Connecting
with the
Environment

Environmental Report 1997

ETNO
EUROPEAN PUBLIC
TELECOMMUNICATIONS
NETWORK
OPERATORS' ASSOCIATION

CONTENTS

ABBREVIATIONS

ETNO	European Public Telecommunications Network Operators' Association
EURESCOM	European Institute For Research and Strategic Studies in Telecommunications
R&D	Research and Development
EMS	Environmental Management System

▼ PREFACE

As the year 2000 rapidly approaches we should pause to consider the sort of future we will be passing on to our children and our children's children.

We are now facing urgent environmental problems that extend beyond national borders - air and water pollution, global warming and the depletion of natural resources. These issues have consequences for all nations and require cross-frontier action. Co-operation and partnerships - particularly in industry - are critical if we are to fully understand the extent of these problems and take steps to rectify them.

I have no doubt that telecommunications can play a major role in reducing environmental damage. It can provide an alternative to physical travel; it can save resources by transferring information, and it can provide the knowledge to act on environmental issues. Having the right information at the right time is critical if we are to have an accurate understanding of the environment at local, national, European and international levels.

Just because its services have the potential to provide environmental benefits does not mean the telecommunications industry can ignore the environmental impacts of its own operations. In fact it places an additional responsibility on the industry to pay attention to these issues. From product waste management strategies to network energy consumption, all kinds of impact must be investigated and reduced.

I welcome this first Environmental Report of the European Public Telecommunications Network Operators' Association (ETNO). As the report shows, there is still work to be done in improving the environmental performance of the telecommuications industry. However, the seeds of future progress have been planted. I urge the industry to pursue more actively the introduction of environmental management systems, the improvement of communication within the companies as well as with the outside world and the integration of environmental considerations into daily business. Through such commitments I am sure that the telecommunications industry can play a significant role in making our future more sustainable.

RITT BJERREGAARD
European Commissioner
with responsibility for the Environment

FOREWORD

This is the first ETNO Environmental Report. Through it we aim to show the combined environmental performance of those ETNO members that signed the ETNO Environmental Charter, as well as some of the initiatives that individual members have instigated.

The signatories of the ETNO Environmental Charter have been working together in a Group for some twenty months and overall a lot has been achieved in this short time. We recognise that whilst telecommunications as an industry is not seen to be significantly harmful to the environment, the sheer size and purchasing power of our members can make a very significant impact.

Despite the growing competition in Europe in the telecommunications sector, we are all aware of the importance of maintaining co-operation in our industry in the area of environmental protection. The sharing of problems and know-how on different environmental issues has already been of great benefit to ETNO members. Over the past year we have particularly concentrated on waste, energy and procurement.

Telecommunications plays a major role in shaping how we live, work, travel, communicate and get information. In this respect we realise the significant influence our industry has on the wider issue of sustainable development and we intend to explore this more fully.

INTRODUCTION

At the first European Conference on Telecommunications and the Environment held in Frankfurt in November 1996, twenty-one members of ETNO signed up to the ETNO Environmental Charter. Together they represent a combined turnover of over 120 billion ECU and more than 190 million access lines. Some new members have joined since then and these will be officially welcomed at the second European conference on Telecommunications and the Environment to be held in Turin on 19-20 November 1998.

As shown in the text of the Charter, the commitment expected from a signatory covers six areas: awareness, regulatory compliance, research and development, procurement, providing information and environmental management systems. To make an impact in these areas there needs to be awareness at the highest level in the organisation. All ETNO members who have signed the Charter aim to have an environmental policy statement, a management board member with specific environmental responsibility and environmental manager(s) with designated responsibility for co-ordinating programmes of continuous environmental improvement. At the time of signing, a number of companies had already met these objectives whilst for others the signing represented the very start of their environmental commitments. Our approach to reporting recognises that many companies do not yet have comprehensive environmental systems in place. As a result most of our current performance indicators are based on the management processes that reflect the Charter obligations. However the number of specific quantified environmental indicators will be increased.

We are among the first to report on environmental performance as an industry sector. As such we have combined the information supplied by ETNO Charter signatories to give an indication of sectoral progress. This report being the first of its kind, there have been difficulties, but we can show concrete results: we all agree that this experience was important and we learnt a lot working together even on reporting. Now that the first step is completed, we feel ready to progress further.

The aggregated information is illustrated with examples of good practice supplied by specific companies. We have tried to take examples from all the Charter signatories and it is important to note that the activities described are often also practised by many of the other companies. Although it is clear that there is much to be done in integrating the environment into our company management systems it is encouraging to report that all of the Charter signatories contributed a full set of data to this report.

We conclude this report with an examination of the issue of sustainable development. This will be a critical issue over the coming years for industry and particularly the telecommunications industry which has such a significant role to play in delivering a more sustainable society.

ENVIRONMENTAL CHARTER OF EUROPEAN TELECOMMUNICATIONS NETWORK OPERATORS

Our Vision

Sustainable development is a strategic global environmental goal. It describes development that takes into consideration the need to conserve both the natural environment and the world's scarce non-renewable resources for future generations. It is our belief that we can play an important part in making this happen. This Charter describes our commitment to sustainable development through:

• the provision of products and services that provide significant environmental benefits; and

• a determination to manage our own operations in a way that minimises negative environmental impacts.

Our Approach

We recognise that the universal presence of telecommunications in today's society places on us a social obligation to be good corporate citizens. A responsible attitude to environmental issues is an important part of meeting that obligation.

As a collective group of companies, our combined turnover represents a significant proportion of European trade and this puts us in a unique position to make a real difference.

Our Commitment

Whether together, or individually, we are committed to continuous improvement through action in the following areas:

1. Awareness

We shall aim to ensure recognition and acknowledgement of all relevant environmental impacts, including the positive and negative impacts of our products and services. In particular we shall build the environment into our training programmes and company communication programmes.

2. Regulatory compliance

We shall strive to achieve full compliance with all relevant environmental legal requirements, and to exceed these requirements where appropriate.

3. Research and development

We shall support research and development into the contribution new telecommunications services can make to sustainable development.

4. Procurement

We shall build environmental considerations into our procurement processes. Special attention will be paid to: energy-consumption, waste management, process and product requirements, the use of hazardous materials.

5. Providing information

We shall provide relevant data and information about our environmental performance to employees, customers, shareholders and governments.

6. Environmental management systems

We shall implement environmental management systems which support the development of appropriate and well-structured environmental protection.

The following companies have signed the ETNO Environmental Charter:

Belgacom, société anonyme de droit public

British Telecommunications plc.

Cyprus Telecommunications Authority

Deutsche Telekom AG

Finnet Group/Helsinki Telephone Corporation

France Telecom S.A.

HPT - Croatian Post & Telecommunications s.p.o

KPN NV

Portugal Telecom S.A.

Rom Telecom S.A.

Slovenské Telekomunikácie ö.p.

Sonera Limited

SPT Telecom a.s.

Swisscom

Tele Danmark A/S

Telecom Italia S.p.A.

Telefónica S.A.

Telekom Austria A.G.

Telenor AS

Telia AB

Türk Telekomünikasyon AS

INDICATORS OF ENVIRONMENTAL PERFORMANCE

The environmental performance of companies depends on a number of internal factors relating to organisation and awareness. The key factors have been identified and the signatories asked to what extent they have already taken the necessary steps. The indicators chosen to demonstrate the environmental performance of ETNO member companies reflect the principal aspects of the Environmental Charter and what were considered to be the major environmental impacts of the telecommunications industry. We intend to report on these indicators on a regular basis with the expectation that year after year we will be able to demonstrate continuous improvement.

Companies operate in different ways, which complicates the collection of harmonised data. For example some operators lease properties, some co-locate with other companies and others own their buildings. The energy management of property is not, therefore, always the sole responsibility of the telecommunications company. In the same way some ETNO member companies out-source some of their needs such as transportation and some subcontract a lot of their work such as maintenance.

1. Awareness

A corporation-wide internal environmentally-focused communication programme raises awareness for all employees of the importance of environmental issues and encourages them to reduce their impacts in line with the organisation's environmental policy. Such a comprehensive programme should be co-ordinated through the corporate environment unit and actively supported by operating divisions.

Awareness: Environmentally Focused Internal Communication
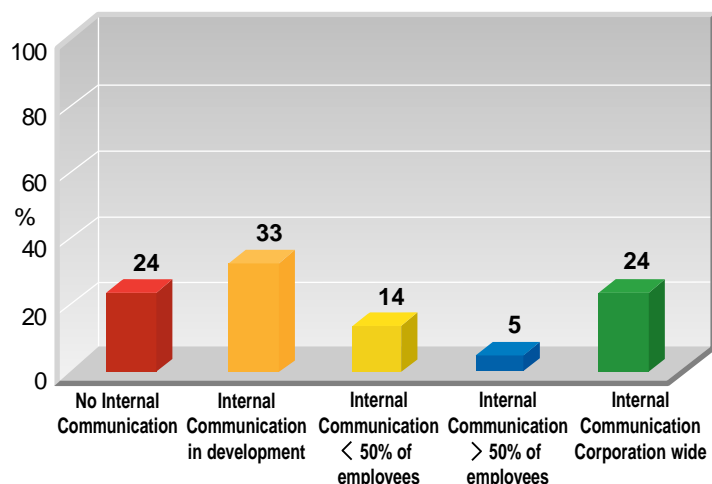
Similarly, a corporation-wide training programme integrates the environment into all aspects of employee training, whether through introductory courses for all, specific courses for environmental specialists or additions to existing training courses.

Awareness: Environmentally Focused Internal Training
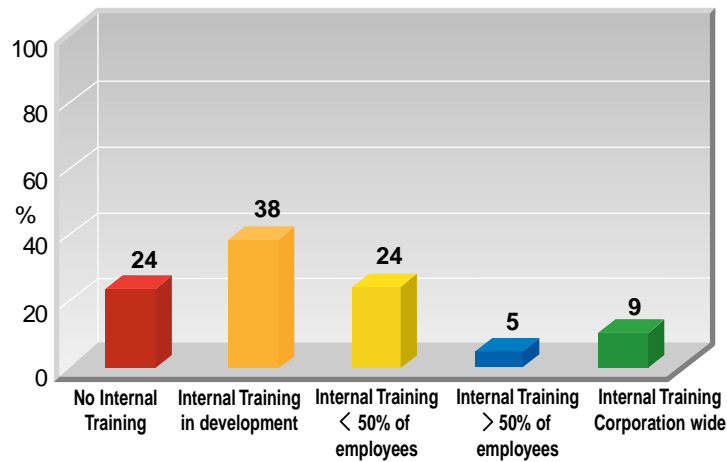
2. Long Term Strategy

The environment is an issue which requires a long-term approach. Short-term "fixes" do not always yield long term benefits. Environmental considerations will be included more and more in the development of new products and services (innovative activities) and integrated into sponsorship and marketing activities.

Environmental Considerations in Innovative Activities
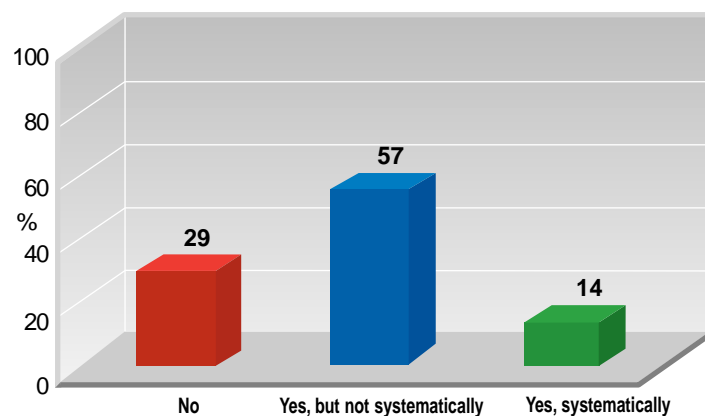
Sponsorship is used here as a term to cover the funding and support of external groups and organisations, and activities undertaken to build overall corporate reputation and not the direct marketing of the company's products and services.

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3. Procurement

Environmental purchasing policies can influence not only direct suppliers, but can have a knock-on effect throughout the entire supply chain. The large spending and purchasing power of the telecommunications industry means that it can have a significant influence in this area.

An environment-focused supplier programme is seen as the integration of environmental factors into the procurement process of an organisation. This kind of environmental co-operation, for example, can take the form of information exchange and co-stewardship agreements.

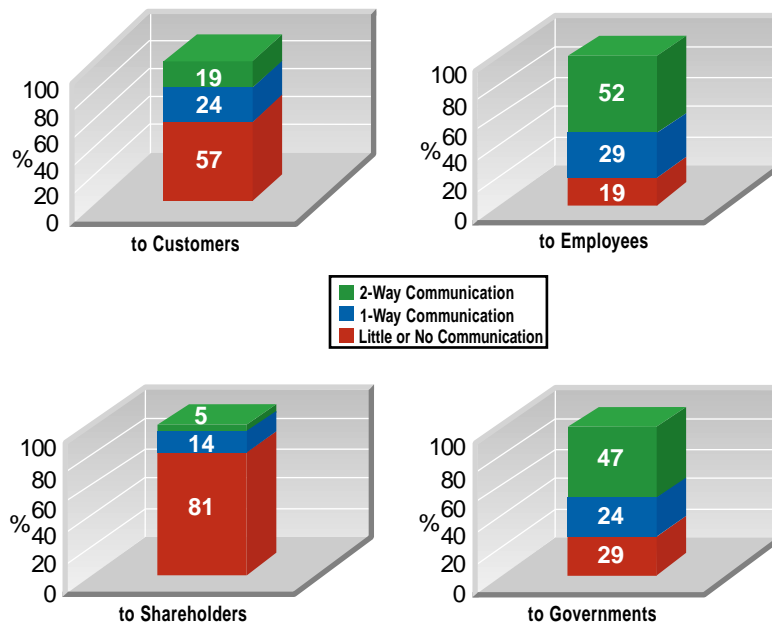### Environment Focused Supplier Programme in Place
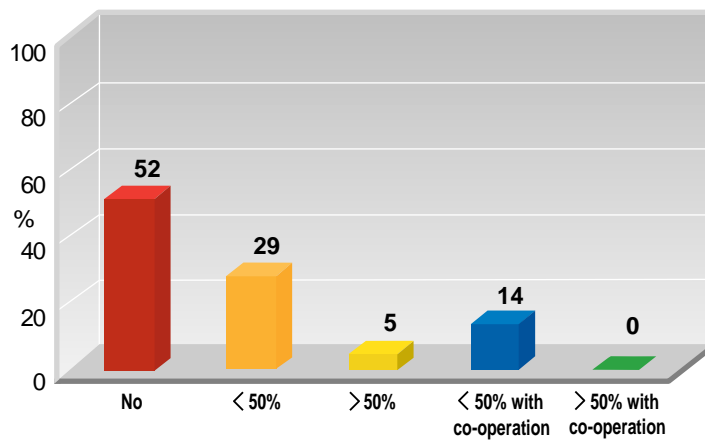
Evaluating the environmental performance of the suppliers helps increase the confidence that not only products are in line with environmental requirements, but also manufacturing processes are managed in an environmentally conscious manner. And the environmental awareness chain extends to other important actors involved in the supply chain.

4. Providing information

It is important to show progress and share targets with those people or organisations who either affect, or are affected by, the activities of the company. This means mainly providing information to and receiving inputs from the main stakeholders, i.e. employees, customers, shareholders and governments.

to Customers

Category	%
2-Way Communication (green)	19
1-Way Communication (blue)	24
Little or No Communication (red)	57

to Employees

Category	%
2-Way Communication (green)	52
1-Way Communication (blue)	29
Little or No Communication (red)	19

Legend:
- 2-Way Communication (green)
- 1-Way Communication (blue)
- Little or No Communication (red)

to Shareholders

Category	%
2-Way Communication (green)	5
1-Way Communication (blue)	14
Little or No Communication (red)	81

to Governments

Category	%
2-Way Communication (green)	47
1-Way Communication (blue)	24
Little or No Communication (red)	29

5. Environmental Management Systems (EMS)

Environmental Management Systems are useful tools for a company to understand its impacts and to set targets for improvement. An external certification can guarantee that the System implemented is compliant with the applicable standard, and testify the company's aim at continuously improving its environmental performance.

Environmental Management System Implementation

- Comprehensive and systematic 14%
- With external certification 5%
- In progress, systematic 29%
- No EMS 52%
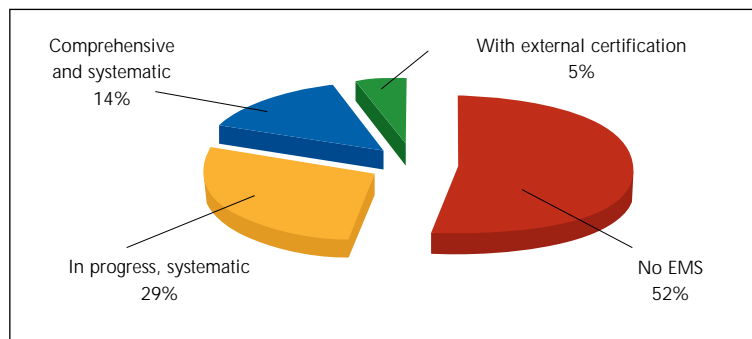
Environmental issues are most effectively managed if a main board member of the company has been given specific environmental responsibility and if the company has an environmental manager responsible for co-ordinating a programme of environmental improvement.

57% of Charter Signatories have a main board member with environmental responsibility.

**71% of Charter Signatories have appointed an environmental manager.**

A corporate policy that outlines a company's main environmental objectives gives a focus and structure to a company's environmental programme. A corporate environmental policy is then needed which should be authorised by the management board and translated into environmental objectives and achievements.

53% of Charter Signatories have developed their own environmental policy. 29% have made it public.

43% of Charter Signatories have translated their environmental policy into environmental objectives.

An internal environmental audit can provide information on aspects of environmental protection that need to be addressed and give an indication of how well environmental issues are being addressed across the company. It should cover all the company's areas and activities that may have an impact on the environment.

Environmental Audit Process

- Corporation Wide 9%
- Coverage >50% 5%
- Coverage <50% 29%
- No 57%
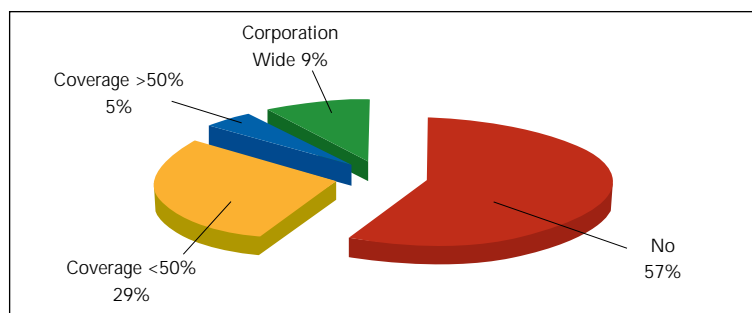
6. Quantitative indicators

Two indicators have been identified, one concerning the consumption of fuels and the other concerning electricity. These provide information about the energy efficiency of the signatories. The normalising factor is total turnover: the overall fuel/electricity consumption of all 21 signatories was divided by their combined turnover, yielding the data below:

The average normalised annual consumption of electricity is 0.094 MWh/1000 ECU.

The average normalised annual consumption of fuels is 2.479 litres/1000 ECU.

The breakdown of normalised consumption by fuel type is as follows:

Diesel	1.603 litres/1000 ECU
Petrol leaded	0.231 litres/1000 ECU
Petrol unleaded	0.606 litres/1000 ECU
Liquefied Petroleum Gas (LPG)	0.039 litres/1000 ECU

The table above includes all fuel purchased directly by the company except fuel used for heating buildings.

ACTIVITIES OF THE SIGNATORIES OF THE ETNO ENVIRONMENTAL CHARTER

The signatories of the ETNO Environmental Charter are involved in various projects pertinent to their operations and the environmental issues prevalent in their country. Below are a range of initiatives from different ETNO members that show how the main areas of the ETNO Environmental Charter are being implemented. Several of the initiatives described are also being undertaken by a few other, and occasionally many other, signatories of the ETNO Environmental Charter.

Awareness

Many ETNO members are developing training programmes on the environment to educate their staff. A proper awareness and understanding by employees of environmental issues that need to be addressed provides the basis for responsible action.

Some members are also using their own communication tools, such as Internet pages, to inform their customers and shareholders about environmental issues.

Telenor in Norway has raised the environmental awareness of its customers by including a free six-page environment guide in all copies of its 1998 edition of Yellow Pages. The guide provides useful information on what people can do in their daily lives to reduce their impact on the environment. It is written in a style that is easy to understand and includes contact details for further information.

Deutsche Telekom has signed an environmental agreement with the German telecommunications industry's trade union to involve employees in the environmental management of the company. A pilot scheme is currently being run and it is envisaged that it will lead to the setting up of 39 environmental committees throughout the country.

Since 1996 **Slovenské Telekomunikácie** has engaged six employees in full-time work on environmental issues. In addition, fifty employees have been given environmental responsibilities as either a half or a third of their duties. Regular training is provided to these individuals as well as up-to-date information on the company's environmental impacts. A process of cascaded training by these people means that ultimately most people in the company will receive some environmental training.

Regulatory compliance

Compliance with environmental legislation is seen by the signatories of

the ETNO Environmental Charter as a basic requirement for all its members. However the legal framework under which ETNO members manage their environmental impacts varies from country to country.

It is felt to be more effective for the industry to pre-empt legislation, and better for environmental protection to exceed legislative requirements where appropriate.

Until the mid-1980s, **KPN** in the Netherlands had its surplus cable material burnt for the copper, lead and iron that it yielded. When it was realised that this was environmentally damaging, the practice was stopped and cable residue was instead put into storage. The company then took steps to reverse some of the damage caused to the immediate surroundings, including a clean-up of contaminated soil. In 1993, **KPN Telecom** and various other cable material disposers signed an agreement with the Dutch authorities for a controlled system of cable disposal.

Until 1985 **Telia** used to preserve its telephone poles with a chemical containing arsenic, copper and chromium. One **Telia** site used for impregnating poles with arsenic in Småland had a tank which leaked and subsequently caused damage to the surrounding environment.
Telia used a novel in-situ technique to decontaminate the soil. This method prevented the costly transportation of earth as well as the dangers of simply moving an environmental problem on to another location.
As a result 25,000 tons of soil was cleaned on site and only 5,000 tons removed as hazardous waste. The site is now being converted into a park and a soccer field and will be taken over by the local municipality.

All of **BT**'s exchanges are electronic and, because they consume energy 24 hours a day, they produce considerable quantities of heat. Like any other piece of electronic apparatus, it is necessary to keep this equipment within a specific temperature range to ensure it operates reliably.
To achieve this, **BT** exchanges have traditionally used air conditioning systems based on a combination of fresh-air and refrigerated cooling.

The manufacturing of the ozone-depleting refrigeration gases used in these air conditioning systems was due to become illegal. **BT** wanted to pre-empt this legislation and to introduce a method of cooling its exchanges exclusively by fresh air whilst at the same time reducing their energy consumption. The company has now achieved both these objectives by working with suppliers to widen their equipment's operating temperature ranges and through the computer-aided redesign of equipment layouts.

Research and Development

ETNO members are engaged in R&D projects, either individually or collectively, which make use of telecommunications for the benefit of sustainable development.

Telecommunications can play a major role in improving the delivery of health care. A number of ETNO members are developing new technologies to facilitate communication in different health services. **Telefónica** has designed a system to enable the quick and easy transfer of medical documents and images between medical experts who are in different locations. This enables fast diagnoses to be made whilst using resources efficiently. The first pilot of this system was carried out between two hospitals in Madrid and is currently in operation in several health centres in Galicia. The social benefits deriving from telecommunications require that services be available everywhere irrespective of the geographical location: the rural areas in Spain are connected to the telecommunications network via a unique access system developed by **Telefónica** which makes use of cellular-like technology, where energy is supplied to the repeaters by means of solar cell panels and wind generators.

BT has developed a number of research initiatives related to sustainable development. For example it is working with schools and universities to examine how telecommunications and information technologies can help develop education, particularly for remote communities.   It also has a research project examining the viability of community networks. These are electronic networks linking local people with local information, and members of the community with one another. Such networks have been seen as a means of strengthening social cohesion, enabling more local participation in the democratic process and promoting local trade.

Electromagnetic fields (EMFs) deserve special attention. EMFs are the basis of wireless communications, and telecommunications makes extensive use of EMF-generating equipment for transmitting and receiving signals. It should always be remembered, however, that electromagnetic fields are generated by all kinds of electrical equipment, including, for instance, household appliances, radio and TV transmitters and industrial electrical hardware.

There is increasing public concern about potentially harmful effects of exposure to EMFs and this has led to the development of a number of widely recognised standards and regulations. All the Signatories recognise the importance of operating within the levels established by these standards.

The World Health Organisation's current position is that from the current scientific literature, there is no convincing evidence that exposure to radiofrequencies (RFs) at the level used in telecommunications shortens the life span of humans, induces or promotes cancer. Nevertheless further studies are needed to reach a comprehensive understanding of the interaction between EMFs and biological systems.

Thus the signatories have committed themselves to keeping up to date with any further developments to make sure that their operations are safe in every place and circumstance.
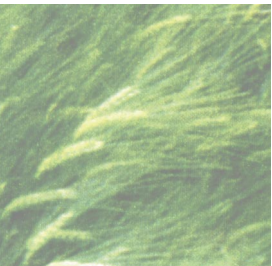
Procurement and Waste

The development of environmental procurement policies can have significant effects on the entire supply chain. Suppliers that have been asked about their products' recyclability, energy efficiency and consumption of resources will, in turn, ask this information about the products and services supplied to them. As large purchasers of equipment, services and materials we are increasingly making sure our suppliers are aware of the importance we place on environmental issues.

The signatories of the ETNO Environmental Charter are working on common formats for undertaking environmental assessments of suppliers and for identifying best practice in waste disposal, as well the development of common positions on waste handling techniques for several specific waste streams.

Telephone Directories use large amounts of paper and at the end of their life represent a significant amount of waste. ETNO members have taken different actions on the issue. Some have involved improving directory design so that they contain less paper, others have sought to make the directories more recyclable, whilst others actively encourage their collection for recycling. **Tele Danmark**, for example, has changed from using a dyed colour paper in their Yellow Pages directories and replaced the glue to enable them to be recycled more easily.

Several members also run schemes for collecting old directories for recycling when new ones are delivered. **Telecom Italia**, for example, now collects over three quarters of its old directories for recycling.

Swisscom is reducing the number of directories it produces by encouraging companies to use compact disks or electronic directories. It also aims, by the end of 1998, to equip all public phone kiosks with the means to access electronic directories.

Over the last few years in France, the enormous increase in the consumption of telephone sets has required the study of specific end-of-life solutions. In **France Telecom** manual dismantling has been chosen because it allows the extraction of polluting components such as mercury contacts and batteries and equally enables a high level of quality to be reached in the sorting of plastic materials and a maximum rate of re-use of materials. This activity of sorting and dismantling on an industrial level employs people who have been unemployed and excluded from the world of work and has proved to be a very efficient way leading to their reintegration.

An advantage of those **France Telecom** telephone sets which are manufactured from one homogeneous recyclable plastic of the ABS type has already been identified. A major French company operating in the field of plastic injection has developed a "woodless" pencil using the

recycled plastic of the telephone sets. Through its wholly innovative aspect, it has been a big commercial success since it was rapidly adopted by teenagers who have turned it into a symbol of their generation.

Providing information

Reporting on a company's own environmental performance is seen as an important stage in a company's life: it is the result of the efforts made in identifying and quantifying all possible environmental impacts, in defining measurements, procedures and corrective/preventive actions to be put in place, and finally in setting targets. Making environmental data available testifies a company's will to recognise its responsibilities and provide information about the improvement of its environmental performance in a clear and transparent form. **BT, Telenor** and **Telia** are already publishing their own Environmental Performance Reports on a regular basis; these Reports are made available to the public and provide a detailed picture of the companies' environmental impacts, activities, results and targets.

BT is now producing also an annual sustainable development report which describes the innovations being introduced by the company that improve quality of life and work towards a more sustainable future.
It also ran a major television advertising campaign that highlighted some of the environmental benefits associated with adopting advanced telecommunications services in the workplace.

Slovenské Telekomunikácie and **SPT Telecom** have developed their own Environmental Performance Reports, intended only for internal use for the moment.

Environmental Management Systems

Environmental Management Systems are very useful tools to check and control the environmental performance of a business. They also provide a means for reacting promptly to new environmental concerns and legislation and for managing continuous environmental improvement through to the meeting targets.

A number of ETNO members are seeking certification to ISO 14001, an international standard for environmental management. **Swisscom** is very advanced in this respect with most of its organisational units already certified and with all remaining units expected to be certified by the end of 1998.

Telefónica Móviles and Telefónica I+D, respectively the mobile telecommunications operator and the R&D centre of **Telefónica**, have developed their own Environmental Management Systems, aiming at having them certified in 1998. **Telefónica** itself has set up an Environmental Control and Surveillance Commission to minimise the potential impact of its

activities on the environment and to examine initiatives that could be introduced to reduce its consumption of energy and natural resources.

During 1997 **Telenor** in Norway undertook an environmental review across the company's business areas and most of its larger support units to ascertain how well the company's environmental policy was being implemented. The review found that whilst there was good progress with recycling and the development of environmental purchasing procedures, further work was needed in spreading information on the company's environmental policy.

To make the right decisions on the management of environmental issues, a company needs to have the right information on its emissions, levels of consumption and impacts.

A number of ETNO member companies have introduced computer information systems as part of their environmental management systems. For example **Deutsche Telekom** has developed a data-base for waste management which enables managers and employees to get any information they require about the company's waste - who produces it in the company, the quantities produced, the legal requirements for its disposal, associated costs and potential financial savings.

The **Helsinki Telephone Corporation**, a member of Finnet Group, has devised a computer tool to analyse and report on different environmental issues in the company such as energy consumption, use of vehicles, packaging and the handling and transportation of waste. The tool is very versatile. It can, for example, show the energy consumption of individual buildings used or owned by the Corporation, the pollution caused by this consumption and the investment required to save energy with the environmental and financial benefits this provides.

Sonera Ltd. is leasing around 1500 vehicles. In order to minimise their environmental impacts, it has developed a computer management system which can calculate the main exhaust emissions in relation to age, model, fuel type (diesel, petrol or electric), fuel consumption and mileage used. The system enables **Sonera Ltd.** to reduce its fuel consumption and emissions.

Swisscom owns some 1,800 buildings. The company records the consumption of heating energy and electricity for most of these buildings. This data is collected and evaluated by a specialist software package. The package has shown that 60% of **Swisscom**'s total electricity consumption is from the company's hundred largest buildings - which together represent only 5.5% of all its buildings. As a result these large buildings have become the focus of a number of energy efficiency measures so that a 20% saving in total electricity consumption can be achieved.
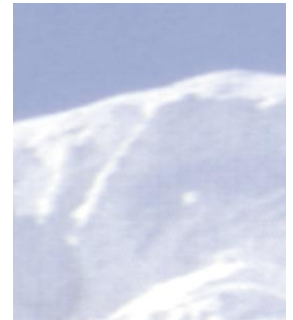
Environmental Impact Reduction

The laying of cables and the siting of external infrastructure such as masts, antennas and telephone kiosks may have an impact on the landscape and the aesthetics of the surrounding environment. Many ETNO members have undertaken specific initiatives to minimise their visual impact.

Every year about 5,000 km of land in Italy needs to be dug up in order to place, replace, maintain and repair underground cables and ducts. **Telecom Italia** has been keen to develop and exploit techniques that do not involve digging up the land so that the historical and cultural heritage of Italian towns and cities is protected, congestion that results from having to divert traffic is avoided, waste is reduced and the landscape is unspoilt. These "no-dig" techniques mean that alternative existing structures that are no longer being used are utilised in place of installing new ducts. Old water or gas pipes are, for example, often used. Where these are not available, the company uses special equipment which tunnels through land horizontally so that once again digging is not necessary.

In 1997 **Telecom Italia** employed techniques that did not require any digging for 200 km of land - an almost 50% increase over the previous year. Over two thirds of the "no-dig" work undertaken in Italy is carried out by **Telecom Italia**.

HPT Croatian Post and Telecom, very conscious of the uniqueness and cultural value of its coastal environment, has introduced a new method for laying fibre optic cables along the Adriatic coast, particularly where connections are needed with offshore islands. The cable route is bored from the land to the submarine point so that there is no interference with the coastal environment.

In some French architectural heritage sites, such as the historical centres of Avignon and Bordeaux, the siting of traditional telephone kiosks near important buildings was refused permission for aesthetic reasons. In response **France Telecom** has created a new style of telephone kiosk that blends more discreetly into the surroundings and occupies a minimal amount of space. The kiosks are also made from durable materials that can be easily reused or recycled.

The proliferation of cellular telecommunications has often imposed a visual intrusion on the countryside, particularly from the siting of radio antennas. Conscious of this, **Telefónica** has devised a means of minimising the visual impact of towers and masts by altering their size, shape, colour and spatial distribution to blend in with their settings. It is, however, never an easy task as there are always technical issues that need to be considered as well as aesthetics.

In the mountain area of Hardanger in Norway, **Telenor** has constructed
a house inside which the base station for the area has been sited,
so concealing its presence. The company has also found a way
in which mobile station repeaters can be made more discreet by placing
the repeater in a pine tree rather than on a mast.

Developing systems that help protect the territory and natural resources is
another challenge to telecommunications: just as an example of the many
initiatives which have been and are being carried out by Charter
Signatories to manage this issue, **Telefónica** has developed a number of
systems for monitoring the state of the natural environment. It has
implemented a system for analysing the quality of Spain's national
waterways network so that there are almost immediate warnings of
serious pollution. The company has also installed a fire detection system
comprising solar powered automatic arrays of infra-red sensors and video
cameras on watchtowers in forest areas. These sensors can detect a
one-square metre fire at a distance of up to 15km, providing both video
images and the exact position of the fire.

SUSTAINABLE DEVELOPMENT
AND TELECOMMUNICATIONS

S ustainable development describes development that takes into
consideration the need to conserve both the natural environment
and the world's scarce non-renewable resources for future generations.

A few years ago the telecommunications industry was not participating in
the sustainable development debate. Simply put, the industry did not see
itself as part of the problem and so did not consider that it could be part
of the solution. Now there is a realisation that telecommunications has a
major role to play in the development of a more sustainable society.
It can provide an alternative to travel, enable the "de-materialisation" of
some products and also contribute to a better quality of life. The major
facets of our daily life - how we work, learn, travel, communicate and get
information are all significantly affected by telecommunications.

In 1996 the final results of a European Institute for Research and Strategic
Studies in Telecommunications (EURESCOM) research project on
sustainable development was published. The report, "Calling for a Better
Tomorrow", examined how operators should introduce and market their
services in order to help bring about the achievement of a more
sustainable society. It recommended that if a pro-active attitude was

adopted, opportunities could be grasped; if a reactive attitude was taken, the industry could find itself always on the defensive. Since then a number of telecommunication operators in Europe have instigated projects looking at how telecommunications can further sustainable development.

Telecommunications means that in some cases the need to travel so often so far can be reduced. Teleconferencing, which is being developed by many ETNO members, enables remotely located individuals and groups to be connected together for a meeting or conference by live sound and sometimes video links. These are often supported by facilities for the immediate exchange of documents, slides and other information.

Electronic mail (E-mail) is developing as a very popular means of communication for both individuals and businesses. Its obvious benefits for sustainability are that transport resources involved in normal postal delivery are avoided as well as the need for paper. It has been calculated that if a quarter of Europe's letter post was replaced by e-mail then half a million tonnes of paper would be saved.

A number of telecommunications products and services are enabling the "de-materialisation" of conventional products. The technology now exists, for example, for answering services to be incorporated into a customer's telephone line, so removing the need for answering machines. This de-materialisation of products has significant benefits for the environment and sustainability. It saves materials and energy by less manufacturing and subsequently avoids waste.

It is important to mention that Telemedicine and Telediagnosis can have a tremendous impact in providing prompt support to those needing assistance in the case of illness or accidents thus eliminating the need to move the patients which often may aggravate the situation and cause loss of precious time.

There are a number of Europe-wide programmes looking at the application of telecommunications for social benefit and sustainability. Some ETNO members are participating in these initiatives and some are developing their own projects. The exchange of information and initiatives on how telecommunications can deliver sustainable development will continue to be a major aspect of the work of the signatories of the ETNO Environmental Charter, and will again be covered in the next Report.

THE WAY FORWARD

There is no doubt that all large corporations will be faced with increasingly tighter environmental legislation. There are two approaches that can subsequently be taken - to react to such legislation as and when it occurs, or to take a pro-active approach by seeking to pre-empt legislation and to work to improve continuously the industry's environmental performance. Within ETNO the question has shifted from "**if**" an environmental pro-active approach should be adopted to "**how**" it can best be achieved.

We believe that collaboration within our industry is key to adopting this proactive stance. The sharing of expertise and experience has been invaluable to ETNO members.   It has accelerated the pace of environmental change and enabled members to learn from each other - from their successes and from their failures.

We are seeking to improve all areas of our environmental performance. The benefits to the environment are clear reductions in the consumption of energy and raw materials; less waste and pollution and overall a more sustainable society. For the telecommunications industry there are also benefits. These include improved efficiency in the delivery of services, financial savings from energy and waste reduction, more effective management systems and the minimisation of future liabilities.

It is important to stress that this first report is a starting point. Some of the performance indicators fell short of our own expectations but we believe that progress in these areas will be seen over the coming year. We also intend in future years to include more quantified data and develop more systems for benchmarking within the industry.

Our policy of continuous improvement also extends to this report. We welcome views on the Report. Our overall intention with this publication is for it to act as a stimulus for further activity. We hope, as a result, to launch over the coming years more joint projects, collaborate on more sustainable development research and welcome more ETNO members as signatories of the Charter.

Hans Kraaijenbrink
ETNO Executive Board Chairman

ABOUT ETNO

ETNO was established in 1992 as the principal trade association for European telecommunications operators. There are currently 44 ETNO members from 33 European countries. Together, these companies represent an aggregated turnover of more than 155,000 million ECUs, more than 265 million access lines and more than 1,100,000 employees. Over 350 million customers have their telecommunications services provided by ETNO Members, with products ranging from basic voice telephony to more sophisticated business communications.

The Association enables its members to develop common policy positions on issues which effect the regulatory and trading environment of the European telecommunications marketplace. It promotes these policies to relevant organisations such as institutions of the European Union and other European bodies.

ETNO also facilitates co-operation and the co-ordination of activities between its members. There are a number of joint projects that are producing common viewpoints. These cover issues including fraud control, numbering matters, frequency management and mobile communications.

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Reference:
The EURESCOM report "Calling for a Better Tomorrow", assessing the potential for telecommunications services to enable the achievement of sustainable development, is available from:
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