Objective 2 Area.

North West England consumes 12.5% of the energy used in the UK. Industry, at 33% is the largest user of fuel, followed closely by the domestic sector. Transport, although accounting for only 22% of energy consumption, consumes 62% of all oil used in the region. The contribution of the transport sector to fuel use is likely to increase as traffic grows.

North West England Energy Use by Sector	
Economic Sector	Energy Consumption %
Industry	33
Domestic	30
Transport	22
Commerce	15

Source: Commission of the European Communities, 1987

The pattern of fuel usage varies widely between the Region's different sectors. Gas is the predominant fuel in both industry and the domestic sector. Oil is the main fuel in the commercial sector, followed by gas and electricity. Coal accounts for quite a high proportion of fuel consumption in the domestic and industrial sectors.

Transport energy use is met almost exclusively by oil, with only a small proportion of electricity used by the rail network. The use of oil will increase if traffic grows as forecast. Transport is the one sector of energy use that has consistently seen a growth in demand.

### 4.3 Renewable Energy

Renewable energy is only generated on a very small scale in the North West. Government initiatives on renewable energy sources have generated some interest in the development of hydropower schemes. However, although 16% of freshwater abstraction in the North West is licensed for hydropower use, the generally flashy nature of the rivers and streams of the region give few opportunities for continuous hydro-power generation. There is currently some interest in developing schemes on the Manchester Ship Canal at lock sites. Several water-wheels operate for heritage purposes.

A potentially large wind resource exists in upland locations of the Objective 2 Area. Large tracts of high ground enjoy high average wind speed, typically above 7.5m/s. This favourable climate has as yet only seen the development of one wind farm, although several more potential sites have been identified.

#### **4.4 Future Considerations**

The Intergovernmental Panel on Climate Change has recognised that the activities of human beings may be changing our global climate. This will be exacerbated if the trend of increasing levels of greenhouse gases continues. It is essential that energy efficiency initiatives are pursued in the domestic, industrial, commercial and transport sectors, and that effective research continues in this field.

The Non-Fossil Fuel Obligation is an example of the Government's involvement in this area. This is a scheme implemented by Government Order which requires electricity distribution companies to secure a certain amount of electricity from renewable sources. Under the UK Climate Change programme, the Government aims to establish an extra 1500 Megawatts of renewable capacity by the year 2000, bringing the UK total to 2700 Megawatts, enough to power 4.5 million homes.

## 5 URBAN ENVIRONMENT

### 5.1 Housing

The North West has a very high proportion of housing built before 1919. A significant part of the housing stock was unfit by the 1960s. Although the worst of the shums have now been cleared, there remains a legacy of pre-1919 housing, much of which is in poor condition. There is a need for extensive renovation of this stock if it is to continue in use and meet modern standards of insulation, car parking, construction and private space.

The replacement of slum housing often created new problems through the use of building techniques and layouts (tower blocks, deck access layouts, prefabrication) which have proved unsatisfactory and now require either major refurbishment or demolition. Housing Investment Programmes (HIPs) in the 1970s and 1980s extended the life of old houses by up to thirty years.

Poor housing conditions co-exist with high unemployment, low incomes, social problems and multiple occupations. This combination denies occupiers the ability or incentive to renovate their homes. The table below sets out the quality of housing for those districts substantially within the Objective 2 Area.

Local Authority	1992		1995	
	Total Stock	Unfit (%)	Total Stock	Unfit (%)
Blackburn	55,679	35	56,325	31.8
Hyndburn	33,605	25	34,668	27.4
Burnley	38,969	16	39,860	19.5
Pendle	36,687	6	37,118	14.8
Rossendale	27,149	6	28,247	26.8
Bolton	108,164	20	110,623	19.0
Bury	71,096	6	76,479	3.3
Manchester	190,280	N/A	187,824	6.1
Oldham	91,587	28	90,855	12.7
Rochdale	78,880	18	86,815	9.4
Salford	93,083	28	96,001	15.9
Tameside	90,461	11	91,600	12.7
Wigan	124,137	17	126,253	14.4
Halton	45,680	2	48,690	2.4
Ellesmere Port & Neston	32,286	N/A	33,076	1.6

Source: 1996 HIPs Returns except for Bury and Rossendale which are 1995 returns.

### 5.2 Derelict Land

General industrial dereliction is ubiquitous in the Objective 2 Area, with particular concentrations in Ellesmere Port, Halton, Bury, Salford, Oldham and Blackburn. Wigan has a large amount of colliery spoil dereliction, over 36% of all derelict land in the borough. The table below sets out the extent of derelict land for those districts substantially inside the Objective 2 area. The Survey of Derelict Land, carried out by the DoE is conducted every four to six years so more recent information is not available.



District	Area of Derelict Land (ha.)	Proportion of District area (%)
Blackburn	340	2.5
Hyndburn	161	2.2
Burnley	142	1.3
Pendle	71	0.4
Rossendale	459	3.3
Bolton	295	2.1
Bury	420	4.2
Manchester	337	2.9
Oldham	414	2.9
Rochdale	170	1.1
Salford	432	4.5
Tameside	185	1.8
Wigan	624	3.1
Halton	203	2.7
Ellesmere Port & Neston	232	2.8
Total	4,485	2.4

Source: DoE Derelict Land Survey, 1993.

Dereliction within the Objective 2 Area is approximately twice that of the rest of the North West Region. In turn, the North West has the highest proportion of derelict land in England, with 22% of the national total.

### 5.3 Contaminated Land

Contaminated land may give rise to hazards which put at risk people working on the site, the occupiers and users of the buildings and land, and the buildings and services themselves. Contaminants may also escape from the site to cause air, land and water pollution.

Examples of contaminated sites, and the typical hazards they may pose, include:

- Old gas works which produced town gas, coke, coal, tar, and other chemical by-products;
- Land previously used for industrial purposes where a very wide range of hazardous substances may be found;
- Completed industrial and domestic landfill sites where combustion and settlement might occur together with and generation of leachate and emission of gases
- Old sewage works and sewage farms, where the concentration of metals in the soil may be high.

In line with sustainable development, where practical, sites affected by contamination should be recycled into new uses, and the pressures thereby reduced for developments on greenfield sites. Recycling can also provide an opportunity to deal with the threats posed by contamination to health or the environment and, in certain circumstances, provide scope for development of premises close to public transport networks.

There is at present no comprehensive register of the extent of contaminated sites. However, the Environment Act, 1995, has placed a duty on Local Authorities to inspect land within their boundaries and identify contamination.

## 6 BIODIVERSITY AND LANDSCAPE

The North West contains some of Britain's finest scenery and many outstanding areas for wildlife. Special planning considerations apply in the Lake District National Park, Areas of Outstanding Natural Beauty (AONBs), Heritage Coast, and in the high number of Sites of Special Scientific Interest (SSSIs). Development plans need to take account of the conservation and enhancement of these areas.

### 6.1 Statutory Wildlife Protection

In the North West Region there are nearly 400 SSSIs. Some of these, in recognition of their international importance, have additional protection:

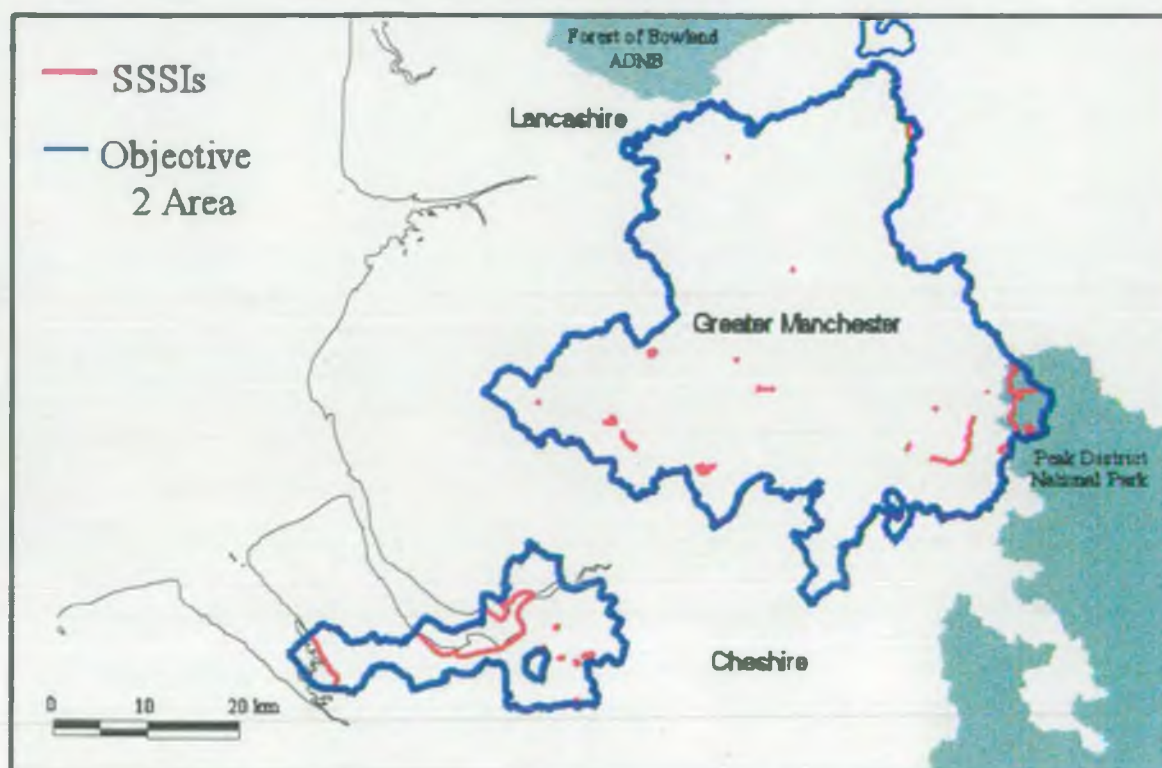
- under the 'Ramsar' Convention,
- as Special Protection Areas (SPAs) under the EC Birds Directive
- as Special Areas of Conservation (SACs) proposed under the EC Species and Habitats Directive.

The Dee Estuary has been designated as a SPA and as a Ramsar site. The Mersey Estuary has been a proposed SPA and a proposed Ramsar site since 1985. The table below gives the number and area of SSSIs by county.

County	No of SSSIs	Land Area
Lancashire	61	8.3%
Greater Manchester	17	3.3%
Cheshire	57	1.2%

In England as a whole, the majority of recorded damage to SSSIs is due to agricultural activities. However, within the Objective 2 Area causes of damage are due to recreational and miscellaneous activities. The lack of damage due to agriculture reflects the mostly urban nature of the Objective 2 Area. This emphasises the fact that current statutory protection provisions such as planning controls are proving to be effective.

SSSIs in the Objective 2 Area



## 6.2 Non Statutory Wildlife Protection

A further indication of the conservation value of the Objective 2 Area is given by the number of locally designated wildlife protection sites, information for which is available on a district basis and outlined in the table below. These sites are important because they protect species which are rare on a local basis.

District	Number of locally designated wildlife protection sites, 1995
Blackburn	84
Hyndburn	20
Burnley	35
Pendle	54
Rossendale	43
Bolton	63
Bury	45
Manchester	34
Oldham	36
Rochdale	43
Salford	35
Tameside	52
Wigan	83
Halton	16
Ellesmere Port & Neston	16
Total	659

Source: County Wildlife Trusts

## 6.3 Landscape Protection and Built Heritage

As well as outstanding wildlife, the North West contains some of Britain's finest scenery and a wealth of buildings and features of archeological, architectural and historic importance. In Greater Manchester alone there are some 3200 listed buildings and 10,500 records of archeological interest. Entries under this category range from the Mesolithic through to the industrial period and include chance finds, standing structures, buried sites, earthworks and industrial remains. Included in this number are 31 Scheduled Ancient Monuments which are sites of national importance with statutory protection.

While nearly 30% of the North West region is designated National Park or Area of Outstanding Natural Beauty (AONB), the Peak District National Park is the only statutory designated landscape in the Objective 2 Area, with 2,900ha lying in Greater Manchester. The Forest of Bowland AONB lies just outside the Objective 2 Area of Pendle District in East Lancashire. There are also many landscapes within the Objective 2 Areas of Lancashire and Cheshire which, while not possessing features of national importance, have been designated by virtue of their local value.

#### 6.4 Green Belts

Since the 1950s Green Belt policy has made an important contribution to protecting the quality of the environment in the Objective 2 Area. Historically, Green Belts were used as part of a strategy of restraint on the edge of built up areas. Between 1979 and 1989, Green Belts in North West England had increased from about 1,500 ha to 250,000 ha, covering about 17% of the region.

Approximate areas of Green Belt in the Objective 2 Area is outlined in the table below.

Green Belt in Objective 2 Area		
County	Area (ha.)	Land Cover (%)
East Lancashire	16,206	26
Greater Manchester	50,570	48
North West Cheshire	10,471	41

Source: District Council Local Plans; Greater Manchester Green Belt Local Plan



## 7 TRANSPORT

North West England forms a major sea and air gateway and a key 'crossroads' and transport interchange. However, partly due to the fact that the North West was foremost in developing transport links of canals and railways, much of the infrastructure is now old. Transport costs form a key component of industry's costs. The distance of the North West from core European markets makes it imperative that regional firms are not unduly hampered by transport costs and perceived time penalties associated with the Region's location. Some of the problems of the current transport infrastructure are outlined below:

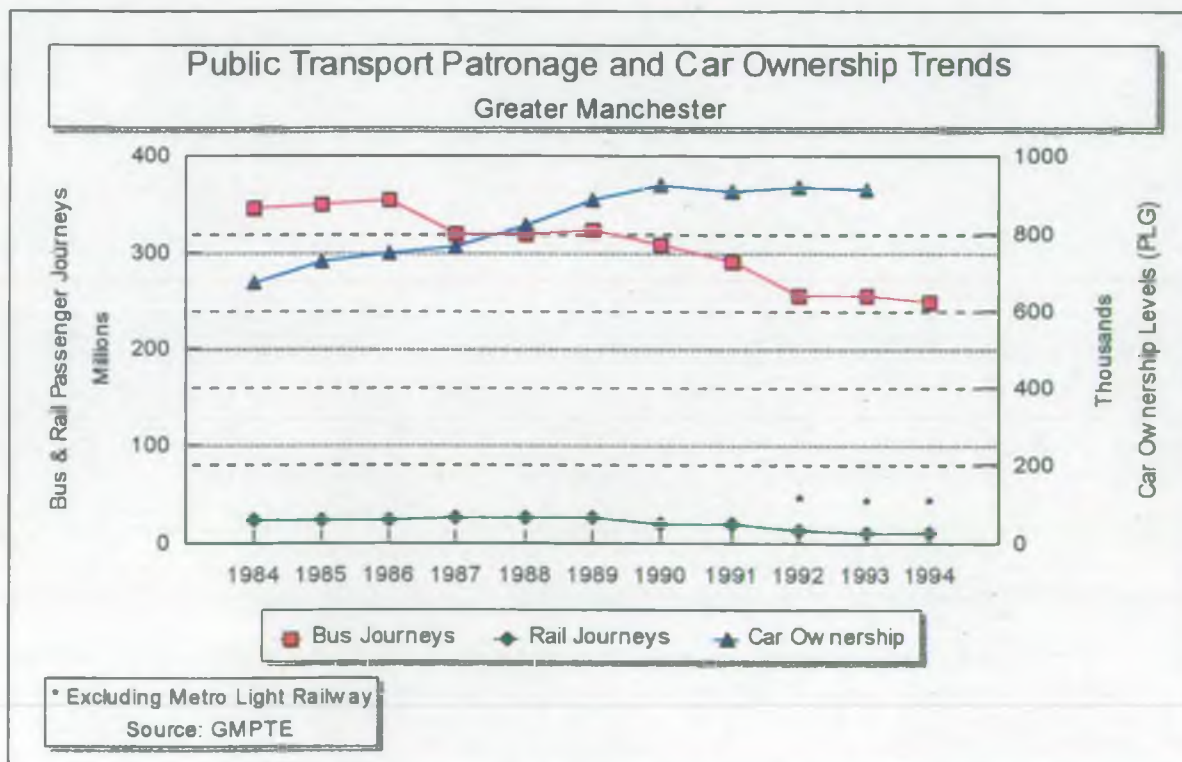
- Railway signalling system in Manchester area needs complete renewal
- Intercity route outdated
- No new electrified rail mileage since early 1970s.
- High incidence of heavy goods vehicles
- High volumes of traffic compared with most other areas of UK
- Good basic framework of motorways, but investment in the interurban Primary Route Network (PRN) has been below the national average per capita in recent decades

### 7.1 Travel Patterns

The travel patterns of the Objective 2 Area are dominated by the Urban centre of Greater Manchester. Although Manchester has the lowest percentage car use and the highest use of public transport, the effects of the forecasted growth in traffic on the environment are clearly one of the main causes of concern within the Objective 2 Area. Of particular concern is the relationship between traffic and air pollution, as discussed in section 1.3.

#### 7.1.1 Roads

Current levels of traffic on the Region's PRN serving the Objective 2 Area show high volumes of traffic on a par with the most congested corridors in the UK. Despite the growing degree of congestion, investment in the PRN of the North West has not kept pace with other regions of the country. Meanwhile, car ownership levels are rising sharply within the Area (see Figure below).



Different Uses of Cars in Greater Manchester are shown in the table below.

Different Uses of Cars in Greater Manchester (%)	
Commuting	18
Business	4
Education	3
Shopping	19
Visit Friends at private home	14
Entertain/public activity	4
Personal business	8
Escort	13
Others	17
Total	100

Source: National Travel Survey, 1992/94

### 7.1.2 Public transport

It is commonly accepted that public transport represents a powerful means of limiting damage to the environment at both local and global levels, without unduly curtailing transport activities. A good quality public transport system reduces dependency on the motor car, and supports urban regeneration and associated environmental improvement.

#### 7.1.2.1 Public Road Transport

Buses are much more efficient in their use of road space and fuel than the private car. They are the most important and widespread form of public transport within the Objective 2 Area, and must form a vital part of a balanced network, particularly in urban areas where road space is at a premium. Packages of measures including bus priority, control of long stay parking and provisions such as 'park and ride' for bus and rail, are important features in encouraging the use of these more energy efficient and less congesting modes of transport, particularly in urban areas. However, a poor image contributes to services not being viewed by most users as an acceptable quality alternative to the private car and levels of patronage are declining (see figure in 7.1.1). Effectiveness of the bus network is increasingly vulnerable to the congestion caused by the private car, particularly at times of peak travel, leading to low speeds and service unreliability. Many highway bottlenecks are experienced within the Objective 2 Area, including serious queuing and delays at certain times on the motorway network.

In rural parts of the Objective 2 Area, the bus network will continue to provide the sole means of transport for a significant proportion of the community. Studies have shown that the absence of public transport can contribute significantly to rural deprivation, particularly for women, the elderly and the mobility impaired.

Coaches are especially useful for conveying groups of passengers over long distances where rail services cannot be provided cost effectively. Their use is environmentally beneficial in reducing pollution, highway congestion and the demand for car parking at visitor destinations, particularly in environmentally sensitive areas.

Taxis supplement the main public transport services, and allow people to access public transport and to avoid private car use; for example, feeders to train stations. Surveys have shown that they are used by the less well off households with no car available.

#### 7.1.2.2 Rail

Rail is an important part of the North West's transport system. The existing regional network already serves most major centres, and can assist in containing congestion on the highway network. However, the growth in car ownership levels in Greater Manchester are mirrored by a decline in the use of railways (see figure in 7.1.1). With a balanced

transport strategy, rail can help to meet many of the future economic, leisure and social needs of the region with minimal damage to the environment. Development of the rail system would discourage undesirable growth in private car use. However, at the moment there are important gaps in the Region's electrification system, inhibiting service development.

#### 7.1.2.3 Metro/Light Railway

The Manchester Metrolink has successfully demonstrated that light rail offers a means of linking under-used rail routes and extending services to new areas. It has improved penetration of the urban core and offers future links to major urban regeneration projects within the Objective 2 Area, such as Salford Quays and Manchester Eastlands. Further routes are planned for Salford Quays, Trafford Park, Manchester-Oldham-Rochdale, South Manchester/Manchester Airport and East Manchester/Tameside.

Of the 12.7 million annual journeys currently made on the Metrolink each year, an estimated 19.4% were previously made by car. Despite the fact that it replaced an already well used suburban railway, 2.5 million car journeys per year have been taken off the roads by its introduction. According to the Greater Manchester Passenger Executive, in its prime target area (people living within 2 km of the line) between 14% and 50% of car trips to destinations served by Metrolink are now made by tram.

#### 7.1.2.4 Journey to Work

Journey to work statistics are broadly indicative of the split between public and private transport for other journey purposes, since they reflect the use of public transport generally. The predominance of reliance on transport by car is illustrated in the breakdown shown below. The high proportion of single occupied vehicles highlights the scope for improvements in car sharing.

Journeys to work in Greater Manchester (%)	
Walk	7
Bicycle	4
Car/Van Driver	56
Car/Van Passenger	15
Motorcycle	0
Other Private	1
Other Stage Bus	15
British Rail	1
Taxi/Minicab	1

Source: National Travel Survey, 1992/94

#### 7.1.3 Manchester Airport

Manchester Airport is one of the North West's key assets, being of great economic value and strategic importance. It is the 18<sup>th</sup> busiest airport in the world, handles 95% of the Region's air traffic, and its present capacity is 18 million passengers. Forecasts show a doubling of traffic by 2005 with no signs of a slow down in the annual growth rate of 6-7%.

Frequent and extensive links between the North West and Europe are of vital importance to the economy of the region, given its relative peripherality and remoteness from the main business centres of the EC. Air travel can be an economic stimulant in its own right, but its continued growth is dependant on the development of the supporting infrastructure.

Manchester Airport lies within the Objective 2 Area. It is approximately 7 miles south of the city centre with direct access to the M56 motorway. A new rail link and on-site station opened in May 1993 with 70 trains a day serving the city centre, Lancashire and Yorkshire. Further development of public transport would help to relieve the burden of

private passenger car transport which currently dominates access to the airport.

#### 7.1.4 Ports

A large proportion of Irish Sea traffic is channelled through the North West Region, with the Port of Liverpool playing a key role. There has been major growth over the last few years and further expansion seems certain in the future. The Manchester Ship Canal (MSC) lies partly within the Objective 2 Area.

Good quality local linkages from the ports of Liverpool, MSC, Fleetwood, Heysham, Barrow and Workington are very important in linking traffic from Ireland to the motorway system. Seaborne traffic, particularly bulk and unitised freight, gives rise to considerable road traffic movements in the vicinity of the ports and can contribute to significant loading on the major approach roads. The extent to which rail is used for transporting freight is small in comparison to the total tonnage handled, although approximately 40,000 containers are delivered annually by rail to Liverpool. Holyhead handles some 700,000 passengers annually who arrive or depart by rail.

Traffic Through North West Ports, 1992					
Port	Petrol Tonnes	Other bulk Tonnage	Total Tonnage	% of NW Total Tonnage	% Road traffic generated by Seaborne trade*
Liverpool	12000	7900	28000	68.8	15
Garston	0	620	620	1.5	2
MSC	4600	2900	7500	18.4	n/a
Fleetwood	0	0	1700	4.2	10
Heysham	0	390	1900	4.7	13
Lancaster	0	100	180	0.4	n/a
Barrow	100	120	230	0.6	5
Workington	0	480	480	1.2	7
Silloth—	0	70	70	0.2	1
<b>TOTAL</b>	<b>16700</b>	<b>12580</b>	<b>40680</b>	<b>100</b>	

Source: North West Regional Association

\* As a % of the annual average daily traffic on the approach road(s)

#### 7.2 Traffic Forecasts

Information on traffic forecasts is available on a national basis. Variations occur on a regional basis and between rural and urban areas. However, growth in the Objective 2 Area should lie well within the Low and High estimates shown in the table below. For lorries, the increase in tonnes/kilometre includes a high level of growth in heavier vehicles.

Traffic Forecasts 1994 - 2000		
	Low	High
All Traffic	11	18
Car Ownership (per person)	10	14
Number of Cars (including population growth)	11	16
Lorries (Tonne/kilometre)	12	20
Lorry Traffic	9	16

Source: DoT Traffic Forecast, 1994:2000



**PART 2:**  
**ENVIRONMENT APPRAISAL OF THE**  
**GMLC SINGLE PROGRAMMING**  
**DOCUMENT**

## 1 POLICY REVIEW

### 1.1 Emergence of Sustainable Development Policies

Discussion relating to the sustainable use of the earth's resources gained momentum in the mid 1980s. A significant event was the 1987 World Commission on Environment and Development. The findings of this Commission (also known as the "Brundtland Commission") were published under the title of *Our Common Future* <sup>(1)</sup>.

In recognition of the Commission's findings and increasing environmental awareness generally, the principle of sustainable development became UK Government policy in 1990 with the publication of *This Common Inheritance* <sup>(2)</sup>.

Sustainable development strategies were adopted at an international level with the Earth Summit at Rio in 1992. Key actions were outlined in Agenda 21 which the UK and over 200 other countries signed.

In February 1993, the EC adopted the Fifth Environmental Action Programme under the title of *On a Community Programme of Policy and Action in Relation to the Environment and Sustainable Development*. The resolution states that:

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*As used in the Programme, the word 'sustainable' is intended to reflect a policy and strategy for continued economic and social development without detriment to the environment and natural resources on the quality of which continued human activity and further development depend. The Brundtland Commission defined sustainable development as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs'. It entails preserving the overall balance and value of the natural capital stock, redefinition of short, medium and long term cost/benefit criteria and instruments to reflect the real socio-economic effects and values of consumption and conservation, and the equitable distribution and use of resources between nations and regions over the world as a whole.*

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Measures part financed by the Structural Fund must comply with EU legislation and policy on the environment including the principles of sustainable development included in the EC Fifth Environmental Action Programme. A recent Communication by the Commission <sup>(3)</sup> reinforced these requirements by stating that the horizontal character of the environmental dimension needs to be increasingly borne in mind within the programmes of the Structure Funds.

In the UK, implementation of Rio commitments at a national policy level continued with the publication in January 1994 of four key documents relating to Sustainable Development. These were:

- *Sustainable Development - the UK Strategy* <sup>(4)</sup>
- *Sustainable Forestry - the UK Programme* <sup>(5)</sup>
- *Climate Change - the UK Programme* <sup>(6)</sup>
- *Biodiversity - the UK Action Plan* <sup>(7)</sup>

<sup>(1)</sup> Oxford University Press, 1987.

<sup>(2)</sup> *This Common Inheritance - Britain's Environmental Strategy* Cm 1200

<sup>(3)</sup> com (95) 509 of 22 November on Cohesion Policy and the Environment.

<sup>(4)</sup> Cm 2428

<sup>(5)</sup> Cm 2429

<sup>(6)</sup> Cm 2427

<sup>(7)</sup> Cm 2428

The definition of Sustainable Development which is most commonly quoted in UK government guidance is that which emerged from *Our Common Future* and is quoted in *Sustainable Development - the UK Strategy*. This definition is as follows:

- 
- *Most societies want to achieve economic development to secure higher standards of living, now and for future generations.*
  - *They also seek to protect and enhance their environment, now and for their children.*

*Sustainable Development tries to reconcile these two objectives. A widely quoted definition of this concept is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".*

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## 1.2 Development of Policy

The development and refinement of the Government's policy on sustainable development has continued to evolve through further policies, strategies and guidance:

- ongoing reviews of Government environmental policy <sup>(1)</sup>;
- incorporation of principles of sustainable development in other government policies (eg national planning policy guidance);
- guidance from Government departments <sup>(2)</sup>;
- guidance from specialist agencies (eg English Nature <sup>(3)</sup>);
- Government responses to investigations by special committees (eg House of Lords Select Committee on Sustainable Development <sup>(4)</sup>);
- UK Government reports to international organisations monitoring the progress of Rio commitments <sup>(5)</sup>;
- the *Indicators of Sustainable Development for the UK* <sup>(6)</sup>.

These policies on sustainable development have been translated into regional and local planning policies and environmental and sectoral strategies of local authorities and other bodies.

Regional Planning Guidance (RPG 13) for the North West <sup>(7)</sup> was issued in April 1996. It is produced by the Secretary for the Environment primarily to guide the preparation of strategic land-use plans in Cheshire, Cumbria, Greater Manchester, Lancashire and Merseyside. The guidance sets out government policy and includes reference to the sustainable development of the region. The document states the priority for the future is to maximise the competitiveness, prosperity and quality of life in the Region through sustainable development.

It is envisaged that the North West can become :

- a world class centre for the production of high quality goods and services;
- a green and pleasant region;
- a region of first class links to Europe and the rest of the world.

<sup>(1)</sup> for example, annual reviews of *This Common Inheritance*.

<sup>(2)</sup> for example, *A Guide to Risk Assessment and Risk Management*, Department of the Environment, 1995

<sup>(3)</sup> for example, *Strategic Planning and Sustainable Development*, November 1992

<sup>(4)</sup> *House of Lords Select Committee on Sustainable Development; and the Government's Response to the Findings of the Committee.*

<sup>(5)</sup> *UK Report to the Commission on Sustainable Development*, 1995 and 1996.

<sup>(6)</sup> HMSO, March 1996.

<sup>(7)</sup> RPG 13 HMSO, April 1996

The Guidance states that Development Plans have a key role to play in achieving this vision by facilitating environmental and economic regeneration and a move to more sustainable and energy-efficient patterns of development. RPG 13 discusses both the natural and built 'environment' of the Region. The Guidance states that these issues should be regarded as a policy framework to which local authorities should have regard when promoting the conservation and enhancement of the important environmental assets of the Region. In addition authorities should make a provision for the sustainable development required to enhance the competitiveness of the Region.

Some of the guidance which makes up the hierarchy of strategies and policies from an international to local level is outlined below.

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***International***

Agenda 21

UN Framework Convention on Climate Change

Convention on Biological Diversity

***European***

EC Fifth Environmental Action Programme

***United Kingdom***

This Common Inheritance (and subsequent annual reports)

Sustainable Development: The UK Strategy

Climate Change: The UK Programme

Biodiversity: The UK Action Plan

Sustainable Forestry: The UK Programme

Making Waste Work: A Strategy for Sustainable Waste Management in England and Wales

Indicators of Sustainable development for the United Kingdom

Planning Policy Guidance (PPGs)

***Regional (North West England)***

Regional Policy Guidance (RPGs)

Structure Plans

North West Regional Association of Local Authorities (eg Greener Growth)

***Local***

Local Development Plans

Unitary Development Plans (UDPs)

Catchment Management Plans/Local Environment Action Plans

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**1.3 Guidance for Member States Submitting Objective 2 Programmes.**

The Commission of the European Communities has produced a "Note for Guidance" for Member States submitting Objective 2 bids for the second programming period 1997-1999. The Note includes guidance on the inclusion of the environmental and sustainable development proposals in Objective 2 programmes. Two main sustainable development themes are suggested in the note. First, the programmes should attempt to address past industrial damage and improve the physical environment. Second, a more proactive strategy should be adopted which links environmental improvement to competitive advantage through the exploitation of eco-products, environmental services and technologies, and energy saving measures and improved production processes. Environmental training is also seen as a route through which the Region's conversion towards more environmentally sustainable industries can be achieved. The Note concludes that environmental training will ultimately reap economic rewards.



## 2 REVIEW OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) METHOD

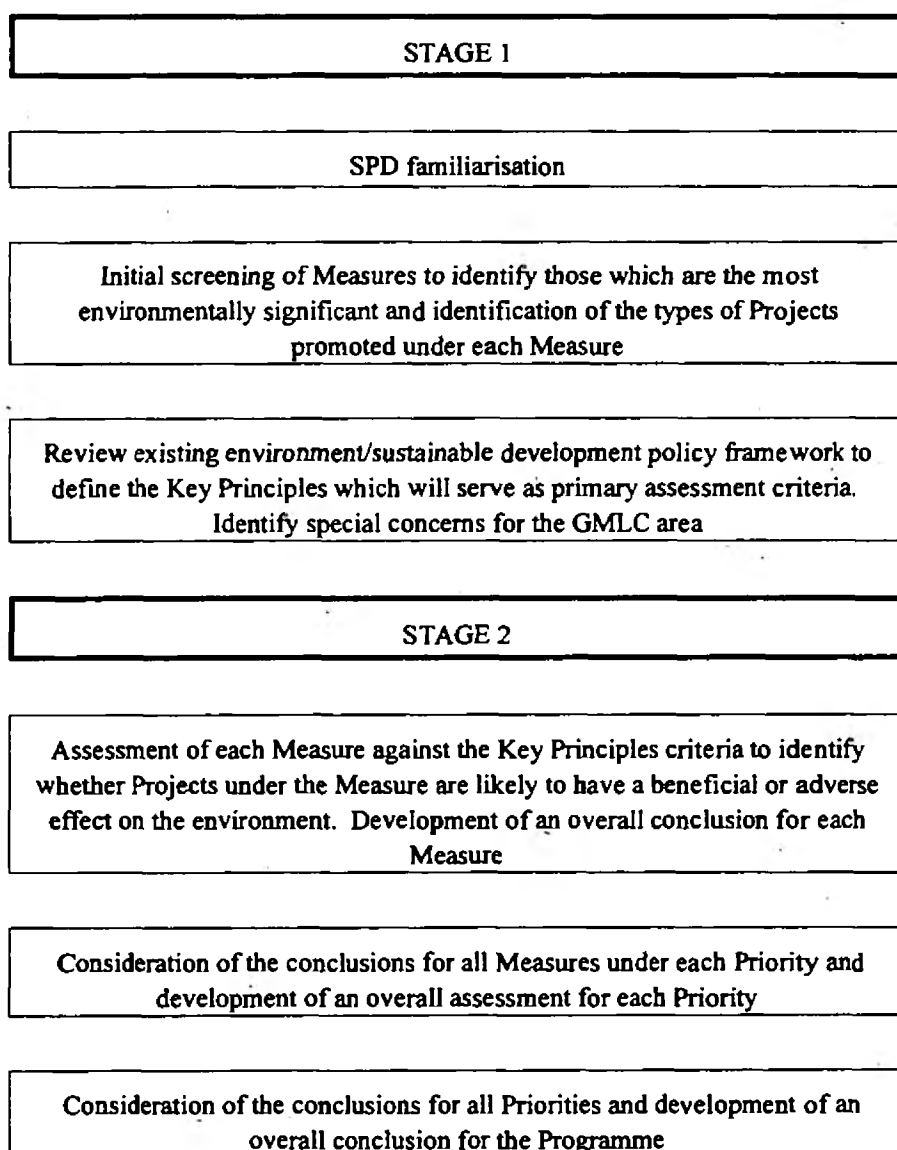
### 2.1 Overview

The Strategic Environmental Assessment method used to assess the Greater Manchester, Lancashire and Cheshire (GMLC) Single Programming Document (SPD) was undertaken in two stages. The stages comprised:

- Stage 1: Initial Review and Scoping;
- Stage 2: Assessment.

Figure 2.1a summarises the activities within each stage. Each stage is discussed in more detail in the following paragraphs.

**Figure 2.1a The Staged Approach used in the GMLC SEA**



### 3 SPD FAMILIARISATION

Before commencing the SEA, an overall understanding of the second GMLC Objective 2 Programme, was undertaken. In particular the objectives, the types of activity that might be implemented with assistance from the Programme and the way in which projects were proposed to be submitted and appraised was considered. The SEA, was then structured to reflect the hierarchical organisation of the Programme, ie from its strategic objectives, through Priorities and Measures.

*Commentary: Experience with SEAs for different types of policies, programmes and plans suggests that the approach for each needs to be tailored specifically to the case in question. In the case of the GMLC Objective 2 Programme the assessors had to appreciate that GMLC Objective 2 is:*

- *a single defined programme: The SEA does not therefore need to be designed to consider alternatives in this case;*
- *a programme comprising a series of more or less defined actions grouped together as Measures; For some measures the types of Project which are likely to emerge are relatively clear, for others they are much less well-defined. The Programme is completely non-specific in geographical terms other than that projects will be located in the GMLC region and the appraisal must therefore be generic rather than specific in nature. The approach should indicate whether the programme is broadly in line or in conflict with environmental sustainability objectives rather than providing specific predictions of impact and this must be reflected in the way the appraisal criteria are defined;*
- *a programme organised as an hierarchy of Priorities and Measures. The assessment can therefore be built up from consideration of components at the lower Measure level, through the Priority level, and finally to the whole of the programme.*

*Because SEAs are usually dealing with collections of different types of issues which must be appraised together to provide an overall assessment, it is important to recognise the limitations of direct numerical or symbolic comparisons. The GMLC Objective 2 programme comprises 4 Priorities and 12 Measures. The number of individual assessment actions depends on the number of appraisal criteria. In this case 10 were defined, resulting in the need to carry out 120 individual assessments at the Measure level. Each assessment Measure was assessed as having a positive, negative, or neutral impact. Some impacts were clear and predictable while others were likely but unpredictable because of uncertainties over the eventual nature of the projects established under each Measure.*

#### 4 INITIAL SCREENING

To limit the scope of the SEA to the most important Measures, the assessors carried out an initial screening of the Programme to identify those Measures which were considered to be most likely to be significant in terms of their environmental costs and benefits. This was based on the description of the Measures provided in the SPD.

*Commentary: The initial screening was useful in focusing the appraisers attention on those Measures which were likely to have most impact. While no Measures were omitted at this stage, the initial assessment showed that all of the measures had some potential to have an effect on the environment, while others contained particular aspects which would require a more detailed review during the Measure level appraisal.*

## 5 DEFINITION OF STRATEGIC ENVIRONMENTAL ASSESSMENT CRITERIA

The appraisal criteria were defined through a systematic review of public policy objectives relevant to environmental sustainability. These were abstracted from statements of policy by international, European, UK, and regional authorities. The distillation of these policies into a small number (ten) of Key Principles, were then subject to conversion into a series of supporting Appraisal Questions to guide the assessment. Each Key Principle was then interpreted for applicability to the GMLC context. The Key Principles, Appraisal Questions and their relevance to GMLC are listed below.

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### KEY PRINCIPLES :

- 1 • *minimising use of non renewable resources;*
  - 2 • *use of renewable resources within limits of their capacity for regeneration;*
  - 3 • *environmentally sound use and management of hazardous/polluting substances and wastes;*
  - 4 • *maintaining and improving the quality of natural heritage resources: wildlife, habitats and landscapes;*
  - 5 • *maintaining and improving the quality of natural resources: soils and water resources;*
  - 6 • *maintaining and improving the quality of historic and cultural resources;*
  - 7 • *maintaining and improving local environmental quality (air pollution, noise, general amenity, etc.);*
  - 8 • *protection of the global and regional atmosphere (limiting emissions of greenhouse gases, ozone-depleting substances and substances causing acidification);*
  - 9 • *development of environmental awareness, through education and promotion of environmental management and best practice;*
  - 10 • *promoting public participation in decisions involving sustainable development.*
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## Key Principle 1: Minimise Use of Non-Renewable Resources

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### *Principle*

The use of non-renewable resources, such as fossil fuels, mineral ores and aggregates reduces the stock available to future generations. A key principle of sustainable development is that these non-renewable resources should be used wisely and sparingly, at a rate which does not restrict the options of future generations.

This also applies to unique and irreplaceable geological, ecological or landscape features which contribute to productivity, biodiversity, scientific knowledge and culture (see however, Key Principles 4, 5 and 6).

### *Appraisal Questions*

#### *Non-energy Resources*

- Could the measure lead to projects which make substantial use of non-renewable resources (eg aggregates or borrow pits for construction)?
- Does the measure offer opportunities to use renewable in preference to non-renewable resources?
- Does the measure offer opportunities for recycling and re-use of non-renewable primary material?

#### *Energy: Transport*

- Could the measure lead to projects which:
  - increase the length of trips by private vehicle?
  - increase the number of trips by private vehicle,
  - result in a reduction in number or length of trips by car or lorry?
  - facilitate public transport use?
  - enable the replacement of car and lorry use by rail transport or other means such as improved telecommunications?
  - encourage walking or cycling?
  - use more efficient vehicle or fuel technology than present alternatives?

#### *Energy: Built Environment*

- Could the measure lead to projects which require substantial capital energy requirements (eg for materials used in construction)
- Could the measure lead to projects which encourage energy efficiency in buildings (eg use of energy efficient designs and materials, incorporation of renewable energy sources such as solar power)?
- Will the measure provide opportunities for use of combined heat and power?

### *Issues for GMLC* See also Key Principle 3 and 8

- Mineral resources in the area are limited to sand, gravel, gritstone and sandstone used for aggregates, clay and mudstones for bricks. Sand and gravel resources are limited. There is still fairly extensive limestone extraction.
  - Road traffic is forecast to grow in the Region due to the heavy reliance on the private car and congested corridors are common. The bus is the most important form of public transport, but suffers a from poor image. In rural areas it is the sole provider for many. The Manchester Metrolink light rail network has removed 2.5M car journeys a year.
  - There remains a legacy of pre-1919 housing, much of which is unfit (around 30% in some local authorities). The level of energy required to heat such housing is high compared to more modern buildings.
  - Energy split for the North West : industry : 33%, domestic : 30%, transport : 22%, commerce : 15%
-

## Key Principle 2: Use Renewable Resources within their Capacity for Regeneration

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### *Principle*

In the use of renewable resources in primary production activities such as forestry, fisheries and agriculture, there is a maximum sustainable yield from each system beyond which resource degradation begins to set in. When we use the atmosphere, rivers, estuaries and the sea as "sinks" for waste material, we are also treating them as renewable resources in that we rely on their natural self-cleansing capacity. It is possible to overload this self-cleansing capacity, leading to long term resource degradation. The objective must therefore be to use renewable resources at or below a rate at which they can naturally regenerate in order that the stock of these resources is maintained or increased for future generations.

### *Appraisal Questions*

- Could the measure lead to projects which make substantial use of renewable resources which have a limited capacity for regeneration (eg timber, water) such that the stock of the resource is likely to be reduced?
- Are resources of wind, water, wave and biomass energy potential likely to be endangered by projects under this measure?
- Could projects under this measure offer opportunities for regenerating renewable resources which have been degraded by past activities?

See also Key Principle 5 regarding soil (including peat) and water resources, and Key Principles 7 and 8 regarding local, regional and global environmental quality.

### *Issues for GMLC*

- Renewable energy is only generated on a very small scale in the North West.
  - A potentially large wind resource exists in the uplands of the Objective 2 area. Large tracts of high ground enjoy high average annual wind speeds, typically above 7.5 m/s. Only one wind farm has been developed in the area.
  - The legacy of landfill sites has created the potential for biogas use, but currently no large commercial projects have been established.
  - Approximately 5% of waste arising in Chester and Lancashire is subject to energy recovery or re-use.
  - The GMLC area is an important provider of recycling facilities, eg Bridgewater Paper in Ellesmere Port is one of the UKs largest paper recycling plants.
  - Recycling rates in the GMLC area have not been studied in great detail, particularly for industrial or commercial waste. The household waste recycling rate is generally less than 5% and does not look likely to meet the national recycling target (25% by the year 2000).
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### Key Principle 3: Environmentally Sound Use and Management of Hazardous/Polluting Substances and Wastes

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#### *Principle*

In many situations there are opportunities to use less environmentally harmful substances and to avoid or reduce the generation of wastes and of hazardous wastes in particular. A sustainable approach will seek to use the least environmentally harmful inputs and to minimise the production of wastes by adopting effective systems of process design, waste management and pollution control.

#### *Appraisal Questions*

- Could the measure lead to projects which involve the use of environmentally harmful materials where less harmful alternatives might be available? (eg pesticides, solvents, process chemicals, CFCs, toxic substances in raw materials and products)?
- Could the measure lead to projects which generate substantial quantities of construction, demolition or processing wastes or spoil, or to any quantity of hazardous waste?
- Will the measure encourage prevention or minimisation of pollution at source (eg waste minimisation, use of clean technology)?
- Could the measure lead to the re-use or recovery and recycling of wastes?
- Will the measure encourage the careful storage, handling, use and disposal of materials and wastes?
- Does the measure encourage the use of environmentally friendlier technologies?
- Could the measure result in projects which present risks to human health and the environment from the use or release of toxic substances?
- Could the measure lead to projects which have a requirement for long distance transport or special arrangements for disposal of waste?

#### *Issues for GMLC* See also Key Principles 5 and 7.

- Waste management is an important issue for industrial, commercial and rural activities in GMLC. Increased emphasis on sustainable waste disposal methods and recycling will reduce impacts relating to landfill, contamination of groundwaters and use of non renewable resources.
  - Almost all waste in the Objective 2 Area is disposed of to landfill (including hazardous waste), although limited incineration takes place.
  - The GMLC area has a legacy of disused landfills, including those which have accepted toxic waste. North West Cheshire, with its concentration of oil and chemical industries, has the highest special waste disposal problems.
  - Disposal of all domestic waste in Greater Manchester is collected and pulverised before being transported to landfills outside the Metropolitan area.
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## **Key Principle 4: Maintain and Improve Natural Heritage Resources: Wildlife, Habitats and Landscapes**

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### ***Principle***

The fundamental principle here is to maintain and improve the stock and quality of natural heritage resources for the enjoyment and benefit of present and future generations and for the foundation and security provided by biological diversity. These natural heritage resources are identified by English Nature (EN) as comprising flora and fauna, geological and physiographical features, natural beauty and amenity. Natural heritage therefore embraces landform, habitats, wildlife and landscapes, the combination of and interrelationships between them and their potential for enjoyment. There are also intimate links to the cultural heritage (see Key Principle 6).

### ***Appraisal Questions***

- Could the measure lead to projects which might cause loss of or damage to:
  - protected and endangered species (eg badgers, otters, bats, red squirrels, rare plants)?
  - areas designated for their nature conservation or landscape significance by international, national or local authorities or other bodies?
  - other natural or semi-natural areas of importance to wildlife, in particular, remnant green spaces, urban fringes, woodlands and forests, hedgerows, other wildlife corridors (eg riverbanks, disused railway lines)?
  - sites of importance for their unique geology or physiography?
- Could the measure lead to projects which occupy open countryside which might be accommodated within developed areas on brownfield sites?
- Does the measure encourage projects which could benefit natural heritage resources by increasing wildlife potential (eg creating green spaces and corridors), using natural landscaping, clearing dereliction and creating new landscape resources?
- Does the measure encourage projects which could enhance people's enjoyment or benefit from natural heritage resources by improving access for recreation, education, scientific research?

### ***Issues for GMLC***

- The GMLC area contains a wealth of wildlife due to its varied geology and topography, although the influence of human activities has much altered the extent and character of natural habitats and communities. Important habitats include ancient woodland, moorland and lowland mosses. Networks of hedgerow, trees, field margins and fieldponds create linking habitats.
  - The Region contains areas of good, sometimes exceptional, environmental quality in the form of National Parks, AONB, SSSIs, Ramsar sites etc. Most of the remaining rural areas including uplands, undeveloped coast and much of rural Cheshire are valued for their landscape and nature conservation interest. However, the North West was one of the worlds first Industrial Regions and the GMLC area has traditionally suffered from poor air quality, water and derelict land. In recent decades air quality has improved. However the increasing use of road vehicles will continue to contribute to the levels of pollutants, particularly in inner urban areas.
  - A high quality natural environment is essential to the character of the GMLC region and is an economic asset through its tourism and leisure significance. Development projects can adversely affect the conservation and landscape, however in GMLC causes of damage are due to recreational and miscellaneous activities.
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## Key Principle 5: Maintain and Improve Soils and Water Resources

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### *Principle*

Soil and water are natural, renewable resources which are essential to human health and welfare and which may suffer particular threats from loss by abstraction or erosion, or from pollution. The key principle is therefore to protect the quantity and quality of existing resources and to improve resources which are already degraded.

### *Appraisal Questions*

- Could the measure lead to projects which might:
  - result in discharges of pollutants to water either intentionally or through accidental releases?
  - require abstraction of substantial quantities of water from ground or surface supplies?
  - result in erosion of soils?
  - cause contamination of soils or groundwater?
  - cause loss of good quality agricultural land?
- Could the measure lead to projects which:
  - reduce pollution of water?
  - reduce the need for abstraction of water from limited resources?
  - remediate contaminated land?
  - bring vacant or derelict land back into beneficial use?
  - repair erosion?

### *Issues for GMLC* See also Key Principles 2, 7 and 8.

- The Environment Agency has a national strategy which is based on the premise that pollution prevention of groundwater is better than cure.
  - The effect of acid rain on water and soils has been studied in the Region. Research has shown that upland areas are worst affected by acidification, where critical loads are exceeded.
  - The North West receives potable water supplies from the upland reservoirs of the Lake District, North Wales and the Pennines.
  - More than 60% of abstracted water is used in power generation. The drought in recent years has highlighted the importance of effective management of water resources.
  - The quality of classified rivers within the GMLC area is varied. Based on chemical classification 45% is fair (26% good, 24% poor and 5% bad). On a biological scale 34% is fair (8% good, 32% poor and 19% bad). This represents a chemical improvement of 14.5%, along with significant biological improvement between 1990 and 1995. The apparent high proportion of low quality water is due to a number of reasons including inadequate sewage treatment facilities in the Region, man-made pollution and agricultural run-off.
  - Once a thriving coal mining area, particularly in Lancashire and Greater Manchester, all mines are now closed. The limited upgrading of such derelict areas has been generally of a poor standard and done little to ameliorate the underlying problems and restricted development opportunities. Many abandoned coal mines are a source of significant water pollution.
  - The GMLC Region has a legacy of derelict and despoiled land created by industrial activity and the disposal of waste. Much will need remedial treatment to make it fit for use.
  - The large number of disused landfills pose potential environmental and hazard impacts to adjacent areas.
-



***Principle***

Historic and cultural resources are finite resources which, once demolished or damaged cannot be replaced. As non-renewable resources, the principles of sustainable development require that features, sites or areas of rarity, which are good examples of a particular period or type, or which make a particular contribution to the traditions and culture of an area should be conserved. These may include upstanding buildings, other structures or monuments from any period, buried archaeology, designed landscapes, parks and gardens, and facilities which contribute to the cultural life of a community (theatres, etc). Traditional lifestyles, customs and languages also constitute historic and cultural resources which it may be appropriate to conserve.

***Appraisal Questions***

- Could the measure lead to projects causing loss of or damage to:
  - listed buildings and conservation areas?
  - areas of archaeological importance?
  - other areas, buildings or features which are of cultural or historic significance?
- Could the measure lead to projects which might erode traditional lifestyles, customs or language?
- Does the measure encourage projects which conserve or retain historic and cultural resources, for example through adaptive re-use of buildings which might otherwise be demolished due to dereliction?
- Does the measure encourage architectural forms for new buildings which are sympathetic to adjacent historic buildings or places?

***Issues for GMLC***

- The Region contains a wealth of buildings and features of archaeological and historic importance which are worthy of conservation for their own sake and also have a role to play in maintaining and enhancing the quality of the built environment and townscape generally. In GMLC alone there are some 300 listed buildings and 10,500 records of archaeological interest. Within this number are 31 Scheduled Ancient Monuments.
  - There is evidence of industrial revolution heritage throughout the area, examples would include old mills in the former textile centres, salt and early iron, steel and chemical works.
  - In addition to significant landmark monuments and tourist attractions, the region contains a number of listed buildings and conservation areas which combine to give many towns a distinct character.
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## **Key Principle 7: Maintain and Improve Local Environmental Quality**

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### ***Principle***

In the context of this discussion, the quality of a local environment can be defined by air quality, ambient noise, visual and general amenity. Local environmental quality is most important for residential areas and places where people spend leisure or working time. Local environmental quality can change dramatically in response to changes in traffic, industrial activities, construction works and quarrying, development of new buildings and infrastructure, and general increases in the level of activity, for example by visitors. It is also possible to substantially improve a blighted local environment through the introduction of new development.

See also Key Principle 2 regarding reduction in use and release of polluting substances.

### ***Appraisal Questions***

- Could the measure lead to projects which will:
  - increase emissions of air pollutants into the atmosphere? these might include gaseous emissions from fuel combustion in stationary plant or vehicles, dust from construction or quarrying, odours or other emissions from processes?
  - cause increased noise or vibration from traffic (road, air, sea), industrial or other processes, blasting etc?
  - introduce intrusive new structures into the environment with the potential to cause visual intrusion?
  - introduce a new source of light into otherwise dark areas?
  - increase levels of activity in otherwise quiet areas?
- Could the measure lead to projects which will:
  - reduce emissions of air pollution by reducing traffic, introducing less polluting processes or improving environmental practices?
  - reduce levels of noise and vibration?
  - enhance townscape or landscapes by improving, maintaining or renewing buildings, structures and open spaces?
  - improve the management of visitor activity?
  - increase/maintain public access to open space in urban and rural areas?

### ***Issues for GMLC*** see also Key Principle 4, 5 and 6

- Local environmental quality and amenity is of critical importance to the urban and rural areas of the GMLC Region. Many areas are suffering decline, and localised problems of unsightly development, fly tipping and polluting discharges are not uncommon. These can be significantly improved through the renovation of old buildings, new development and the creation of parks and gardens. By enhancing the local environment, such development can stimulate further activity and help to attract inward investment. Diminished environmental quality can result from inappropriate siting of new land uses or the operation of polluting processes.
  - Derelict land describes land and buildings that have been so damaged by industrial activity that they are incapable of beneficial use without treatment. Studies have shown that the percentage of derelict land within each of the local authorities that make up the GMLC region range from between 0.4 and 4.5% of their total area.
  - 'Hotspot areas', a local authority term for areas with concentrated air pollution levels, are found within the GMLC area. Generally they are related to traffic congested areas.
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## Key Principle 8: Protection of the Global and Regional Atmosphere

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### *Principle*

One of the main driving forces behind the emergence of sustainable development has been the evidence of global and regional problems caused by emissions to the atmosphere. The links between combustion emissions, acid rain and acidification of soils and water, and between chlorofluorocarbons, destruction of the ozone layer and human health effects were identified in the 70s and early 80s. Identification of the link between carbon dioxide and other greenhouse gases and climate change followed. These impacts are long term and pervasive and present major threats to future generations. Their management is therefore at the heart of the sustainable development debate and the UK has established targets for reductions in emissions of the key pollutants.

### *Appraisal Questions*

- Could the measure lead to projects which reduce consumption of fossil fuels and resulting emissions of carbon dioxide, sulphur oxides, nitrogen oxides and unburnt hydrocarbons by reducing traffic, improving energy efficiency, using cleaner technologies (see also key Principle 1)?
- Could the measure lead to projects which create sinks for carbon dioxide by new tree planting or sustainable forestry management practices?
- Could the measure lead to projects which replace fossil fuel consumption by, for example, wind, wave or biomass energy or use of waste materials as fuels (see also Key Principle 3)?
- Does the measure discourage use of ozone depleting substances?
- Could the measure lead to projects which reduce methane and carbon dioxide emissions from landfill sites or industrial installations?

### *Issues for GMLC* See also Key Principle 1 and 5

- The GMLC area has traditional areas of an industrial nature. This has led in the past to high levels of atmospheric pollutants including NO<sub>x</sub>, smoke and SO<sub>2</sub>, which on occasions can still exceed EU guide values.
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## **Key Principle 9: Develop Environmental Awareness, Education and Training**

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### ***Principle***

The involvement of all partners in the economy in achieving sustainable development is fundamental to the principles established at Rio and in the UK Strategy. Awareness of the issues and the options is crucial and environmental management information, education and training are keys to achieving sustainable development. This can be achieved through dissemination of research findings, the integration of environmental programmes in professional training, schools, higher and adult education, and through the development of networks within economic sectors and groupings. Access to environmental information in homes and at recreation locations is also important.

### ***Appraisal Questions***

- Does the Measure encourage commitment to good environmental management and practices in the workplace?
- Will the Measure promote the provision of environmental information and training of employees?
- Does the Measure promote increased public awareness of the countryside and natural areas close to where they live?
- Will the Measure result in publicity for or publications on environmental initiatives?
- Will the Measure encourage community groups to participate in ensuring that the project has a beneficial environmental effect on the locality?

### ***Issues for GMLC***

- Local government has a major role in promoting and working towards sustainable development. In discharging its role in the context of Local Agenda 21 it is working with local people to raise awareness and improve the environment. This has highlighted the will of community organisations, who are well placed to identify particular needs of their community, to become more involved in local initiatives to protect and enhance local conditions. The response to Local Agenda 21 in GMLC has been good, but there is a range of achievements from those that have just started the initiative, to those that have established forums.
  - Information and awareness are essential catalysts in motivating people to take action, individually or collectively.
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## **Key Principle 10: Promoting Public Participation in Decisions about Sustainable Development**

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### ***Principle***

The Rio Declaration establishes the involvement of the public and affected parties in decisions affecting their interests as a fundamental tenet of sustainable development. The principal mechanism for this is identified as public consultation during development control (in the UK planning permission) and in particular the involvement of third parties in Environmental Assessment. Beyond this sustainable development envisages a broadening of public involvement in the formulation and implementation of development proposals so that an increased sense of ownership and shared responsibility can emerge.

### ***Appraisal Questions***

- Will decisions on projects under the Measure be subject to any involvement of the affected or wider public?
- Is the Measure likely to lead to projects resulting in local controversy?
- Does the Measure encourage public involvement in the design and implementation of projects?
- Will the Measure lead to projects resulting in ongoing opportunities for public participation?

### ***Issues for GMLC***

- Within the planning system public access to planning applications and public scrutiny of Environmental Statements allow the public to contribute to the decision making process on many projects affecting the environment. The formal planning consultation process is often extended to local parish councils and the Department of Environment is seeking to encourage fuller consultation with communities, particularly in the light of sustainable development principles.
  - Well established Environmental Forums under Local Agenda 21 initiatives enable the public to contribute to the environmental strategy of local authorities.
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## 6 MEASURE LEVEL ASSESSMENT

A *pro forma* Measure appraisal form was prepared incorporating the ten environmental sustainability Key Principles identified in the Policy Review and criteria selection stage. The form was completed for each of the Measures comprising the Programme, with resources being focused on those measures identified by the initial screening as being significant.

An appraisal was made of the likely performance of the Measures in relation to each of the ten Key Principles. The Principles were matched against the rationale objectives and description of each Measure and conclusions were drawn on whether projects under the Measure would have any adverse impacts or benefits from their implementation.

Performance against each of the environmental sustainability policy objectives was assessed according to the following system:

- No relationship or significant impact
- ✓ Significant beneficial impact
- ✗ Significant adverse impact
- ✓? Likely, but unpredictable beneficial impact
- ✗? Likely, but unpredictable adverse impact
- ? Uncertain impact

A judgement was then formed on the overall performance of the Measure, using the same system. Comments were made on the appraisal forms against each Key Principle as appropriate and with respect to the overall assessment.

To ensure that the SEA appraisal criteria are translated into the Programme, the appraisal questions should form a starting point for the development of environmental screening guidance for applicants at the project stage. A parallel can be drawn here with the link between project level Environmental Impact Assessment (EIA) and environmental mitigation in project design. The outputs from the SEA will therefore act in two ways : firstly by encouraging project proponents to incorporate environmental mitigation into their projects from the outset; and second in highlighting areas of environmental improvement which can be incorporated into the project appraisal procedure as a condition of project approval.

**COMMENTARY :** *The current (1994-1996) GMLC Programme has not progressed sufficiently to benefit from a comprehensive ex post appraisal. This is often helpful to ex ante appraisers as the actual environmental effects of previous projects can be taken into account. Ex ante assessments are less explicit and produce rather different results. As a consequence the project preparation and appraisal guidance might be less specific and require greater project specific interpretation.*

*The environmental appraisal of the 12 Measures of the GMLC Objective 2 Programme are set out in the following pages.*

<b>Priority: 1 - Support for businesses and new investment</b>		
<b>Measure: 1 - General support for SME's</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	✓?	Measure objectives include advice on environmental best practice which should include conservation of non-renewable resources.
Use renewable resources within limits of capacity for regeneration	✓?	Measure objectives include advice on environmental best practice which should encourage use of renewable resources within their capacity for re-generation.
Environmentally-sound use and management of hazardous/polluting substances and wastes	✓?	The Measure states that grant-aided activities will include environmental support, which should include advice on the use and management of hazardous/polluting substances and waste.
Maintain and improve the quality of wildlife, habitats and landscapes	✓?	Measure objectives include advice on Environmental Best Practice which minimise impacts.
Maintain and improve the quality of soils and water resources	✓?	Measure objectives include advice on Environmental Best Practice which minimise impacts.
Maintain and improve the quality of historic and cultural resources	✓?	Measure objectives include advice on Environmental Best Practice which minimise impacts.
Maintain and improve local environmental quality	✓?	The Measure states that grant aided activities will include environmental support, which should include advice on the enhancement of the local environment.
Protection of the atmosphere (global warming)	✓?	Objectives which should include advice on Environmental Best Practice will which minimise impacts.
Develop environmental awareness, education and training	✓?	Grant aided activities will include advice on environmental issues and best practice.
Promote public participation in decisions involving sustainable development	●	
<b>Overall assessment:</b>	✓?	The Measure contains a commitment to environmental best practice, support and advice which has the potential to have beneficial effects.
<b>Key:</b> <ul style="list-style-type: none"> <li>● No relationship or significant impact</li> <li>✓ Significant beneficial impact</li> <li>? Uncertainty of prediction or knowledge</li> </ul> <ul style="list-style-type: none"> <li>✗ Significant adverse impact</li> <li>✓? Likely, but unpredictable beneficial impact</li> <li>✗? Likely, but unpredictable adverse impact</li> </ul>		

<b>Priority: 1 Support for businesses and new investment</b>		
<b>Measure: 2 Improving access to capital, including finance for spin out activities and innovation</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	●	
Use renewable resources within limits of capacity for regeneration	●	
Environmentally-sound use and management of hazardous/polluting substances and wastes	●	
Maintain and improve the quality of wildlife, habitats and landscapes	●	
Maintain and improve the quality of soils and water resources	●	
Maintain and improve the quality of historic and cultural resources	●	
Maintain and improve local environmental quality	●	
Protection of the atmosphere (global warming)	●	
Develop environmental awareness, education and training	●	
Promote public participation in decisions involving sustainable development	●	
<b>Overall assessment:</b>	●	Lenders or lender advisors should ensure that Business Plans should include measures to minimise environmental impacts.
<b>Key:</b> ● No relationship or significant impact      ✕ Significant adverse impact ✓ Significant beneficial impact      ✓? Likely, but unpredictable impact ? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable adverse impact		



<b>Priority: 1 Support for businesses and new investment</b>		
<b>Measure: 3 Sites and premises</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	✘/✓	Beneficial effect from other Measure commitment to environmental sustainable transport system but potential adverse effect from use of a non-renewable construction material.
Use renewable resources within limits of capacity for regeneration	?	If selection criteria requiring the use (as far as possible) of recycled construction material were used then the Measure would have a beneficial impact.
Environmentally-sound use and management of hazardous/polluting substances and wastes	?	Premises which are constructed and managed in an environmentally sustainable manner will have a beneficial impact.
Maintain and improve the quality of wildlife, habitats and landscapes	✓	Buildings and land reclaimed close to sensitive areas will have a beneficial impact.
Maintain and improve the quality of soils and water resources	✓	Reclamation of land will have a beneficial impact.
Maintain and improve the quality of historic and cultural resources	✓	Redevelopment of old buildings with heritage value will have a beneficial impact.
Maintain and improve local environmental quality	✓	Aesthetic improvement to local communities will have a beneficial effect.
Protection of the atmosphere (global warming)	✓?	Use of sustainable transport systems and energy conservation (where practicable) will have a beneficial impact.
Develop environmental awareness, education and training	?	If selection criteria requiring the use of environmentally sustainable methods were used then the Measure would have beneficial impacts.
Promote public participation in decisions involving sustainable development	?	Public consultation plans where appropriate may have a beneficial impact.
<b>Overall assessment:</b>	✓	Measure is likely to lead to a number of environmental improvements.
<b>Key:</b> <ul style="list-style-type: none"> <li>● No relationship or significant impact</li> <li>✓ Significant beneficial impact</li> <li>? Uncertainty of prediction or knowledge</li> </ul> <ul style="list-style-type: none"> <li>✘ Significant adverse impact</li> <li>✓? Likely, but unpredictable impact</li> <li>✘? Likely, but unpredictable adverse impact</li> </ul>		





Priority: 1 Support for businesses and new investment		
Measure: 4 Training for business needs		
Key Principle	Assessment	Comments
Minimise use of non-renewable resources	?	
Use renewable resources within limits of capacity for regeneration	?	
Environmentally-sound use and management of hazardous/polluting substances and wastes	?	
Maintain and improve the quality of wildlife, habitats and landscapes	?	
Maintain and improve the quality of soils and water resources	?	
Maintain and improve the quality of historic and cultural resources	?	
Maintain and improve local environmental quality	?	
Protection of the atmosphere (global warming)	?	
Develop environmental awareness, education and training	●	There is no specific reference to environmental awareness as an aspect of business or skills training.
Promote public participation in decisions involving sustainable development	?	
Overall assessment:	?	The introduction of environmental awareness (where appropriate) in training initiatives under this Measure would have beneficial effects.
Key: ● No relationship or significant impact      ✕ Significant adverse impact ✓ Significant beneficial impact      ✓? Likely, but unpredictable impact ? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable adverse impact		



Priority: 2 Knowledge Based Industries and Advanced Technology

Measure: 5 Harnessing the economic potential of the research and development system

Key Principle	Assessment	Comments
Minimise use of non-renewable resources	✓?	There is potential for beneficial impacts from R&D projects where they relate to environmental technology or environmental protection products.
Use renewable resources within limits of capacity for regeneration	✓?	There is potential for beneficial impacts from R&D projects where they relate to environmental technology or environmental protection products.
Environmentally-sound use and management of hazardous/polluting substances and wastes	✓?	There is potential for beneficial impacts from R&D projects where they relate to environmental technology or environmental protection products.
Maintain and improve the quality of wildlife, habitats and landscapes	●	
Maintain and improve the quality of soils and water resources	●	There are potential secondary and long term effects from the results of R&D projects.
Maintain and improve the quality of historic and cultural resources	●	
Maintain and improve local environmental quality	●	There are potential secondary and long term effects from the results of R&D projects.
Protection of the atmosphere (global warming)	✓?	There is potential for beneficial impacts from R&D projects where they relate to environmental technology or environmental protection products.
Develop environmental awareness, education and training	●	
Promote public participation in decisions involving sustainable development	●	
Overall assessment:	✓?	Where as there are potential beneficial impacts, projects from environmental technology should ensure that applicants minimise the adverse
<p>Key: ● No relationship or significant impact      ✕ Significant adverse impact</p> <p>✓ Significant beneficial impact      ✓? Likely, but unpredictable impact</p> <p>? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable adverse impact</p>		

<b>Priority: 2 Knowledge Based Industries and Advanced Technology</b>		
<b>Measure: 6 Advanced telecommunications</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	✓?	Measure would have a beneficial effect if it reduced the need to travel.
Use renewable resources within limits of capacity for regeneration	●	
Environmentally-sound use and management of hazardous/polluting substances and wastes	●	
Maintain and improve the quality of wildlife, habitats and landscapes	✓/✗	Measure could have a beneficial or adverse impact depending on the intrusiveness of telecommunication towers.
Maintain and improve the quality of soils and water resources	●	
Maintain and improve the quality of historic and cultural resources	✓/✗	Measure could have a beneficial or adverse impact depending on the intrusiveness of telecommunication towers.
Maintain and improve local environmental quality	✓/✗	Measure could have a beneficial or adverse impact depending on the intrusiveness of telecommunication towers.
Protection of the atmosphere (global warming)	✓?	Measure would have a beneficial effect if it reduced the need to travel.
Develop environmental awareness, education and training	●	The need to consider environmental effects should form part of project description.
Promote public participation in decisions involving sustainable development	●	
<b>Overall assessment:</b>	?	The environmental effect of the Measure will depend on the ability of projects to minimise environmental impacts
<b>Key:</b> ● No relationship or significant impact ✓ Significant beneficial impact ? Uncertainty of prediction or knowledge ✗ Significant adverse impact ✓? Likely, but unpredictable beneficial impact ✗? Likely, but unpredictable adverse impact		



**Priority:** 2 Knowledge Based Industries and Advanced Technology

**Measure:** 7 Training to Meet the Needs of Business for Research and Development

Key Principle	Assessment	Comments
Minimise use of non-renewable resources	✓?	Beneficial impacts may accrue if training includes environmental awareness and production modules.
Use renewable resources within limits of capacity for regeneration	✓?	The measure states that grant aided activities will include clean technology techniques.
Environmentally-sound use and management of hazardous/polluting substances and wastes	✓?	Beneficial impacts may accrue if training includes environmental awareness and production modules.
Maintain and improve the quality of wildlife, habitats and landscapes	●	
Maintain and improve the quality of soils and water resources	●	
Maintain and improve the quality of historic and cultural resources	●	
Maintain and improve local environmental quality	●	
Protection of the atmosphere (global warming)	✓?	The measure states that grant aided activities will include clean technology techniques.
Develop environmental awareness, education and training	✓	The measure states that grant aided activities will include clean technology techniques.
Promote public participation in decisions involving sustainable development	●	
<b>Overall assessment:</b>	✓?	Training in clean technology techniques will be beneficial, however the Measure could encourage other forms of environmental awareness.

**Key:** ● No relationship or significant impact      ✕ Significant adverse impact  
 ✓ Significant beneficial impact      ✓? Likely, but unpredictable impact  
 ? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable adverse impact

<b>Priority: 3 Marketing and Image</b>		
<b>Measure: 8 Strategic marketing of the area</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	●	Marketing strategy should minimise trip generation to essential journeys.
Use renewable resources within limits of capacity for regeneration	●	The environmental impacts of marketing strategies including the use of materials, should be considered at the planning stage of each campaign.
Environmentally-sound use and management of hazardous/polluting substances and wastes	●	
Maintain and improve the quality of wildlife, habitats and landscapes	●	
Maintain and improve the quality of soils and water resources	●	
Maintain and improve the quality of historic and cultural resources	●	
Maintain and improve local environmental quality	●	
Protection of the atmosphere (global warming)	●	Marketing strategy should minimise trip generation to essential journeys.
Develop environmental awareness, education and training	●	
Promote public participation in decisions involving sustainable development	●	
<b>Overall assessment:</b>	●	Measure has little direct environmental impact, although applicants should consider the environment as part of their overall strategies.
<b>Key:</b> ● No relationship or significant impact ✓ Significant beneficial impact ? Uncertainty of prediction or knowledge <span style="margin-left: 100px;">           ✕ Significant adverse impact            ✓? Likely, but unpredictable impact            ✕? Likely, but unpredictable adverse impact         </span>		

Priority: 3 Marketing and Image		
Measure: 9 Provision of new or upgraded tourist facilities including advice and information systems		
Key Principle	Assessment	Comments
Minimise use of non-renewable resources	✓?	The Measure states that grant aided activities will be encouraged to be green and have minimal impact.
Use renewable resources within limits of capacity for regeneration	✓?	Grant aided activities will be encouraged to be green and have minimal impact. Selection criteria using sustainable construction material would increase the benefits.
Environmentally-sound use and management of hazardous/polluting substances and wastes	✓?	Encouragement of green tourism should be accompanied by a requirement to minimise pollution and manage waste responsibly.
Maintain and improve the quality of wildlife, habitats and landscapes	✓?	Encouragement of green tourism should be accompanied by a requirement to minimise pollution and manage waste responsibly.
Maintain and improve the quality of soils and water resources	✓?	Encouragement of green tourism should be accompanied by a requirement to minimise pollution and manage waste responsibly.
Maintain and improve the quality of historic and cultural resources	✓?	Encouragement of minimal impact tourism will have a beneficial effect.
Maintain and improve local environmental quality	✓?	Encouragement of minimal impact tourism will have a beneficial effect, particularly for traffic congestion.
Protection of the atmosphere (global warming)	✓?	The Measure states that grant aided activities will be encouraged to be green and have minimal impact.
Develop environmental awareness, education and training	✓?	Publicity material explaining how the development has taken the environment into account will have a beneficial impact.
Promote public participation in decisions involving sustainable development	?	Public consultation plans where appropriate may have a beneficial impact.
Overall assessment:	✓?	Providing tourism initiatives are green and have a minimum impact the Measure will have a beneficial impact.
Key: ● No relationship or significant impact      ✕ Significant adverse impact ✓ Significant beneficial impact      ✓? Likely, but unpredictable impact ? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable adverse impact		

Priority: 3 Marketing and Image		
Measure: 10 Strategic environmental improvements		
Key Principle	Assessment	Comments
Minimise use of non-renewable resources	?	If selection criteria favouring the use of sustainable construction materials and energy-efficient buildings were used then the Measure would have a beneficial effect.
Use renewable resources within limits of capacity for regeneration	?	The use of low impact materials will have a beneficial impact.
Environmentally-sound use and management of hazardous/polluting substances and wastes	?	Construction methods and premise management should include a strategy to control pollution and waste.
Maintain and improve the quality of wildlife, habitats and landscapes	✓	The Measures commitment to landscape renewal and reclamation of derelict sites for soft after-uses will have a beneficial effect.
Maintain and improve the quality of soils and water resources	✓	The Measures commitment to landscape renewal and reclamation of derelict sites for soft after-uses will have a beneficial effect.
Maintain and improve the quality of historic and cultural resources	✓	The Measures commitment to improvements to the environment and appearance of urban centres will have a beneficial effect.
Maintain and improve local environmental quality	✓	The Measures commitment to improvements to the environment and appearance of urban centres will have a beneficial effect.
Protection of the atmosphere (global warming)	✓	If selection criteria favouring the use of sustainable construction materials and energy-efficient buildings were used then the Measure would have a beneficial effect.
Develop environmental awareness, education and training	?	If selection criteria requiring the use of environmentally sustainable methods were used then the Measure would have beneficial impacts.
Promote public participation in decisions involving sustainable development	?	Public consultation plans where appropriate may have a beneficial impact.
Overall assessment:	✓?	The Measures' promotion of environmental improvements will have a beneficial effect although methods used to establish development need to be
Key: ● No relationship or significant impact      ✕ Significant adverse impact ✓ Significant beneficial impact      ✓? Likely, but unpredictable impact ? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable impact		

<b>Priority: 4 Community Economic Development</b>		
<b>Measure: 11 Removing barriers into employment and creating local job opportunities</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	✓?	The Measures commitment to improvements to public transport will have a beneficial effect.
Use renewable resources within limits of capacity for regeneration	●	
Environmentally-sound use and management of hazardous/polluting substances and wastes	?	Selection criteria should ensure new business proposals include an environmental management plan.
Maintain and improve the quality of wildlife, habitats and landscapes	●	
Maintain and improve the quality of soils and water resources	●	
Maintain and improve the quality of historic and cultural resources	✓?	Start-up and community enterprises utilising disused heritage buildings will have a beneficial effect.
Maintain and improve local environmental quality	✓?	The Measures commitment to targeted environmental improvements initiatives and the utilisation of disused buildings will have a beneficial effect.
Protection of the atmosphere (global warming)	✓?	The Measures commitment to improvements to public transport will have a beneficial effect.
Develop environmental awareness, education and training	?	If selection criteria were to promote need for an environmental management plan then the Measure would have beneficial impacts.
Promote public participation in decisions involving sustainable development	?	Public consultation plans where appropriate may have a beneficial impact.
<i>Overall assessment:</i>	✓?	Targeted environmental improvements and sustainable transport systems will be beneficial but guidance for new business would be desirable.
<b>Key:</b> <span style="display: inline-block; width: 150px;">● No relationship or significant impact</span> <span style="display: inline-block; width: 150px;">✗ Significant adverse impact</span>		
<span style="display: inline-block; width: 150px;">✓ Significant beneficial impact</span> <span style="display: inline-block; width: 150px;">✓? Likely, but unpredictable impact</span>		
<span style="display: inline-block; width: 150px;">? Uncertainty of prediction or knowledge</span> <span style="display: inline-block; width: 150px;">✗? Likely, but unpredictable adverse impact</span>		

<b>Priority: 4 Community Economic Development</b>		
<b>Measure: 12 Training for community economic development and employment growth</b>		
<b>Key Principle</b>	<b>Assessment</b>	<b>Comments</b>
Minimise use of non-renewable resources	?	
Use renewable resources within limits of capacity for regeneration	?	
Environmentally-sound use and management of hazardous/polluting substances and wastes	?	
Maintain and improve the quality of wildlife, habitats and landscapes	?	
Maintain and improve the quality of soils and water resources	?	
Maintain and improve the quality of historic and cultural resources	?	
Maintain and improve local environmental quality	?	
Protection of the atmosphere (global warming)	?	
Develop environmental awareness, education and training	●	There is no specific reference to environmental awareness as an aspect of business or skills training.
Promote public participation in decisions involving sustainable development	?	
<i>Overall assessment:</i>	?	The introduction of environmental awareness (where appropriate) in training and business start-up initiatives would have beneficial effects.
<b>Key:</b> ● No relationship or significant impact      ✕ Significant adverse impact ✓ Significant beneficial impact      ✓? Likely, but unpredictable beneficial impact ? Uncertainty of prediction or knowledge      ✕? Likely, but unpredictable adverse impact		

## 7 PRIORITY LEVEL APPRAISAL

Following the assessment at Measure level the results were brought together in an assessment for each Priority. Each Priority assessment is summarised below. In addition a short commentary is offered which draws out the Measures which were considered to have the greatest potential for environmental adverse or beneficial effects. As at the Measure level, areas of opportunity for environmental mitigation or enhancement are highlighted.

### Summary of Assessment for Priority 1

Key Principle	Measure			
	1/1	1/2	1/3	1/4
Minimise use of non-renewable resources	✓?	●	✗/✓	?
Use renewable resources within limits of capacity for regeneration	✓?	●	?	?
Environmentally-sound use and management of hazardous/polluting substances and wastes	✓?	●	?	?
Maintain and improve the quality of wildlife, habitats and landscapes	✓?	●	✓	?
Maintain and improve the quality of soils and water resources	✓?	●	✓	?
Maintain and improve the quality of historic and cultural resources	✓?	●	✓	?
Maintain and improve local environmental quality	✓?	●	✓	?
Protection of the atmosphere (global warming)	✓?	●	✓?	?
Develop environmental awareness, education and training	✓?	●	?	●
Promote public participation in decisions involving sustainable development	●	●	?	?
Overall assessment	✓?	●	✓	?

### 7.1 Priority 1 Support For Businesses and New Investment

#### 7.1.1 General Comments

The Priority is aimed at improving the competitiveness of businesses by offering targeted support to smaller businesses, offering financial support, training and improving sites and premises. The main potential for environmental effects concentrated in the Sites and Premises (Measure 3), which attracts 14% of the overall Objective 2 budget.



### *Measure 1 General Support for SMEs*

The objectives of the Measures include advice on a wide range of issues devoted to improve the survival and growth rates of SMEs. Advice on environmental best practice is the most likely aspect of the Measure to have a beneficial impact. In the absence of details about specific projects, a likely but unpredictable beneficial impact may result from those projects that receive environmental best practice advice.

### *Measure 2 Improving Access to Capital, Including Finance For Spin Out Activities And Innovation*

Measure 2 is primarily concerned with financial assistance for start-ups and SMEs. There is no direct link between this measure and environmental improvements to the Region. However lenders and lender advisors should ensure that business plans include measures to minimise environmental impact.

### *Measure 3 Site and Premises*

Measure 3 is devoted to improving accommodation needs of businesses in the Region. It recognises that communication networks are a key factor in both the economic and environmental regeneration of the Region and cites improvement to an environmental sustainable transport system as one of the main objectives. The acquisition and reclamation of new and degraded or disused sites is a major part of the Measure. The acquisition and reclamation of land has a lower importance than buildings and premises. Beneficial impacts to landscapes, soils, water resources, cultural resources and local environmental quality are all likely to result from projects under this Measure.

### *Measure 4 Training For Business Needs*

Measure 4 focuses on the training needs of businesses, particularly SMEs. There are no specific references to environmental awareness or environmental skills in this Measure. However there is scope to encourage applicants to add environmental awareness elements to vocational courses, increasing the likelihood that the Measure will have a beneficial environmental impact.

#### **7.1.2 Overall Assessment**

The Priority will have a generally beneficial environmental effect due to elements in Measure 3 which promote site and premise improvements. The inclusion of environmental best practice advice in Measure 1 reinforces this view. The addition of the environmental considerations in Measure 2 (financial assistance) and Measure 4 (training) would ensure that these Measures would maximise the potential environmental benefits under Priority 1.

## Summary of Assessment for Priority 2

Key Principle	Measure		
	2/5	2/6	2/7
Minimise use of non-renewable resources	✓?	✓?	✓?
Use renewable resources within limits of capacity for regeneration	✓?	●	✓?
Environmentally-sound use and management of hazardous/polluting substances and wastes	✓?	●	✓?
Maintain and improve the quality of wildlife, habitats and landscapes	●	✓/x	●
Maintain and improve the quality of soils and water resources	●	●	●
Maintain and improve the quality of historic and cultural resources	●	✓/x	●
Maintain and improve local environmental quality	●	✓/x	●
Protection of the atmosphere (global warming)	✓?	●	✓?
Develop environmental awareness, education and training	●	●	✓
Promote public participation in decisions involving sustainable development	●	●	●
Overall assessment	✓?	?	✓?

## 7.2 Priority 2 Knowledge Based Industries and Advanced Technologies

### 7.2.1 General Comment

Priority 2 is primarily aimed at promoting research and development projects which will lead to economic improvements for businesses in GMLC. Although Measure 7 includes references to 'clean technology', the objectives and descriptions are not generally orientated specifically towards environmental improvement.

#### *Measure 5 Harnessing The Economic Potential Of The Research And Development System*

The Measure is aimed at increasing the knowledge base and expertise which may sustain employment prospects and competitiveness, particularly of SMEs. There are potential environmental beneficial impacts for the research and development projects which relate to environmental technology or environmental protection products, however there is no direct encouragement for applicants to undertake such projects.

#### *Measure 6 Advanced Telecommunications*

The Measure is directed at businesses seeking to exploit advanced telecommunications. The Measure has the capacity to reduce the need for travel and to adversely affect the visual environment. No direct reference is made to environmental issues in the objectives but environmental impacts could still be regulated through the use of selection criteria at the project stage.

### *Measure 7 Training To Meet The Needs Of Business For Research And Development*

Measure 7 seeks to transfer skills developed in research and development to business applications particularly in new technologies, clean technologies, telematics, and technology management. Training in clean technologies is cited as one of the activities which will be assisted under the Measure. Consequently there is a significant beneficial effect under the Key Principle of education and training. Specific commitment to environmental improvements within other activities would strengthen the beneficial effects of the Measure.

#### **7.2.2 Overall Summary**

Whereas Priority 2 contains few specific environmental benefits it has the potential to influence trainees and those working in research and development through the incorporation of environmental awareness modules and environmental best practice techniques. The increase in clean technology research will have a beneficial impact on the environment.

#### **Summary of Assessment for Priority 3**

Key Principle	Measure		
	3/8	3/9	3/10
Minimise use of non-renewable resources	●	✓?	?
Use renewable resources within limits of capacity for regeneration	●	✓?	?
Environmentally-sound use and management of hazardous/polluting substances and wastes	●	✓?	?
Maintain and improve the quality of wildlife, habitats and landscapes	●	✓?	✓
Maintain and improve the quality of soils and water resources	●	✓?	✓
Maintain and improve the quality of historic and cultural resources	●	✓?	✓
Maintain and improve local environmental quality	●	✓?	✓
Protection of the atmosphere (global warming)	●	✓?	✓
Develop environmental awareness, education and training	●	✓?	?
Promote public participation in decisions involving sustainable development	●	?	?
Overall assessment	●	✓?	✓?

### **7.3 Priority 3 Marketing and Image**

#### **7.3.1 General Comments**

Priority 3 focuses on the enhancement of the Region in the eyes of both potential investors, tourists and visitors. The enhancement is planned to be achieved through strategic marketing techniques, the provision of tourist facilities, and improvements to urban centres. There are direct and positive environmental improvement activities

relating to Measure 10 (Urban Centres) and potential improvement activities associated with Measure 9 (Tourist Facilities)

#### *Measure 8 Strategic Marketing Of The Area*

There are no specific environmental improvement issues relating to this Measure, although the effects of any marketing strategy will have secondary effects which may be significant. Applicants should consider the environment as part of their overall sustainable strategy to avoid adverse environmental impacts.

#### *Measure 9 Provision Of New Or Upgraded Tourist Facilities Including Advice And Information Systems*

Measure 9 seeks to enhance the national and international image of the Region through the development of new or upgraded tourist attractions. The Measure is devoted to encouraging all activities to be 'green' and to have a minimum impact resulting from tourist activities. The objectives of sustainable tourism is likely to result in a beneficial impact on the Region.

#### *Measure 10 Strategic Environmental Improvements*

Measure 10 is directed towards the continued economic regeneration of urban centres in the Region. Specific activities cited in the Measure include improvements to the environment and to the appearance of urban centres, the restoration of city centres, and landscape renewal and reclamation of derelict sites. The activities will have a significant beneficial impacts on a number of Key Principles. The physical nature of the Measure may result in secondary adverse effects unless developers consider the environmentally sensitive use of materials and employ environmental best practice techniques.

#### **7.3.2 Overall Summary**

The environmental improvements to urban centres and to existing tourist facilities give the Priority a likely beneficial impact. Details of the way in which development occurs and the nature of the development will determine whether these benefits are significant.

## Summary of Assessment for Priority 4

Key Principle	Measure	
	4/11	4/12
Minimise use of non-renewable resources	✓?	?
Use renewable resources within limits of capacity for regeneration	●	?
Environmentally-sound use and management of hazardous/polluting substances and wastes	?	?
Maintain and improve the quality of wildlife, habitats and landscapes	●	?
Maintain and improve the quality of soils and water resources	●	?
Maintain and improve the quality of historic and cultural resources	✓?	?
Maintain and improve local environmental quality	✓?	?
Protection of the atmosphere (global warming)	✓?	?
Develop environmental awareness, education and training	?	●
Promote public participation in decisions involving sustainable development	?	?
<b>Overall assessment</b>	<b>✓?</b>	<b>?</b>

## 7.4 Priority 4 Community Economic Development

### 7.4.1 General Comments

Priority 4 focuses on the need to promote local regeneration strategies and community based business initiatives. The Priority includes a diverse range of activities, some of which have environmental implications.

#### *Measure 11 Removing Barriers Into Employment And Creating Local Job Opportunities*

The Measure includes a number of capital improvements which have the potential to positively improve the environment including environmental initiatives for local businesses, action to improve accessibility, speed, reliability and the cost of public transport services and physical improvements to public transport and other sustainable transport systems. Although not specifically mentioned, finance to help new businesses may result in the re-use or redevelopment of disused buildings. Specific guidance on the enhancement of the environment through community activities, or the minimisation of adverse effects would clarify the environmental implications of the Measure.

#### *Measure 12 Training For Community Economic Development And Employment Growth*

This Measure is devoted to improving training opportunities within the context of community economic development. There are no specific environmental improvement aspects in the description but the inclusion of

environmental awareness modules in economic development and enterprise training schemes would help to add beneficial impacts to this Measure.

#### **7.4.2 Overall Summary**

The inclusion in Priority 4 of environmental initiatives and the commitment to improve public and other sustainable transport system is likely to lead to beneficial environmental impacts. Selection criteria and advice to applicants should ensure that any adverse effects will be minimised.

The final stage of the appraisal involves an overall assessment of the Programme. Two approaches were used to provide an overview: first an examination of the number of individual Measures which are expected to contribute to benefits or adverse impacts in relation to each Key Principle was undertaken; and second the relationship between the potential for benefits or adverse impacts and the level of expenditure programmed for the relevant Measures was established.

The Priority Level appraisal showed that Measure 3 (Sites and Premises) and Measure 10 (Strategic Environmental Improvements) had the most potential for both adverse and beneficial environmental impacts. Commitments to sustainable transport systems and the general move from degradation to regeneration of disused land and sites should have a beneficial effect on the Region. Where any physical works are encouraged, the type and methods of establishment should also be carefully considered to avoid inappropriate or insensitively sited development. Together, Measures 3 and 10 make up over one fifth (21%) of the Programme and should be seen as a significant influence on the potential of the Programme to influence the environment of GMLC.

Although the UK planning system should ensure that inappropriate development does not take place, the Programme should be able to influence applicants to incorporate sound environmental practices into their proposals. Energy conservation, the use of low impact materials, and careful thought to transport and waste disposal issues would help to ensure that these Measures have a net environmental benefit to the Region.

There are a number of other Measures which would be more likely to have a beneficial effects if specific environmental improvement features were included in Project appraisal criteria. Measure 9 (Tourist facilities), and the three Measures incorporating training initiatives (4, 7, and 12) would benefit from more specific guidance on the inclusion of sustainable development elements. These Measures have the potential to have beneficial impacts, but the precise effects are unpredictable. Together Measures 4, 7, 9 and 12 make up over one third (37%) of the programme.

The remainder of the Measures have limited scope for influencing the environment of the Region. However, the secondary effects caused by R&D, marketing and financing should not be underestimated. All of these Measures would benefit from some guidance, possibly at the project appraisal stage, to help applicants build in environmental improvement features into their proposals.

The overall conclusions of the environmental appraisal of the Greater Manchester, Lancashire and Cheshire Single Programming Document for the second Objective 2 Programme (1997-1999) are that there are clear opportunities for environmental benefits to be extended to the Region from those Measures which focus on regeneration and the reclamation of degraded land and buildings. Many Measures include commitments to sustainable transport and environmental best practice which will have likely though unpredictable effects depending on the nature of the projects which are approved. Some Measures would generate more scope for environmental improvements if requirements were included in guidance at the project application and appraisal stage.





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