ICSG
Project Report

Survey of Environmental and Social Reporting Practice in the Copper Fabricating Industry

October 2002

Notice: The information contained in this document is intended to provide an overview of the current situation in environmental and social reporting practice, as it affects the copper industry. This paper is provided for reference purposes only. References to sites, companies, and agencies are for information purposes only.

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1 Executive Summary

Environmental and social reporting to the general public plays an important role in communicating sustainable development performance to stakeholders. This review focuses on the existing environmental and social reporting practice in the copper fabricating industry. The previous published first part deals with the reporting practice of companies operating mines, SX/EW-operations, smelters or refineries. This second part covers major companies operating wire rod plants, brass mills, wire mills and cable plants.

The review of the copper fabricating industry shows that - besides client and shareholder-oriented quality and financial policies - environmental commitments claim some importance in world-wide wire rod production and cable fabrication, followed by health and safety policies, community relation policies and legal compliance statements. Due to the abundance of small and medium-sized operations, the large number of privately owned small companies and the less integrated nature of brass and wire mills, environmental and social commitments are less frequently published in the case of brass and wire mill operating companies. Reporting on health and safety issues, community relationship, supply chain management (procurement) and product stewardship is even less frequent. Besides some exceptional cases of sectoral leadership existing reports scarcely address issues concerning the concept of sustainable development, supply chain management upstream (procurement) or product stewardship concepts downstream. This is not to say that the fabrication sector does not have such policies, as many companies may have, but do not publicise the fact.

Following the stock-take of existing reporting practice, an analysis of scope, coverage and contents of reports has been carried out. Afterwards, preliminary conclusions have been drawn from the survey results (see Chapter 6). The draft report will be circulated to experts for comments including key companies and associations. It should be noted that the report is generic in nature and do not identify specific companies or countries.

It is evident that the responsibility for addressing issues identified in Chapter 6 does not lie solely with the individual companies. Some of them might be best addressed by companies or by associations in form of a progressive buy-in at different speeds considering regional and sectoral priorities and circumstances. Furthermore, many of these issues need to be tackled to varying degrees through individual companies, industry associations or third party or

governmental initiatives. In particular, issues regarding the increase of credibility and acceptance as well as the definition of issues to be addressed within a "Sustainable Development Report" require the involvement of industry associations, governments and other stakeholders. Existing voluntary initiatives can provide companies with guiding frameworks for further improvement of their environmental and social reporting practice.

In the last decade, stakeholder pressure was mostly focused on major mining and smelting operations due to the visible nature of impacts and benefits. Considering the size and structure of the downstream fabricating industry and the "invisibility" of many intermediate metal products in the final end use product, impacts and benefits of fabrication have not drawn stakeholder attention such as in the case of the upstream industry. In the forthcoming years, it is likely that this may change. On the one hand, the introduction of technical, organisational and communication-oriented tools and measures have prevented or mitigated many obvious adverse impacts of mining and smelting activities. On the other hand, in the light of increased "life cycle thinking" particular emphasis will be placed in the future on issues regarding product design, use and recycling. The emerging concepts of sustainable development and product stewardship demand the collaboration of upstream and downstream companies.

Aiming at maintaining or improving public perception of the copper industry as a vital component of every sustainable modern community, both upstream producers and downstream fabricators need reliable and effective management structures and communication tools in place. In this context, extending and improving environmental and social reporting practices within the copper fabricating industry can represent an important step towards sustainable development of the copper industry.

2 Introduction

Environmental and social reporting to the general public plays an important role in communicating sustainable development performance to stakeholders. This survey focuses on the existing environmental and social reporting practice in the **copper fabricating industry**. In Figure 1 a simplified process chain of copper production and fabrication is presented. Whereas the - previously published - first part of this survey covered copper mining, smelting and refining operations, this second part deals with downstream fabrication.

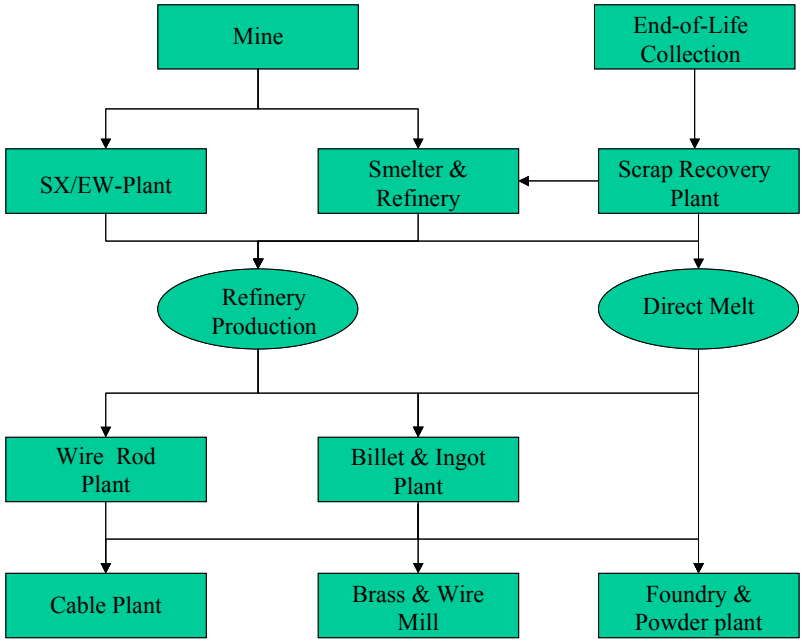


Figure 1: Simplified process chain of copper mining, production and fabrication

Assessing reporting practice within various steps of the process chain of a particular metal requires to take into account differences in size of operations, regional and sectoral circumstances and key challenges associated with unit processes and plants. While moving downstream, increasing emphasis has to be placed on products and their respective impacts in the product life cycle including issues related to product design, product stewardship and product use and recycling. In general, issues associated with the process/mine life cycle such as exploration, development, land use and reclamation claim less importance.

The second chapter deals with the methodical background. Afterwards, facts and figures on the sector of copper fabrication are present. Following this, results of the survey are highlighted in chapter 4 and, finally, conclusions are drawn in chapter 5.

3 Methodical Approach

3.1 Scope

The survey was carried out in form of a **web-based study**. The **reference year** for all figures and reports is the year **2000**. The survey covers currently operating major wire rod plants, brass and (mechanical/winding) wire mills and (energy & communication) cable plants operating companies. Billet and ingot makers, foundries and powder plants have only been included if they form part of surveyed wire rod plants or brass and wire mills operating companies. **System boundaries** of this survey cover mainly the "Western World" (Latin and North America, Western Europe, Southern and Central Africa, Oceania and South Asia). With respect to the "Eastern World" (Eastern and Central Europe, CIS and China), only major copper fabricating companies offering Internet sites or reports in English have been included in the survey (e.g. Jiangxi/China, Kazakhmys/Kazakhstan, Impexmetal/Poland). Production sites in the "Eastern World" managed by Western companies have been included, if homepages or reports are available in the public domain (e.g. Zhongshan/China (Outokumpu), Shanghei/China (Wolverine Tube)).

A large number of companies are considered to be small and medium-sized enterprises. Recognising the need for effectively reducing time and effort for carrying out the survey, a clear and transparent cut-off criteria in terms of annual production is required. Therefore, while aiming at analysing the world coverage of reporting practice, the **cut-off criteria > 10,000 t/a** metal content in the fabricated products is introduced for companies operating or holding a stake in wire rod plants, wire mills, brass mills or cable plants. Producing sites with a production less than the cut-off criteria are included if they belong to a large metal producing company that actually reports on these sites, as well.

3.2 Sources of information

According to Figure 2, the principal source of information has been the Internet (homepages of companies). In total, a number of 59 wire rod producing companies, 81 brass and wire mill operating companies and 31 cable plant operating companies have been analysed with respect to their environmental and social reporting practice. Note that a number of companies hold stakes in various types of operations – wire rod plants, brass mills, wire mills, cable plants -

producing different types of intermediate products around the world. The annex (Chapter 7) provides a not exhaustive list of selected best practice corporate reports ([Elektrokoppar, 2001]; [Boliden, 2001]; [Pirelli, 2001]; [SEI, 2001]).

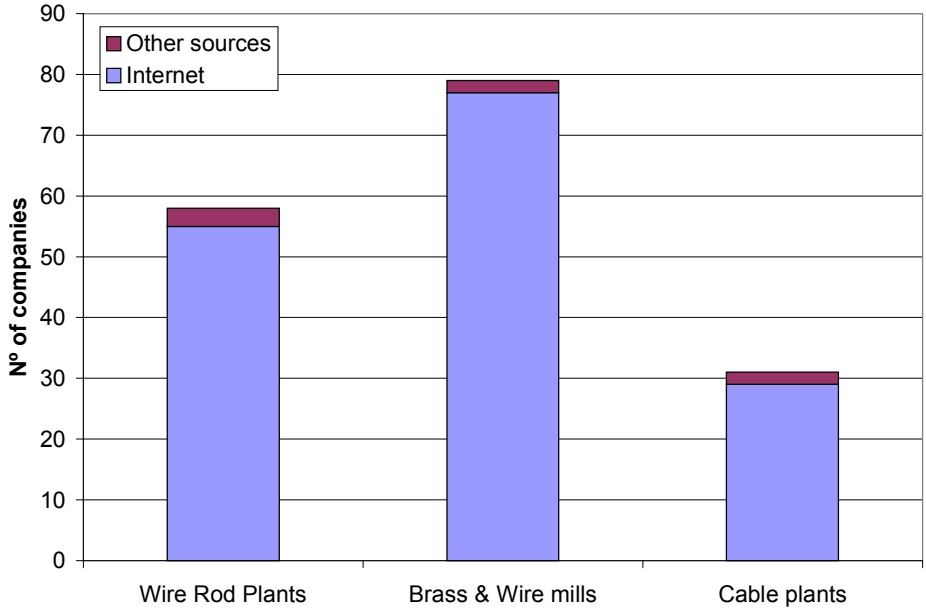


Figure 2: Number of addressed companies and sources of information

Those companies that do not have a company homepage or do not distribute hard copies of reports (but may as well report to industrial associations, official institutions or government agencies, which do not publish these results) are considered to be "non-reporting companies" for the purpose of this exercise due to the lack of information in the public domain.

It is worthwhile mentioning that this survey only deals with reporting practice and **does not address actual management practice**. This means that non-reporting companies may as well have appropriate management programmes or other measures in place, but, as they currently do not report on these issues, these actions are not included in the survey results.

3.3 Coverage of the survey

The copper fabricating industry is a highly diversified industry sector with both major integrated global players and regionally operating small and medium-sized enterprises. Current structure of ownership and semis production can be obtained in various ways. Besides consulting respective company homepages site-specific capacities and production figures can be drawn out of the periodically published directories of the International

Wrought Copper Council [IWCC, 2000] and the World Copper Databook [WCD, 2001]. These data have been complemented with papers and articles published in the Metal Bulletin Monthly [MBM, 1998 – 2001], in the CRU Copper Studies series [CRU, 1998 – 2001], in the CRU Copper Monitors [CRU, 2001a; CRU, 2001b] and in the Copper Briefing Service of Bloomsbury Minerals Economics [BME, 2001]. For many - especially small and medium-sized - companies current production of wire rod and semis has not been available for the reference year 2000. For those companies or sites where no production data are available, current production is estimated on a site-by-site basis using country-specific production data and site-specific capacities while assuming a country-specific rate of capacity utilisation.

Based upon the aforementioned sources and assumptions close to 100 % of world wire rod production, more than 85 % of global brass and wire mill production and over 75 % of cable plant production could be identified and attributed to respective companies. From these figures, it can be calculated that companies covered by this survey accounted for 75 % of world wire rod production, 62 % of global brass and wire mill production and two thirds of global cable production in the reference year 2000. These assumptions are based on total wire rod production for the wire rod plants [CRU, 2001a], total energy and communication cable production for the cable plants [CRU, 2001a] and total semis production minus cable plant production for brass and wire mills [ICSG, 2002; WBMS, 2001].

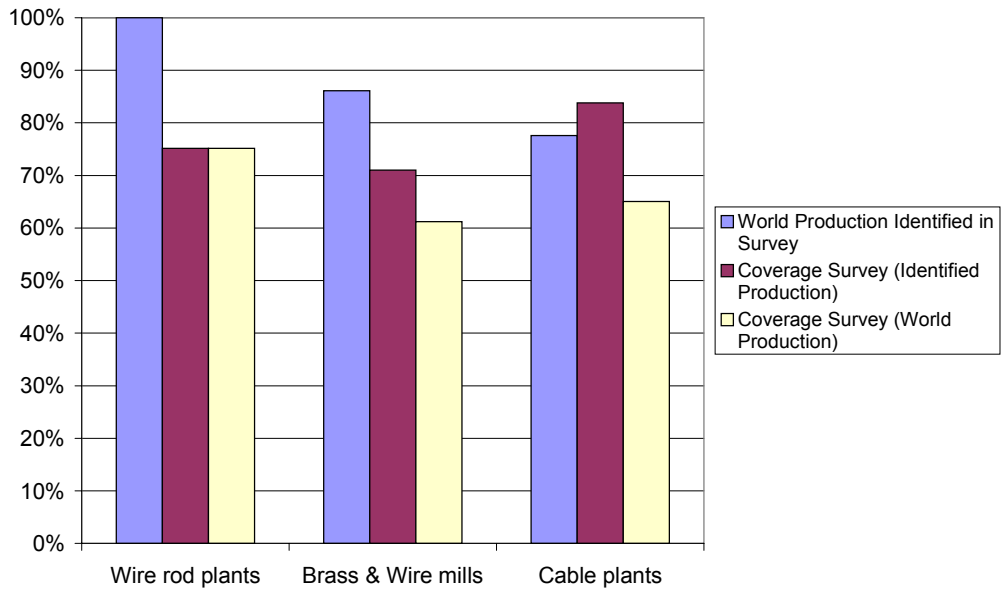


Figure 3: Coverage of the survey of reporting practice in the copper fabricating industry

4 Sector Analysis of Copper Fabrication

4.1 Copper Fabrication in 2000

Selected figures on copper semis production in the year 2000 are presented in Table 1 and Table 2. Calculated from world refinery production, direct melt and apparent usage fabrication of semis amounted to 20.3 Million Tonnes of gross weight. Please note that these figures rely only partly on official country statistics and include preliminary estimations.

For the purpose of this survey an important distinction is made in wire rod plants (wire rod), brass mills (strips, sheets, plates, mechanical wire, rod, bars, sections, tubes, and pipes), wire mills (magnet/winding wire) and cable plants (energy and communication cable). Products from foundries and powder plants that are operated by brass mill companies have been included in respective brass mill production.

Table 1: World copper refinery production and usage in the reference year 2000

Product type	**Gross weight in 2000**	**Source of information**
World copper refinery production	15.3 Mt	[ICSG, 2002]
Direct melt	5.0 Mt	[ICSG, 2002]
Total usage (semis production)	20.3 Mt	[ICSG, 2002]

Table 2: World copper semis fabrication in the reference year 2000

Type of copper semi	**Fabrication in 2000**	**Source of information**
Wire rod (intermediate product)	11.1 Mt	[CRU, 2001a]
Brass mill products, mechanical wire, castings, forgings, powders, etc.	10.6 Mt	[ICSG, 2002]
Winding Wire (Magnet wire)	1.9 Mt	[CRU, 2001a]
Energy and telecommunication cable	7.8 Mt	[CRU, 2001a]

4.2 Commodities

On the basis of detailed country statistics [ICSG, 2001; IWCC 2001; WBMS, 2001] and company information 19.5 Million Tonnes of worldwide semi-fabricated copper products could be identified. The remaining 0.8 Million Tonnes of semis (see Table 2) can be mostly attributed to South-Eastern Asia and Eastern Europe, for which product specifications are only partly available. Figure 4 illustrates the share of each major commodity group.

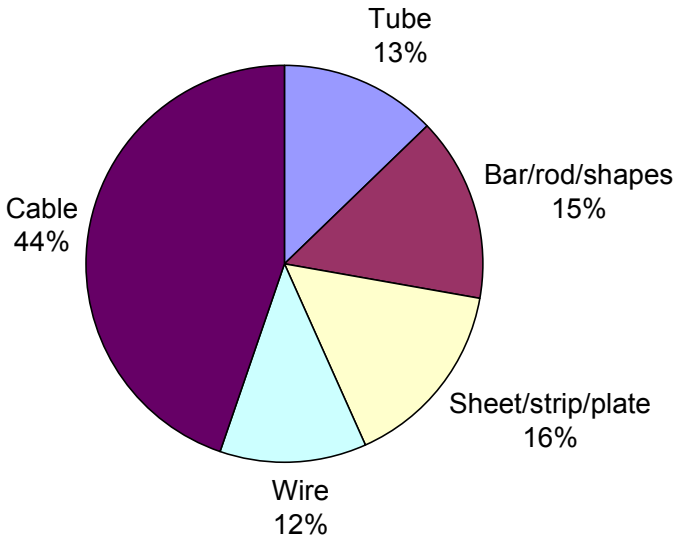


Figure 4: Share of major semi-fabricated copper products in the reference year 2000

4.3 Sector Concentration

Close to 35 % of wire rod production derives from sites attributable to the Top 10 fabricating companies (see Figure 5). The Top 10 companies of brass and wire mill production account for one third of overall production. The level of concentration of the Top 10 cable producing companies is significantly higher and can be estimated to close to 42 %.

4.4 Sector Integration

Sector integration reveals to what extent the supply of raw materials is managed and controlled by the subsequent step of the process chain. Figure 6 illustrates that almost half of wire rod production can be attributed to integrated refinery operating companies. The brass and wire mill producing industry is significantly less integrated than the wire rod producing industry. Around 15 % of brass and wire mill production can be directly related to company-

controlled refinery production. In this case the principal source of raw materials is purchased refined copper or direct melt from scrap recovery. A share of 60 % of global cable production derives from company-owned wire rod plants.

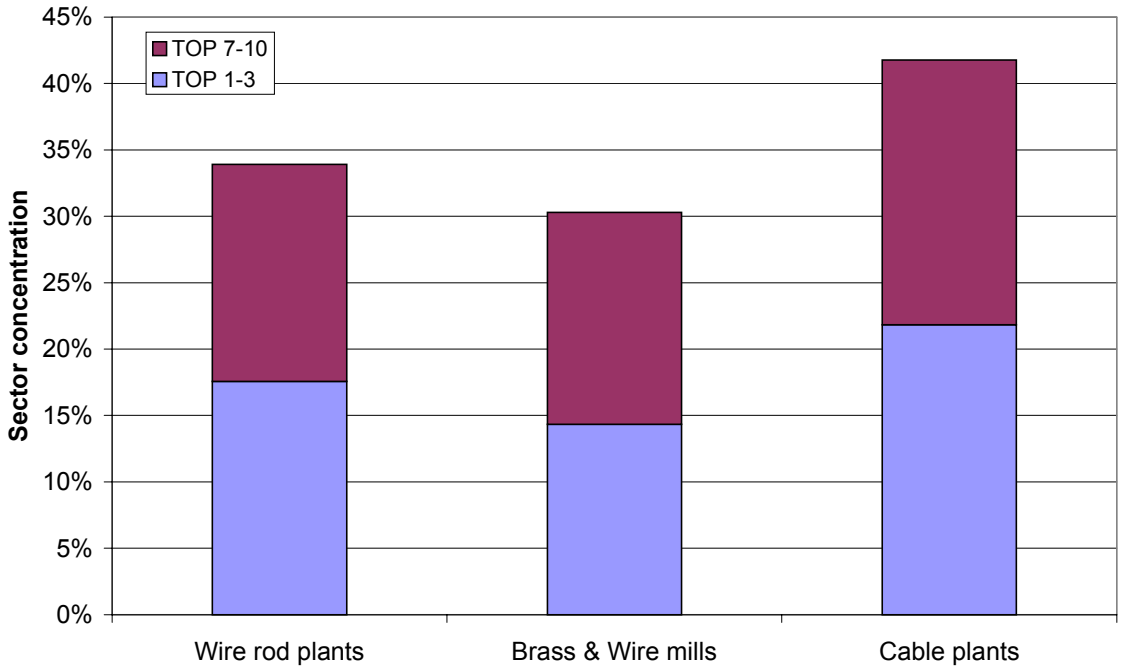


Figure 5: Sector concentration of the copper fabricating industry in the year 2000

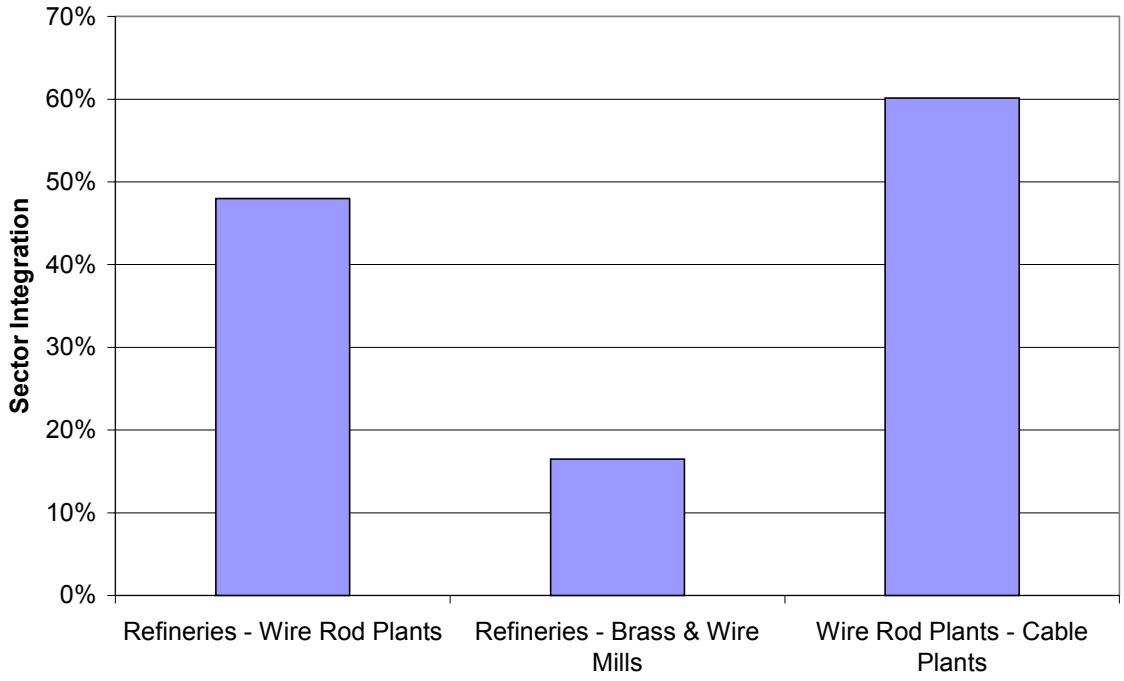


Figure 6: Sector integration of the copper fabricating industry in the year 2000

5 Results of the Survey

In the following, results of the survey of environmental and social reporting practice in the copper fabricating industry are summarised. For the purpose of this survey, we distinguish in the following categories: types of policies/commitments, types of reports, addressed environment and social issues and use of resource and emission indicators.

5.1 Types of Policies/Commitments

Besides client and shareholder-oriented quality and financial policies environmental commitments claim significant importance in worldwide wire rod production (close to 50 % of companies) and cable fabrication (close to 45 % of companies), followed to less extent by health and safety policies, community relation policies and legal compliance statements. Due to the abundance of small and medium-sized operations, the large number of privately owned small companies and the less integrated nature of brass and wire mills environmental and social commitments are significantly less frequent in the case of brass and wire mill operating companies. Almost every third of these companies formulate some sort of environmental commitment or statement on the recognition of importance of environmental issues.

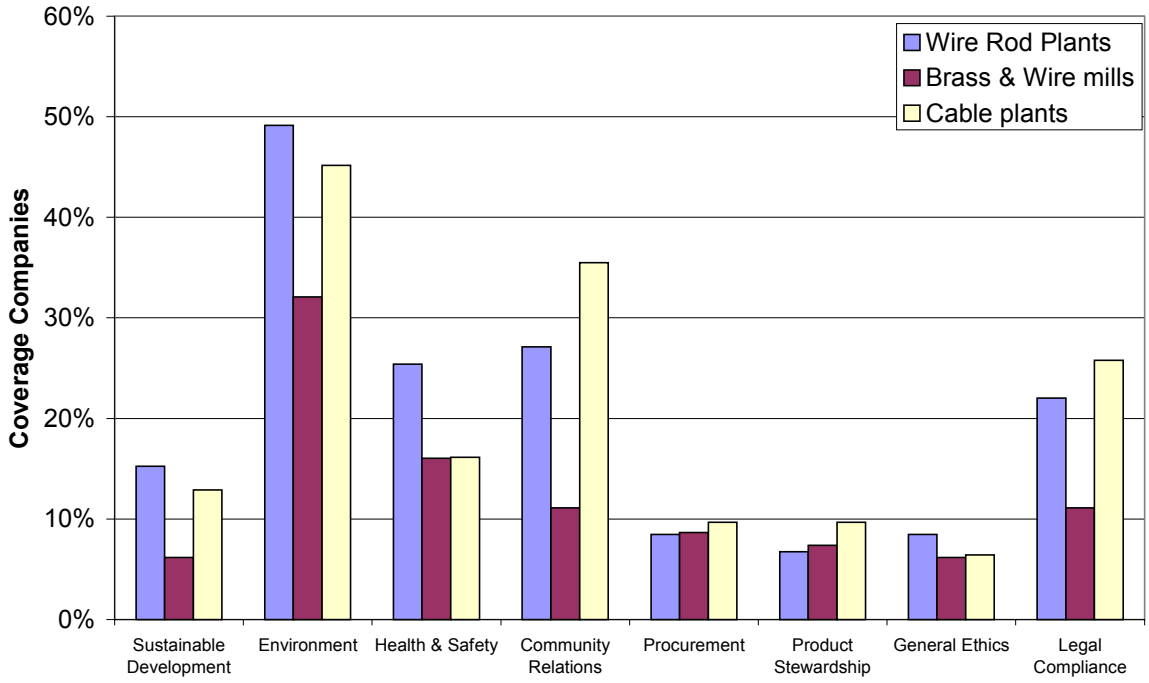


Figure 7: Types of policies/commitments in the copper fabricating industry

5.2 Types and Coverage of Reports

The vast majority of the copper fabricating industry utilises the Internet as key tool for distributing information concerning corporate products and markets. The presentation of investor-related financial information is less frequent in the public domain. Many small and medium-sized companies are privately owned or in hands of a small number of shareholders and therefore not committed to present economic information to the general public.

Some form of environmental reporting is carried out at almost 30 % of wire rod producing companies. Around 15 % of surveyed brass and wire mill operating companies and 20 % of cable producing companies report periodically on their environmental performance using alone-standing environmental reports or integrating this information in their annual reports or their company presentation at respective corporate homepages. The content of existing environmental reports varies between full site-specific assessment data and selected highly aggregated corporate facts and figures on ongoing projects and measures.

Reporting on health and safety issues, community relations, supply chain management (procurement) and product stewardship is even less frequent. Less than 10 % of companies of the downstream copper fabricating industry deliver some sort of information on these issues through their corporate homepages.

Figure 9 illustrates the global coverage of reporting practice including fabrication of not surveyed sites and companies. Besides some exceptional cases of sectoral leadership of some major integrated companies headquartered mostly in Australia, North America, Western Europe and Japan, existing reports scarcely address issues concerning the concept of sustainable development, supply chain management upstream (procurement) or product stewardship concepts downstream.

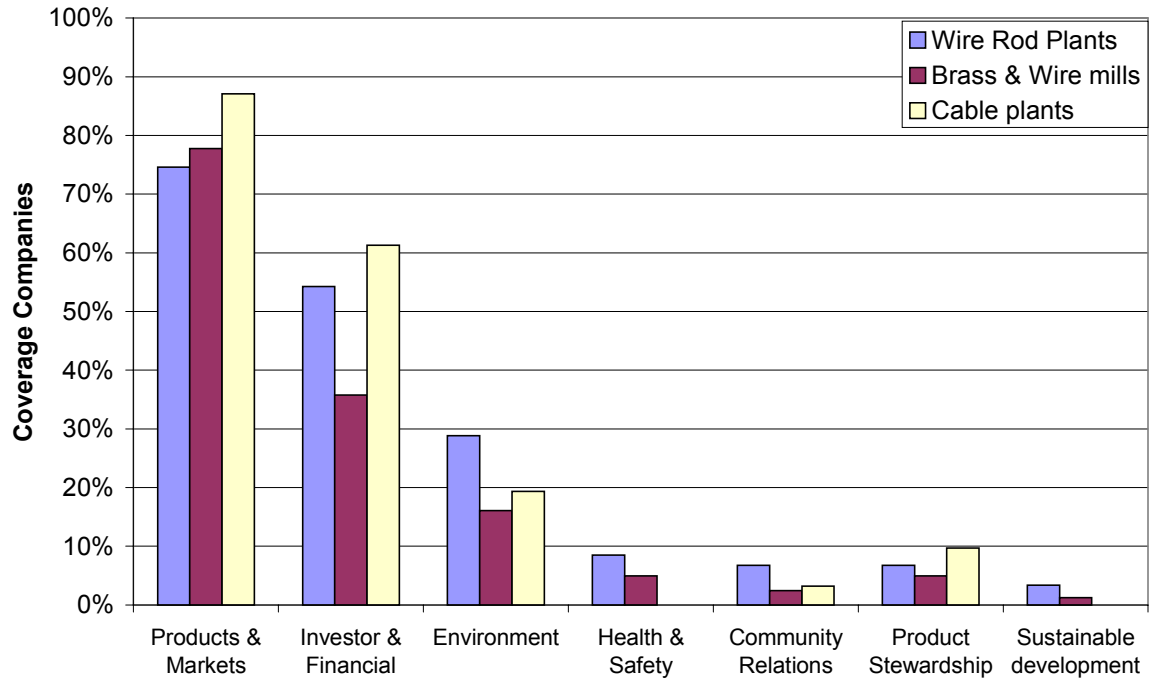


Figure 8: Availability of reports in the (surveyed) copper fabricating industry in 2000

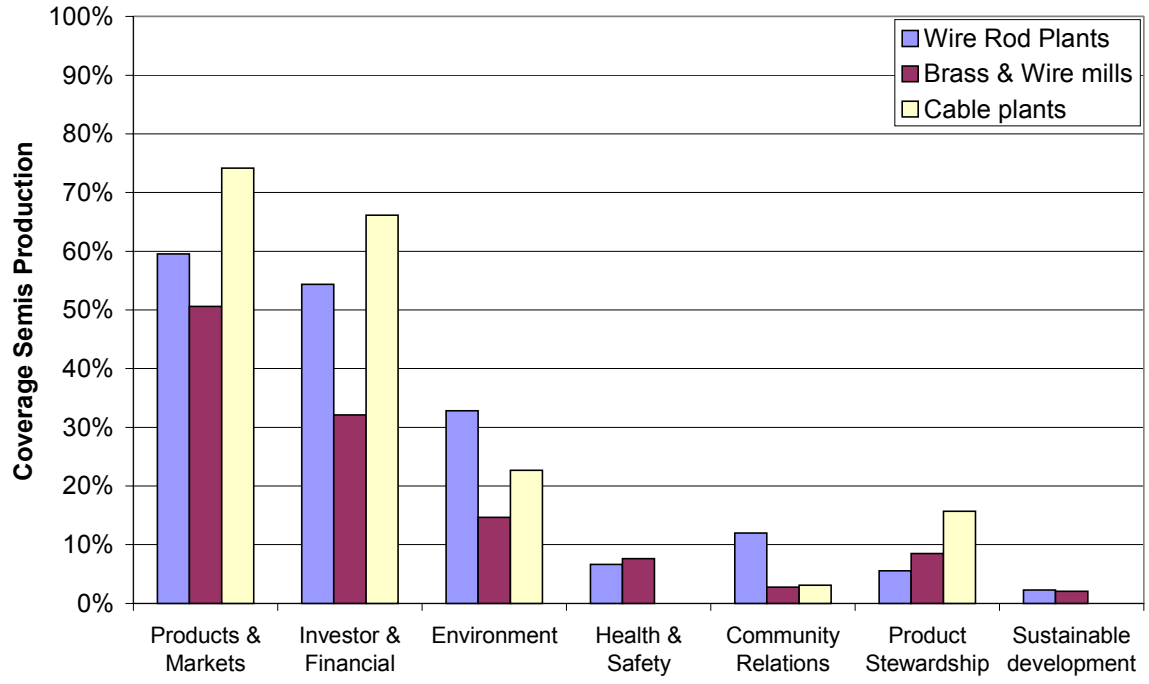


Figure 9: Coverage of global copper fabrication through reporting practice in the year 2000

5.3 Environmental Issues

Although many companies do not provide environmental reports to the general public, some information regarding general environmental programmes and ongoing measures and activities can nevertheless be found on homepages of close to every second wire rod producing companies, of close to 40 % of cable producing company and of almost a third of brass and wire mill operators. Issues regarding water and air emission prevention and reduction as well as waste recycling are most prominent. The recognition of importance of environmental considerations in the surveyed fabricating industry is reflected in existing and currently pursued ISO 14001 and EMAS (Environmental Management System – Ecoaudit) certifications. Close to 20 % of wire rod plants, 30 % of cable plants and 15 % brass mills operating companies report on the status of existing environmental management certification at their operations throughout the world.

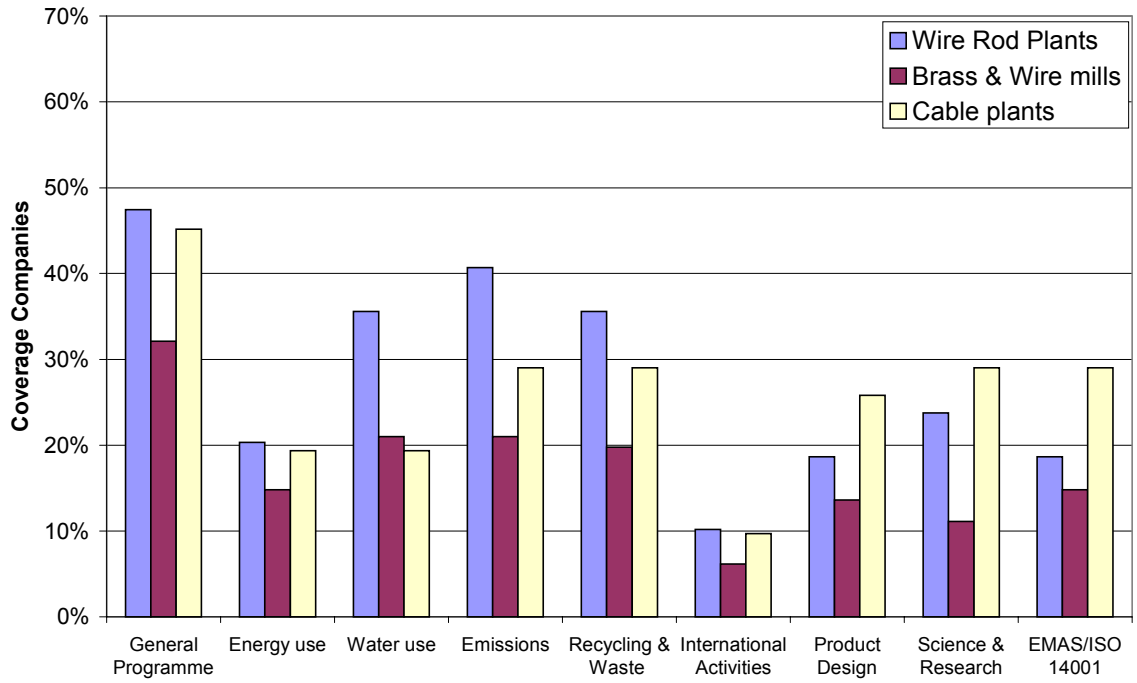


Figure 10: Environmental issues addressed in reports of the fabricating industry in 2000

5.4 Social Issues

Regarding social issues existing reports focus on health and safety measures, ongoing charity projects and community relations in general. Reporting companies are mostly large wire rod or cable producing companies with operations around the globe and most of them are also

integrated smelters and refiners operating companies. In addition to that, on many homepages figures concerning direct employment can be found although workforce strength is rather used as a kind of economic indicator in addition to overall sales/turnover of operations. The importance of product-oriented downstream relationships with clients and consumers is illustrated through the remarkable number of ISO 9001/9002 certifications in the fabricating industry covering operations and companies around the world. Around 60 % of surveyed fabricators are certified at almost every managed operating site throughout the world.

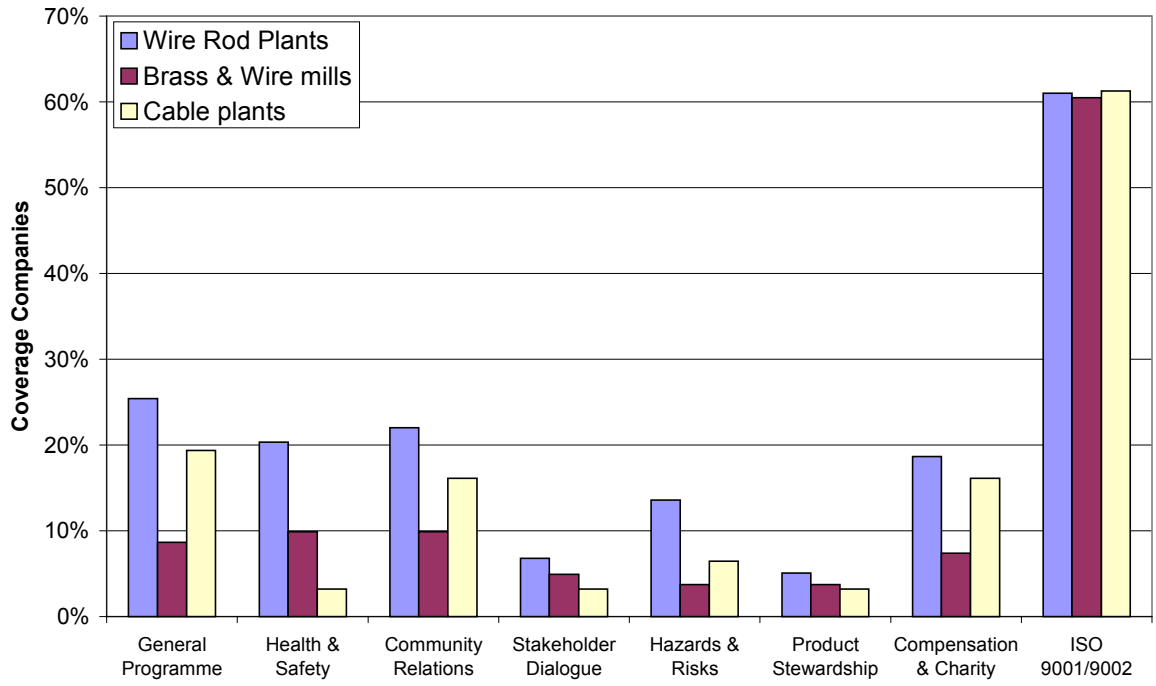


Figure 11: Social issues addressed in reports of the fabricating industry in the year 2000

5.5 Use of Indicators

The importance of using transparent and reliable indicators within existing management programmes and of presenting results and development of them to the general public is recognised by a large number of stakeholders and governmental institutions. For the purpose of this survey, we distinguish in input-oriented resource and output-oriented emission indicators. Currently used resource indicators focus on energy and water use. Some companies report also on land use but rather for the purpose of illustrating fabricating capacities rather than indicating the amount of land covered by corporate facilities.

If data concerning emissions are presented, various fields are covered ranging from air and water emissions to environmental responses such as environmental expenditures and awareness raising programmes. Notwithstanding the abundance of direct employment figures indicators concerning benefits of products or operations are quasi not existing.

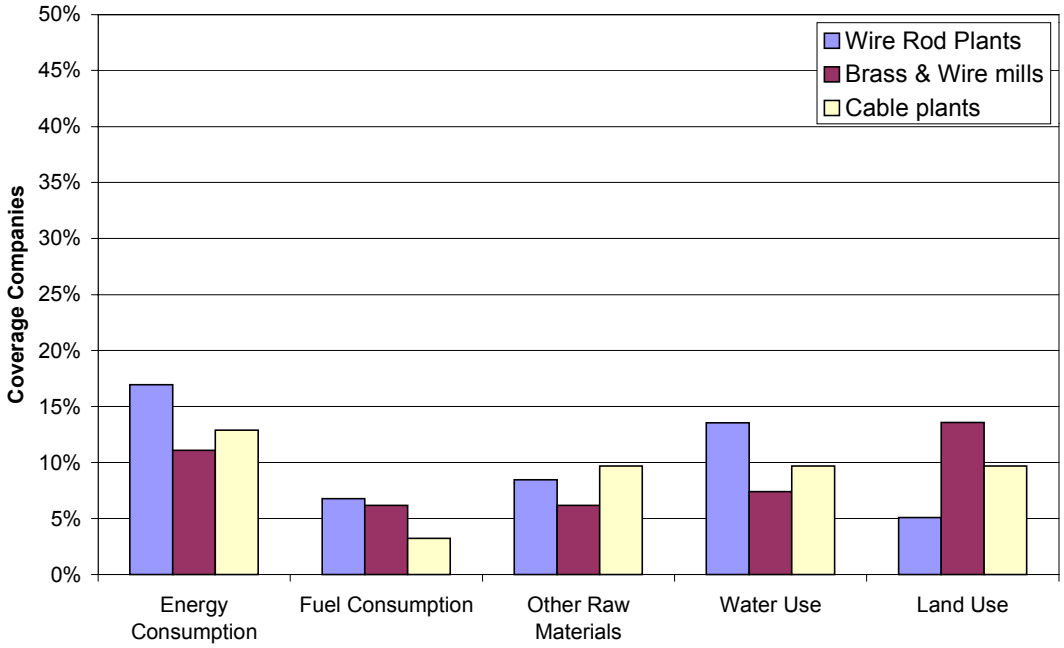


Figure 12: Use of resource indicators in reports of the copper fabricating industry in 2000

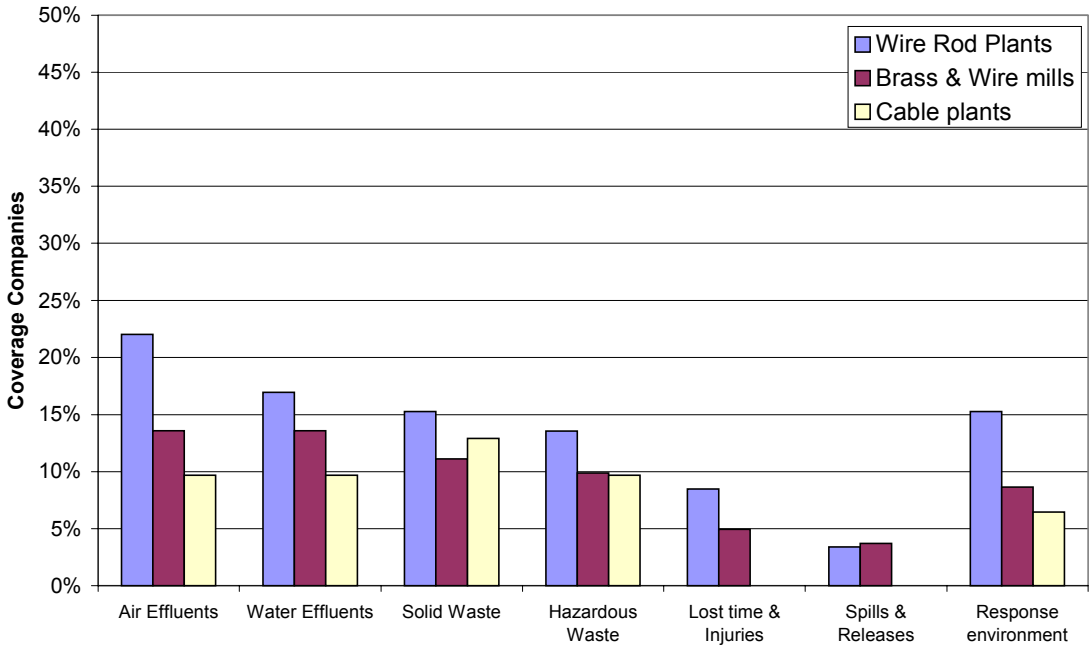


Figure 13: Use of emission indicators in reports of the copper fabricating industry in 2000

6 Conclusions

General considerations concerning presentation, credibility and acceptance, use of performance indicators, extension of individual report content and sectoral coverage of reporting practice can be found in the corresponding section of the first part of this survey on environmental and social reporting practice covering the copper mining, smelting and refining industry. Therefore, to avoid duplication at this point particular emphasis is placed solely on some important downstream fabrication-specific issues.

1. Increase credibility and acceptance of reports

- Increase use of existing and approved management structures and communication tools (Quality Management Systems, Internet) for reporting on environmental and social issues to shareholders, clients and the general public
- Include a formal commitment to consider environmental and community-related issues within the corporate decision-making process into existing client and shareholder oriented corporate policies
- Integrate key environmental and social issues in annual (financial) reporting
- Advance/stimulate the use of ISO 14001 or EMAS certification schemes

2. Increase use of measurable indicators to assess corporate performance

- Develop common methodology, framework and definitions for issues and indicators for wire rod plants, brass and wire mills and cable plants
- Develop practice-oriented commodity/product indicators on benefits and impacts considering reduced resources and capacities of small and medium-sized operations

3. Extend content of corporate reports

- Increase reporting on both benefits and impacts of operations and products including reporting on ongoing and planned activities, formal commitments, organisational structures and investment in new technology, education and awareness raising activities
- Increase focus on supply chain, product design and product stewardship issues

4. Increase coverage of reporting practice

- Increase (stand-alone) environmental and social reporting of major wire rod plants, brass and wire mills and cable plant operating companies
- Explore the potential role of industry associations for delivering overall sectoral performance data
- Support small and medium enterprises with exemplary policies and guidelines (through industry associations or third party/governmental initiatives)

In the last decade, stakeholder pressure was mostly focused on major mining and smelting operations due to the visible nature of impacts and benefits. Considering size and structure of the downstream fabricating industry and the "invisibility" of many intermediate metal products in the final end use product, impacts and benefits of fabrication have not drawn stakeholder attention such as in the case of the upstream industry.

In the forthcoming years, it is likely that this may change. On the one hand, the introduction of technical, organisational and communication-oriented tools and measures have prevented or mitigated many obvious adverse impacts of mining and smelting activities. On the other hand, in the light of increased "life cycle thinking" particular emphasis will be placed in the future on issues regarding product design, use and recycling. The emerging concepts of sustainable development and product stewardship demand the collaboration of upstream and downstream companies in order to communicate in a credible and consistent manner challenges, benefits, achievements and targets to shareholders, consumers, governmental officials and the general public.

Aiming at maintaining or improving public perception of the copper industry as a vital component of every sustainable modern community, both upstream producers and downstream fabricators need reliable and effective management structures and communication tools in place. In this context, extending and improving environmental and social reporting practices within the copper fabricating industry can represent an important step towards sustainable development of the copper industry.

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8 List of surveyed companies

Company	Country	Company	Country
Crane Group	Australia	Mitsubishi	Japan
Kembla Manufacturers	Australia	Mitsui	Japan
Olexcables	Australia	Nippon Mining	Japan
Simsmetals	Australia	Sambo Copper	Japan
Asta Elektrodraht	Austria	Showa Cable	Japan
KBM Affilips	Belgium	Sumitomo Metal Mining	Japan
UCA Lamitref	Belgium	Sumitomo Electro	Japan
Umicore	Belgium	Sumitomo Light Metal	Japan
Caraiba/Eluma (Parapanema)	Brazil	Yazaki	Japan
Termomecanica	Brazil	Kazakhmys (Samsung)	Kazakhstan
Energocabel (Rei Holding)	Bulgaria	LG Cable/Metal	Korea
Madeco	Chile	Nungwon/Jingwoo	Korea
PD Cocesa	Chile	Poongsan	Korea
Jiangxi	China	Sunjin Wire	Korea
LyCopper	China	Taihan	Korea
Yunnan-Copper	China	Met Tube	Malaysia
Zhanjiagang	China	Metrod	Malaysia
Egyptian Metal Works	Egypt	Condumex	Mexico
Outokumpu	Finland	Grupo Mexico	Mexico
Bonmartin	France	IUSA	Mexico
Gindre Duchavany	France	Draka	Netherlands
Nexans	France	Oman Cables	Oman
Berkenhoff	Germany	Doe Run	Peru
Diehl-Gruppe	Germany	Impexmetal	Poland

Company	Country	Company	Country
hde metal	Germany	KHGM	Poland
Kemper-Olpe	Germany	Farmet AS	Slovakia
KME	Germany	Maksal Tubes	South Africa
Messingwerke	Germany	Palabora (Rio Tinto)	South Africa
Norddeutsche Affinerie	Germany	Atlantic Copper	Spain
Prymetall	Germany	Bolidenbrass	Sweden
Wieland	Germany	Elektrokoppar	Sweden
Fulgur	Greece	Nordic Brass	Sweden
Halcor	Greece	Swissmetal	Switzerland
Csepel	Hungary	Ta Ya Wire & cable	Taiwan
Birla Copper	India	Walsin Lihwa	Taiwan
Finolex Essex	India	Bangkok Cables	Thailand
Hindustan Copper	India	Oriental Copper	Thailand
Indian Smelting & Refining	India	Erbakir	Turkey
RPG Cables	India	Sarbak	Turkey
Sterlite Industries	India	Sarkuysan	Turkey
Iran Cable	Iran	Torun Metals	Turkey
NICICO	Iran	IMI Yorkshire Tube	UK
Shahir Bahona	Iran	Ansonia	USA
Almag	Italy	Belden	USA
Pirelli	Italy	Cerro Copper (Marmon)	USA
Colata Continua/Carlo Colombo	Italy	Chase Brass	USA
Metallurgica San Marco	Italy	Chicago Extruded	USA
Sitindustrie	Italy	Essex (Superior)	USA
Trafilieri Carlo Gnutti	Italy	General Cable	USA

Company	Country	Company	Country
Dowa Mining	Japan	Husseycopper	USA
Fujikura	Japan	International Wire	USA
Furukawa Electric	Japan	Mueller Industries	USA
Hitachi Cable	Japan	Olin Brass	USA
Kitz Corporation	Japan	Phelps Dodge	USA
Kobe Steel	Japan	Revere Copper	USA