



# Environmental review 2001

**responsibly,  
in keeping with  
sustainable development**

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**The Harjavalta plant's environmental management system was certified in accordance with the ISO 14001 standard.**

**No significant environmental incidents were reported.**

**Changes inside the processes at Harjavalta and Pori significantly reduced metal emissions to water.**

**Energy saving projects have progressed according to plan. The programme has led to energy savings of several percent in various areas.**

**Environmental investments totalled EUR 10 million and operating costs EUR 14 million.**

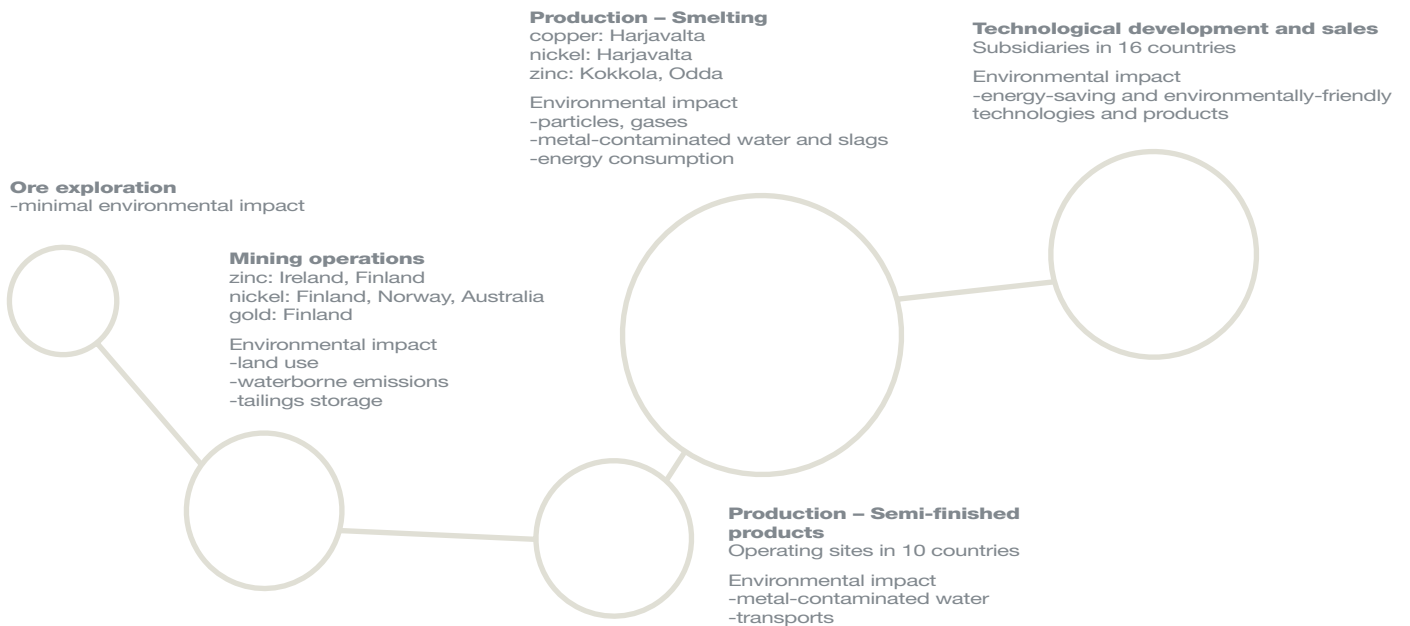
**The Group is not aware of any environmental risks that could have a significant impact on its financial position.**



# Outokumpu

## in brief

**Benchmark in metals and technology.**  
**Outokumpu is a versatile metals and technology group.**  
**It specialises in the production of metals and metal products as well as in metal technology, and it sells and markets these worldwide.**



### Environmental achievements for 2001

- At the Kokkola zinc plant the isolation project of the jarosite storage facility received the Finnish Engineering Award, which is presented every year by the Association of Finnish Civil Engineers (RIL). The technique to dig the channel for the cut-off wall and to connect the 9-metre high plastic panels to isolate the 60 hectare facility was first time applied in Finland. The project is an excellent example of how an extraordinary solution can be used to achieve the required safety level for landfills.
- Using a new heat exchanger, the air supplied to the Pyhäsalmi mine can be heated from temperatures as low as  $-20^{\circ}\text{C}$  using nothing more than the heat of the mine water. The project exceeded expectations, which were planned for  $-15^{\circ}\text{C}$ . This is an outstanding example of new energy and fuel-saving solutions.
- The Harjavalta plant's environmental management system was certified in accordance with the ISO 14001 standard. Certification was granted in the autumn of 2001.
- The Pori plants' environmental management system was updated to meet the revised EMAS regulation.
- Changes inside the processes at Harjavalta and Pori plants have significantly reduced the level of metal emissions to water.

### Output of main products

#### Copper Products

<b>Fabricated copper products</b>	<b>...406,300 tonnes</b>
<b>Rolled products/Laminados</b>	
<b>Oviedo-Córdoba 50% <sup>1)</sup></b>	<b>..... 17,900 tonnes</b>

#### Metallurgy

<b>Zinc <sup>2)</sup></b>	<b>.....357,200 tonnes</b>
<b>Blister copper</b>	<b>..... 169,300 tonnes</b>
<b>Cathode copper</b>	<b>..... 115,500 tonnes</b>

#### Mining

<b>Zinc in concentrates</b>	<b>..... 166,300 tonnes</b>
<b>Copper in concentrates</b>	<b>..... 11,600 tonnes</b>
<b>Nickel in concentrates</b>	<b>.....26,300 tonnes</b>
<b>Lead in concentrates</b>	<b>.....27,400 tonnes</b>

<sup>1)</sup> Share of production in accordance with Outokumpu's ownership interest.

<sup>2)</sup> Norzink AS included as of April 1, 2001.



## **Outokumpu and the environment in 2001**

**Changes occurring within the Group also have an impact on environmental matters. Due to the formation of the AvestaPolarit Group, Kemi-Tornio environmental matters were no longer included in Outokumpu environmental files. However, professional co-operation and information exchange with the Group and AvestaPolarit domestic environmental experts continued as before. Norzink acquisition strengthens Outokumpu's zinc business.**

### **No serious environmental incidents were reported**

Drafting of an environmental management system was begun at the Pyhäsalmi mine and Outokumpu Norzink (Odda) plant. Certified or registered environmental management systems are in use at Outokumpu's seven operating sites.

The Harjavalta plant has a joint water treatment process together with other companies at the site. Due to emissions from the copper smelter's anode foundry and occasional leakages from the neighbour company's nickel plant, copper and nickel emissions exceeded limits for two quarters. Environmental authorities approved the proposed measures to be taken without exacting any penalties. A report on the off-gas cleaning system of the Pori copper foundry was requested.

Water treatment programmes continued at Harjavalta and Kokkola. The water recycling system constructed for the

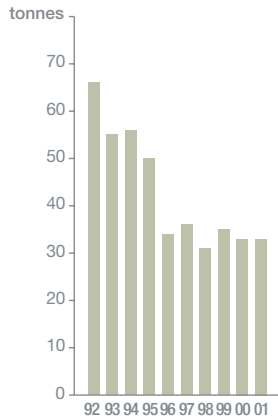
Harjavalta anode foundry will effectively eliminate water-borne copper emissions. The drainage system at the Pori site was renovated and process waters were contained in a closed circuit system and purified, thus reducing emissions.

Last year, a leak from the tailings storage basin into the groundwater was reported at the Hitura mine. The leak was ceased by an embankment sealing.

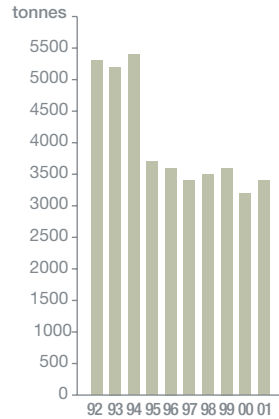
The final height of tailings storage basin A at the Pyhäsalmi mine was reached and the reclamation and landscaping work was completed.

The environmental impact assesment procedure of Outokumpu Harjavalta Metals' Harjavalta smelters and Pori electrolytic copper refinery expansion project were completed. The expansion of the slag storage facility at Harjavalta is being designed with sufficient capacity for the next few decades. In Pori the environmental impact assesment involves increasing the level of production

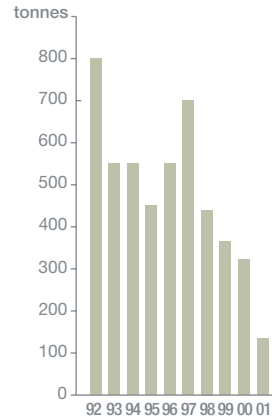
**Metal emissions to water**  
(copper, nickel, zinc, lead, arsenic)



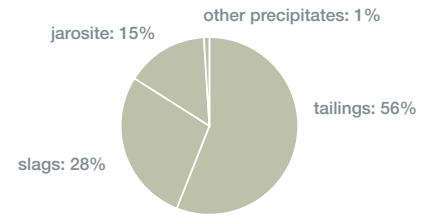
**Sulphur dioxide emissions**



**Particle emissions to air**



**Waste and tailings stored in Finland in 2001**  
(total: 1.76 million tonnes)



The information excludes Stainless Steel operations as of 2001.

and the treatment of the soil from the construction site at the plant.

Energy-saving programmes have progressed according to plan. Pori plants have also joined the voluntary energy-saving programme. Energy savings of several per cent have been achieved.

In Finland, Group electricity consumption (not including AvestaPolarit) was 1.5 TWh or just under 2 per cent of the total electricity consumption in Finland.

**Emissions**

Group emissions remained at nearly the same level as last year.

AvestaPolarit Group emissions data is not included in Outokumpu's environmental review for 2001.

The presence of new Outokumpu Group companies increases emissions data.

The situation in Kokkola was exceptionally good, with metal emissions to water down 66 per cent from the previous year. In Harjavalta copper and nickel emissions limits were exceeded in two of the quarters during the year. Emissions to air at Harjavalta remained the same as those reported last year.

The water treatment programme initiated in Tornio in 2000 has reduced emissions to levels well below even the coming new limits in 2004.

Some of the Group's subsidiaries exceeded permit limits slightly on a few occasions; no other particular changes or incidents were reported.

Carbon dioxide emissions amounted to approximately 136,000 tonnes (in Finland approx. 122,000 tonnes), sulphur dioxide emissions 3,400 tonnes, metal emissions to water 32.6 tonnes and particle emissions approximately 134 tonnes. In Finland 2,200 tonnes of hazardous waste was processed.

**Accidents**

Development has been good, even though the goal of halving the number of accidents was not achieved. The number of accidents was reduced by approximately 23 per cent compared to the average of the preceding five-year period. Work continues to achieve the goal and the zero-accident target.

Now completed, the Group occupational safety video presents typical workplace accidents. A special theme will also be prepared for 2002, in which 'close-call' situations are addressed, where by examining and learning from them, a programme of accident prevention can be realised.



## Outokumpu and society

**Outokumpu's core values include responsibility for the ecological environment and participation in the activities and development of the surrounding society.**

### **Legislation**

Numerous national and EU environmental laws were put into force during 2001. New waste regulations and classifications will result in additional costs in the near future, due to new technical requirements.

Group experts have been actively involved in ongoing legislative efforts, such as preparations and commentaries on the Mining Act, Water Act, air protection regulation and soil issues in Finland and abroad. Our experts have served as members on European Commission task forces, such as for the preparation of sustainable development indicators and technical descriptions.

### **Permit conditions, environmental incidents and responsibilities**

All Outokumpu Group operations hold valid necessary permits.

Appeals have been filed with the Finnish Supreme Administrative Court concerning waste interpretations in decisions issued concerning mines under the old waste Act. Further, the

Supreme Administrative Court has referred to the European Court of Justice for a preliminary ruling on the interpretation of the EU Directive on Waste. New permits according to the new Environmental Protection Act have not yet been given. A number of mines are currently in the process of renewing their water permits. Applications for environmental permits complying with Finland's new Environmental Protection Act are being made in cases where significant changes are being planned for operating sites. If no changes are necessary, the law stipulates that all operating sites must submit their permit applications by no later than the end of 2004.

Outokumpu is a partner in the Arctic Platinum Partnership. An environmental impact assessment procedure of its platinum-palladium mine project has been initiated.

### **Legal proceedings and indemnities**

The soil contamination case of PGT, a small electronics company purchased in the United States in the 1980s, still continues ten years after the case was filed, because an official ruling on the cleaning method employed has not yet been made.

In Pori studies on eliminating soil contaminants from the plant area were continued. Measures will be taken in connection with the electrolytic copper refinery expansion project and other construction works.

The Tornio Police Department closed the preliminary investigation begun in 2000 on possible violation of the Finnish-Swedish Frontier River Treaty.

In Norway a court case concerning the final level of compensation for fish stocks at the closed Grong mine is currently in trial.

*The Group is not aware of any environmental risks that could have a significant impact on its financial position.*

### **Environmental investments and costs**

Environmental investments amounted to approximately EUR 10 million and operating costs approximately EUR 14 million. As there is no standard practice for cost calculation, the totals given are estimates.

EUR 100,000 in environmental-based compensations were paid out. The largest single claim was Harjavalta's EUR 72,000 compensatory payment to forest owners for the years 1996–2000. The basis for the claim is the estimated reduced forest growth caused by old emissions. In Norway the Odda zinc plant was required to pay NOK 4 million in fines for the 1999 release of mercury. As per agreement, the fine was paid by the former owners of the company.

### **Environmental communications and training**

Outokumpu tied for third in a national environmental and social responsibility report competition for its outstanding, balanced use of media.

Outokumpu commissioned a translated Finnish version of the International Council on Metals and the Environment (ICME) publication *A World of Metals* and a print run of 3,000 issues. *A World of Metals* and environmental report 2000 have been widely distributed among interest groups. They have also been used as study materials in a number of educational institutions and universities.

Outokumpu experts participated in the development of a database of environmentally-friendly procurement practices in a project organised by Efektia Oy, a consulting and research company owned by the Association of Finnish Local and Regional Authorities. The database, HYMONET, was launched in June.

A training session for Outokumpu HYMONET updaters and users was held in Pori.

The Group's domestic environmental experts convened twice. Several small task forces were formed to address various issues.

Social responsibility was also addressed in Group publications as well as in the task forces. Operating sites worked in co-operation with local educational institutions (Pori, Kokkola, Tara). Harjavalta and Pori jointly published a calendar for distribution to interest groups for the second time.

## **Environmental work continues**

**Key developmental projects and programmes for 2002 are particularly targeted to the improvement of water treatment. Below are some examples and main points of Group programmes:**

- Cooling and process water treatment will be enhanced at several sites, for example at the Harjavalta, Kokkola, Pori, Neumeyer, Zutphen, Appleton, Buffalo and Pasir Gudang plants.
- Phase 1 of the Odde plant water collection programme to eliminate diffuse emissions was completed.
- Closure and after-care alternatives for the Hitura mine will be specified.
- At the Tara mine, a description of an environmental risk management system and after-use of the tailings storage areas are being made.
- The complete prevention of occasional oil emissions at manufacturing plants requires additional measures.
- A standardised environmental management system is being built at the Odde and Zaratamo plants as well as at the Tara and Pyhäsalmi mines. Two of the above are expected to have the system ready by the end of 2002.
- The Group's joint environmental seminar for environmental and communications personnel will be held in May 2002.
- Energy-saving programmes are being continued at production sites.

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