



2003 ANNUAL REPORT
International Copper Association

COPPER CONNECTS LIFE™

Table of Contents

Chairman's Message	3
President's Message	4
Initiative Highlights	5
Global Strategy	6
Building Construction	7
China	8
Environment	9
Sustainable Electrical Energy	10
Technology	11
Funding & Leverage / Communications	12
Regional Achievements	13
Asia	14
Europe	15
Latin America	16
North America	17
Financials	18
Accessing the Worldwide Network	19
Members / Board of Directors	22
Committees / Officers / Staff	23

The ICA Mission:

To promote the use of copper by communicating the unique attributes that make this sustainable element an essential contributor to the formation of life, to advances in science and technology, and to a higher standard of living worldwide.

Chairman's Message

Despite low economic growth in many parts of the world in 2003, demand for refined copper grew by 2.3 % to an all time record level of 15.5 million tonnes.

There is no better recognition of copper's vital contribution to modern economic development than the dramatic growth experienced in China. In just five years, Chinese copper usage has grown from 10% to 20% of world demand. This demonstrates the technical superiority of copper products in applications such as electricity generation, distribution and efficient use, in transportation and communications networks and in the safe delivery of gas and drinking water.

The copper industry remains more than ever committed to innovation. ICA funded technologies, such as the cast copper motor rotor, are now well into the commercialization phase. This development will not only reduce the cost of motor manufacture, it will also result in an increase in efficiency, leading to lower losses and ultimately to lower greenhouse gas emissions. The ICA has an increasing portfolio of promising technology projects for which we would welcome development partners.

Society's recognition of the need to use sustainable materials has never been higher. The copper industry supplies products that have very long life cycles, such as in plumbing and in architecture. Copper products are 100% recyclable, with recent data from the International Copper Study Group showing that 33% of demand is met from recycled materials.

Regulatory pressure on our industry and our markets continues to rise. We remain proactive in our dealings with the authorities on these. The ICA funds the research necessary to provide a sound scientific defense of our products. The industry's Voluntary Risk Assessment being carried out under European Union legislation will provide, by year end, the most comprehensive assessment, ever undertaken, on copper's role in the environment.



In 2003, the ICA approved a more focused strategic plan, with Building Construction, Sustainable Electrical Energy, Wire and Cable, China, Environment and Technology as its main priorities. The network is performing as a well-integrated, global team with many members actively involved in the various initiative steering committees. The required organizational changes are basically complete. The copper industry now has a stronger global platform on which to grow, as well as to defend, its markets and its products.

The plan contains the goal of delivering 800,000 tonnes of additional copper demand in 2006. Members have agreed to increase funding in 2004, and to finance the new plan's budget by 2006. On behalf of the ICA, I would welcome other companies or organizations, who share in our mission, to join us.

2003 was a challenging year for the network. Tight resources forced it to maximize its efforts in effectiveness, creativity and flexibility. It was a difficult task, but it was successfully addressed. I would like to thank the membership for their continued confidence and funding. I would also like to thank the ICA Management Committee for their leadership and all of the network staff for their commitment and hard work.

A handwritten signature in black ink, appearing to read 'L. Villarzú', written in a cursive style.

Juan Villarzú

President's Message

The past year has been one of significant transition for the International Copper Association's global network. We have embarked upon the implementation of a new strategic plan and have successfully completed major reorganizations in Europe and in Latin America. These actions have strengthened the ICA's position as the vehicle to promote the benefits of the copper industry's products to the modern world.

The ICA membership approved a revised strategic plan to guide our activities. This plan, which endorsed six strategic initiatives — Building Construction, Sustainable Electrical Energy, Wire and Cable, China, Technology, and Environment, opens up opportunities to target end use sectors comprising up to 90% of the copper market. Member advisory groups are now in place to guide our activities and to monitor results.

A new Global Strategy team, which combines the market intelligence and measurement functions, will be making recommendations to ensure resource alignment with the plan. Market and competitive analyses will strengthen existing projects and identify new projects, allowing us to address market potential in additional geographies, product markets and underserved end use sectors. Practical program measurement and a new performance audit function will confirm our impact.

Under the leadership of the ICA Management Committee, we have stepped up the pace in sharing experiences and best practices across the network. One important example is a new, online project proposal system which provides a common structure for all projects and which allows critical review by staff and member experts throughout the process.



A Technology Steering Committee, including all our major fabricators, completed a rigorous review and prioritization of the ICA's technology assets. We have also been exploring different development routes to attract third party funding and thus accelerate commercialization. The Environment Program has been re-directed to place a greater emphasis on product stewardship issues, including life cycle inventory and recycling.

Communications activities are now focused on supporting our key promotion and environment programs with targeted messages to the general media. In the area of third party funding, we have initiated contacts with a number of potential project sponsors, including the World Bank and development agencies within various Governments.

Let me close by thanking each of the ICA Network employees and member company representatives for their commitment and support.

A handwritten signature in black ink, appearing to read 'F. Kane'.

Francis J. Kane

The ICA Vision:
Inspiring the World about Copper's Essentiality
for Health, Technology and the Quality of Life.

The ICA Values:
Integrity, Innovation, Trust, Credibility,
Commitment, Empowerment, Passion.



INITIATIVE HIGHLIGHTS



Anthony C. Lea
Sr. Vice President
Marketing & Strategic Planning

Global Strategy

2003 saw the launch of a major new initiative to measure and improve the effectiveness of ICA programs and to ensure that ICA budgets were in line with the 2004-06 revised strategic plan. A new global strategy team was established to accomplish this task.

The team is responsible for the critical appraisal of current ICA programs and for the development of improved program measurement systems in general. It is working to give ICA members a clearer understanding of the impact the ICA has on key markets for copper and to ensure that there is true global consistency in the way that programs are measured and evaluated.

At the same time, the team is developing ICA market intelligence capabilities particularly in new end-use sectors. The ultimate aim is to identify new market development, technological and product stewardship opportunities for the copper industry.

Programs to address these will complement the highly successful market development activities in the Building Construction sector and in the field of Sustainable Electrical Energy, as well as the already strong portfolio of work in Health & Environmental science and Technology development.

Further work is underway to expand ICA geographical coverage so that it can play a critical role in assisting developing regions set appropriate codes and standards for the use of copper. This will ensure that safety and quality of life in those regions are improved.

Programs are also being developed to take to market new ICA technologies such as antibacterial alloys, copper rotors and semi-solid casting processes. With the support of ICA members and project partners, these programs will not only engage in promotional activity but will address all aspects of the marketing challenge.

Overall, the ICA is moving into a new stage in its development. It is becoming a more flexible and responsive organization, focused on understanding and pursuing the best returns on member investment. It is also gaining broader coverage of copper markets worldwide – by sector, product and geography. The Global Strategy team is instrumental in making this happen.



Building Construction

Building Construction, including the Wire and Cable initiative, is the largest single homogeneous end-use market for copper, and currently uses around 7.5 million tonnes per year, with an average global growth rate of around 4%.

Within this market there is a diverse range of applications, requiring numerous fabricated product types. The position of copper in these varies considerably in terms of geography and the competitive challenge and environmental issues that must be addressed.

Copper is dominant in all wiring applications and, in 2003, it continued to replace aluminum in those few regions where its use persists. ICA electrical safety and power quality programs continue to improve standards of living and building reliability worldwide. In 2003, the US Copper Development Association complemented these strong programs with new research, which instigated changes to the National Electrical Code® to improve safety and efficiency.

Water distribution and gas plumbing in developed regions rely heavily on copper tube and fittings. In 2003, ICA training programs and influential codes and standards setting work helped to maintain the strong position of copper in developed regions, whilst expanding its market share in new regions such as China.

New research in Europe and Japan highlight the substantial benefits of using copper and its alloys in buildings to fight bacteria in air conditioning, plumbing and internal contact surfaces. The findings further strengthen the position of copper in these applications, as well as open up new opportunities for this versatile metal.



The most visible application for copper is its use in architecture. Thanks to the efforts of ICA and its fabricator partners, Europe continues to lead the way in architectural copper use. 2003 saw a solid increase in the availability of different color, pre-patinated products, along with the launch of new internet campaigns designed to inspire architects.

Important organizational developments took place in 2003, with significantly improved global communication and coordination between ICA Building Construction program managers. A multi-national team worked to create and implement a Best Practices program, which will substantially increase the cost effectiveness of programs worldwide.

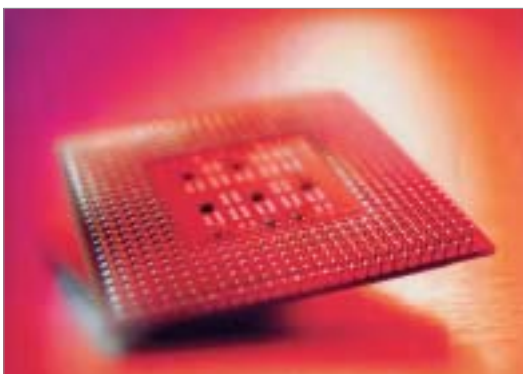
China

Despite strong growth, China still uses just over 2 kg of copper per capita, which is considerably less than mature market levels of around 9 - 10 kg.

ICA China programs have primarily focused on codes and regulations and on specific consumer awareness in certain product areas. This creates a push/pull effect that will deliver long term growth.

Power supply is a critical issue. Industrial growth has put pressure on the current power supply system which is already undergoing an upgrade in terms of both generating capacity and distribution networks. Between 2005 and 2010, the 5-year plan will create 430 million kW capacity of which 30% to 40% will come from environmentally friendly hydro-generation.

In 2001, the metals used in undergrounding were estimated at 617,000 tonnes of which copper enjoyed a 67% share. ICA China Power Cable and Undergrounding programs are working with government and municipal authorities to ensure power cable sizing is set to provide maximum efficiency.



Richard Xu
Director

ICA China and government bodies are also working together to develop better policies for greater energy efficiency using more copper. The ICA's credibility in this area has been well recognized, thanks to its past work on transformers, ballasts and motors.

As the consumer market grows, the electrical appliance industry also expands. ICA China is working closely with air-conditioning manufacturers to seek ways to improve products and create marketing opportunities for copper.

Transport and the IT Industry are rapidly emerging markets. Both are attracting significant overseas technical support, but the market needs strong innovation and application at the local level.

All these new opportunities have led us to reorganize our resources. Separate teams are now focused on specific industries. Better market intelligence is improving our knowledge base and our past record of performance means ICA has strong credibility in the market place.

Richard Xu joined ICA China as its new Director. Under his leadership, the strong interaction of the dynamic ICA China staff with fabricators and manufacturers is expanding opportunities to leverage copper's positive attributes in this vibrant market.

Environment



In 2003, the Environment Program was made up of over 80 individual projects and initiatives on ten themes: copper fate, bioavailability and ecotoxicity; chronic toxicity to health; biological regulation of copper; exposure assessment; global copper cycle; risk assessment; product stewardship; recycling; life-cycle assessment and environmental communications.

Scientists funded by the ICA published more than 125 articles in peer-reviewed journals, helping to sustain a positive pursuit of empirically based and scientifically informed opinion about copper. The Biotic Ligand Model (BLM), the product of a decade of ICA sponsored research, was adopted by the US Environmental Protection Agency as the basis for its Water Quality Criteria for copper. It will be used also for other metals.



Scott R. Baker
Director

The BLM and ecological risk of metals were introduced to scientists from the Chinese State Environmental Protection Administration. This is part of an ongoing initiative to familiarize Asian government regulators with the BLM. The European Copper Institute's voluntary risk assessment, organized as a cooperative effort between the industry, the Italian government, the European Commission and independent peer-review scientists, progressed well during 2003 and remains on schedule for completion by year end 2004.

Research conducted at the Free University of Berlin demonstrated the effect of copper in combating Alzheimer's Disease in mice.

Major scientific publications were produced to support truth in science and responsible regulatory approaches to copper. These included two monographs on key scientific copper topics: diffuse sources of environmental copper and the BLM. In addition, two journal issues were dedicated to metals and human exposure and to the BLM for metals in fresh water. A non-technical white paper on copper and human health was prepared for the medical community and consumers.

Sustainable Electrical Energy



German manufacturer SEW-Eurodrive launched its first commercial copper rotor motors in April 2003, with rotors die-cast by the French copper foundry, FAVI. These high efficiency (EFF1) motors contain over twice the amount of copper found in standard efficiency motors.

The revised ICA strategic plan contains a new initiative focused on Sustainable Electrical Energy. In addition to promoting energy efficiency in cables, motors and transformers, its broad scope includes efforts to raise the effectiveness and efficiency of electrical systems throughout the complete chain of power generation, transmission, distribution and use. A significant example is the UN's funding in Poland for the promotion of high efficiency motors.

Some 27% of the world's population has no access to electricity and so substantial investment is required in village energy projects, while more energy and its more efficient use will be needed to sustain growth for the other 73%. ICA's strategy aims at influencing policy and standards that will deliver substantial social, economic and environmental benefits, as well as participating in market transformation and education programs that promote best practices in sustainable energy development and use.

The Die-Cast Copper Motor Rotor Project, managed by CDA Inc., continued the process of technology transfer and demonstration. The

ICA was a major sponsor of the first European conference on Energy Service Companies (ESCOs) and of the third international conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'03). These events were attended by representatives from industry, government and energy efficiency advocacy groups and resulted in strengthened and new partnerships.

Discussions were started with different stakeholders on financing energy efficiency projects as a means of carbon sequestration (reducing greenhouse gas emissions). This could improve the viability of many projects and favor higher copper usage.

The International Motor Software project finished the development of the selection and savings analysis modules. Natural Resources Canada joined Chile, the European Union, the UK, the US and the ICA in this effort. The project contracted for additional features, such as calculating reductions in greenhouse gas emissions.



Sergio Bittencourt
Director





Hal Stillman
Director

Technology

In 2003, the ICA Technology initiative provided \$1.6 million in funding for 14 projects. It is too early to see tangible results in most projects, but some progress is evident.

With member involvement, several innovative, copper-intensive, multichannel flat air conditioning tube concepts are being prototyped. The use of very thin copper strip and advanced joining techniques appear to be promising in defending this 600,000 tonne copper application against alternative materials. Work will continue into 2004.

ICA support at a major global automotive company has led to substantial advances in the development of a novel electromagnetic transmission that would add 7 kg of copper per vehicle. Design and manufacturing improvements were made through computer simulations and prototyping, and ICA members provided some important copper-related technologies. However, this is a high technical risk R&D project and many complex and interrelated engineering trade-offs must be overcome.

An ICA sponsored project at Penn State University verified that Category 6 copper data cables can support 10 Gigabit/second communications over a distance of up to 100 meters. These breakthrough results stimulated the IEEE to form a committee to prepare a standard for 10Gbs data communications solutions. Copper cabling operating at this speed should improve competitiveness versus optical fiber in LAN applications.

Research into the natural antimicrobial property of copper may lead to substantial new applications. A white paper presenting the case for using all-copper components in air conditioning systems was prepared. An intensified research and market development effort is planned for 2004.

Positive R&D results are not sufficient. Copper-related technology must be commercialized to achieve tonnage impacts and valuable opportunities for fabricators.

Throughout 2003, the ICA Technology Steering Committee explored approaches to accelerate the commercialization of technology developed with ICA funding. Moving forward into 2004, ICA will be more active in aligning technology projects with market opportunities and in finding ways to enable entrepreneurial motivation and external funding to capture new product opportunities for copper.



Funding & Leverage

In 2003, the ICA decided to step up its efforts to secure co-funding and support by leveraging the ICA network to engage industry participants, end-use partners, multilateral institutions, governments, NGOs and foundations.



John R. Mollet
Vice President



We believe that we can obtain help because of the positive impact of copper's role in society and of copper's benefits to the quality of life of people and communities around the world. The process of finding synergies with partners and building the case for support is well under way.

Two important achievements in 2003 were the US Congress's appropriation of \$1 million for copper casting technologies and the Global Environment Facility/United Nations Development Program's grant of \$4.5 million to expand the use of high efficiency motors in Poland. The ICA network will remain actively engaged in both projects that recognize the benefits of energy efficiency and technology to the economy, the environment and job creation.

Communications

A new Worldwide Communications Team, made up of a representative of each region, revised the ICA initiative and redirected it into a clear action plan, including budget prioritization.

The central element is a general media campaign. This links closely with the mainstream market development, environment and technology programs, and communicates copper's benefits to the general public, building on 2003 successes in Europe.

Other items include communications tools such as the new "ICA Update", a restructured Web platform and crisis management guidelines.

Christian de Barrin
Global Communications Leader



Best practice sharing and links between the regions are now fully in place, with the best ICA media materials available, via the intranet, for use by the network and members. By year end, the Top 10 copper stories were selected for promotion in the 2004 campaign.





REGIONAL
ACHIEVEMENTS



Peter Charlton
Director

Asia

Asia, with China as the major user, continued to lead the world in increased copper demand, accounting for 6.8 million tonnes, up 5% versus 2002. The large South East Asian and Indian markets are attracting more attention. Our target is to add over 300,000 tonnes (above natural growth) by 2004, 60% of which will come from electrical uses.

Increasing the use of copper wire in the building construction industry, by influencing code changes in India, has brought about greater acceptance of copper over aluminum. Our partners' sales increased by 20% to 35%, versus industrial growth of 10% to 12%. A recently revised code in China is expected to result in a 15% increase in use in this sector. We have also initiated similar programs in Indonesia, Thailand and Vietnam.

We have achieved changes to codes which allow copper tubes for gas distribution both in India and China. These have already translated into growing sales. In China, the new code called for a 30% increase in wall thickness. Australia, which enjoys over 95% copper use in the gas application, has underpinned these efforts.

In India, the ICA has convinced a government-initiated program to specify copper distribution transformers, which could result in an additional 24,000 tonnes being converted from aluminum. The ICA is also a partner with India's Bureau of Energy Efficiency in "standards and labelling".

ICA China has been asked by the government authorities to assist in developing HEM policies to help overcome existing power shortages. In Malaysia, the ICA worked closely with the Energy Commission to potentially increase sales of HEMs from the current 1% of a 60,000 motors/year market to a more significant level.



In late 2003, commercialization opportunities were identified in China and India to exploit the ICA's copper motor rotor technology.

India and China have strengthened relationships attracting more external financial support. Our relationship with the ASEAN Centre for Energy [a body representing all governments in SE Asia] now facilitates cooperation in many areas of energy efficiency. In Australia, we have received Government funding for our Technology road mapping study of the construction markets of the future.

Growing markets coupled with an innovative and committed staff all led to a sustained increase in copper usage.



Europe

Industrial production growth in the EU was just below zero in 2003. Refined copper use remained at the 2002 level of 3.7 million tonnes. De-localization of copper purchasers out of the EU and the increasing availability of lower price imports remain important trends. However, in Central and Eastern Europe, IP grew by 7%, supporting demand growth of 100,000 tonnes up to 900,000 tonnes.

The European Copper Institute was restructured with 11 refiners and semi-fabricators becoming full members on January 1st. Backed by three Russian copper companies, ECI Moscow became CDA Russia – the 31st member of the global ICA network.

Our most important defensive project remains the copper Voluntary Risk Assessment, now with links to the EU's New Chemicals Policy. The project remains on schedule, with several positive comments received from the Commission on the quality of the management processes and technical content.

The Architecture Campaign launched a new multi-language website focused on "inspiring architects". In the plumbing sector, efforts were stepped up in gas distribution and fire sprinklers, achieving the first national standard for copper in vertical risers. Very positive messages from KIWA, the leading Dutch water institute, on copper being ten times more resistant to the Legionella bacteria than plastic, were heavily communicated.



John Schonenberger
Chief Executive



In sustainable energy, ECI worked closely with the European Commission on its Motor Challenge Program. A major press kit on energy efficient motor driven systems was issued to coincide with the UN Climate Change Conference.

ECI issued its first automotive trade press supplement aimed at stimulating awareness of copper's benefits in vehicle systems. Actions have also been taken to try to address copper contamination of the steel and plastics streams coming out of vehicle recycling.

In Communications, the ECI website now includes a Members Info section. The general media section provides English translations of the top European press releases and media kits. These can be accessed by the ICA network, as well as by members for use in their own corporate and employee communications. There was significant national media coverage on energy efficiency, sustainability, recycling and health messages.



Latin America

Following a 0.4% reduction in GDP in 2002, the Latin American economy grew by 1.5% in 2003. The U.N. forecasts a 3.5% expansion for 2004. Refined copper use in Latin America was estimated at 0.9 million tonnes, 6.8% more than in 2002.

ICA's investment efforts during 2003 were focused mainly on the Building Construction sector, with 44% spent on building wire, 32% on plumbing and 9% on solar. Communications & other activities were allocated 13% and Sustainable Energy, 2%.

A major restructuring took place in the second half of 2003 to align the regional copper promotion business model with ICA's Global Strategy. To accomplish this, all five CDA bylaws were modified and a new organization was established to reduce the fixed cost base and to outsource projects, while still maintaining the important human capital.

We gained representatives on two committees, energy efficiency and electrical application, of the Pan American Standards Organization (COPANT). The most important regional concern was to create and approve codes and standards for copper applications, to grow market share, and to ensure competitiveness. In

Chile, eighteen standards were approved, with co-funding from the Inter-American Development Bank. Important activities were carried out, mainly in Brazil and Mexico, to enforce code and standard applications. A considerable number of inspectors were trained to review them.

Vital work was done in Argentina and the Andean countries to ensure the use of copper tubes in the reconversion to natural gas in these countries. The ICA participated in all decisions. Other potential opportunities in Brazil included tube applications for solar systems, using tax advantages granted by the government. Despite the modest growth of the Brazilian economy, this application grew by 5% in 2003.

In Chile, a comprehensive copper education program with elementary school teachers was successfully completed. The program's educational material was made available online. The Copper Museum was exhibited in Chile, Peru, and Mexico, attracting over 200,000 visitors.



Miguel Riquelme
Director



Andrew G. Kireta Sr.
President & CEO

North America

For 2003, refined copper use in the USA was estimated at 2.3 million tonnes, 3% less than 2002. Canada estimated 0.26 million tonnes, down 6% from 2002.

A new training program in the construction sector assisted some 150 sheet metal installers. Designer assistance, new Web pages, trade shows, seminars and print promotions are stimulating architects and specifiers.

U.S. copper plumbing tube volume increased and commands a 72% market share, despite losing ground to PEX and CPVC. CDA research, for the first time, replicated copper pitting from initiation to penetration. The study identifies a causal relationship involving pH levels, aluminum and chlorine. CDA gained a seat on the NSF 60/61 Joint Committee responsible for testing and certifying products for use in potable waters.



Several southern U.S. gas utilities began promotion of copper tube. Arkansas approved copper for fuel gas. Canada's use of copper for fuel-gas continues to rise, helped by training videos.

In the Wire and Cable area, CDA's Elevated Ambient Temperature study instigated changes to the National Electrical Code® that should result in wire upsizing. Estimated impact of U.S. promotion of building wire is 25,000 tonnes annually within five years. Canada's power quality ads are generating strong response. A CCBDA copper and aluminum connectivity study is being completed.

New case studies, trade shows, CD-ROMs, publications and seminars continue to entrench the energy efficiency message with thousands of contractors and engineers. Commercialization of the copper motor rotor is gaining strong attention worldwide.

Presentations and training in North America on using the Biotic Ligand Model are helping to offset environmental constraints. A comprehensive copper education program underwent successful field trials with elementary teachers and will be widely distributed in 2004.

Copper-based casting technology is being considered for \$1 million of funding by the U.S. Department of Defense. Studies completed on E. coli, Listeria, and MRSA document the antimicrobial effect of copper alloys and pave the way for commercial development.

Financials

	2003*	2002	2001
REVENUES			
Members' Dues	32,697,000	36,222,000	27,813,000
Interest	7,000	50,000	424,000
Other Revenue	325,000	372,000	327,000
Total Revenue	33,029,000	36,644,000	28,567,000
EXPENDITURES			
Program Expenses	26,290,000	32,835,000	28,434,000
Program Management	3,014,000	2,883,000	2,874,000
Program Planning	1,442,000	1,379,000	1,557,000
General and Administrative	2,097,000	2,006,000	1,557,000
Total Expenditures	32,843,000	39,103,000	34,422,000
CHANGES IN FUNDS			
Increase (Decrease) in Fund Balance	186,000	-2,459,000	-5,856,000
Fund Balance, beginning of Year	447,000	2,906,000	8,762,000
Fund Balance, end of Year	663,000	447,000	2,906,000
Program Expenses	80%	84%	83%
Program Management	9%	7%	7%
Program Planning	4%	4%	4%
General and Administration	6%	5%	6%

Program Expenses by Region			
Asia	1,845,000	2,849,000	2,630,000
China	2,694,000	2,818,000	2,106,000
Europe	7,031,000	6,513,000	8,853,000
North America	5,079,000	8,227,000	5,085,000
Latin America	1,901,000	3,172,000	2,715,000
World	4,096,000	5,215,000	3,847,000
Environment	3,644,000	4,041,000	3,198,000
Total	26,290,000	32,835,000	28,434,000

*Unaudited

Gerald J. Mc Gee
Sr. Vice-President,
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