



Metals Despatch

Newsletter of the International Metals Study Groups

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BRAZIL JOINS ICSG



Brazil joined ICSG with effect from 1 September 2016 bringing membership to 24 countries plus the European Union. Brazil is an important producer and user of

copper. Welcome Brazil!

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LEAD AND ZINC FORECAST

The outlook for World supply and demand for lead and zinc was presented during the ILZSG meetings held in Lisbon on 26 April 2017. Highlights include:

- ILZSG anticipates that **global demand for refined lead metal** will rise by 2.5% to 11.39 million tonnes in 2017 mainly as a consequence of a further increase in Chinese usage which is forecast to grow by 4.3%. In China, over one third of the lead demand is from lead-acid batteries used in E-bikes which peaked at 40 million units in 2013 from almost nothing in 2000. Further growth of 4.4% in 2016 is mainly e-tricycles used by the courier industry stimulated by booming e-commerce in China. European demand increased in 2016 influenced by a sharp increase in auto sales and is expected to continue into 2017. In the United States, lead demand is forecast to grow by a modest 1.5%. Delivery of hybrid vehicles and EVs accounts for only 3-4% of the total auto sales in 2016. We still see no material impact on the market share of lead-acid batteries in auto industry in the near and medium term.
- Global **lead mine output** is predicted to increase by 4.3% to 4.92 million tonnes as a combined

consequence of a 5.1% rise in China and 3.6% rise ex-China mainly in Canada, Greece, Kazakhstan, Mexico and India.

- An anticipated 2.2% rise in **global refined lead metal production** is forecast as a combined result of 4% increase in China, 9.2% increase in India, 9.2% increase in Belgium, 1.2% increase in United States and stable operation of Port Pirie in Australia.
- Based on the latest information ILZSG anticipates a **globally balanced refined lead metal market in 2017**.
- World **usage of refined zinc metal** is expected to increase by 2.6% to 14.30 million tonnes in 2017. This rise comprises 2.3% growth in China and 2.9% growth ex-China. Positive economic indicators in China are generating optimism about zinc demand. Positive PMI in the United States will push its demand back up to the levels of 2014 and 2015. European demand will be stable with the increased volume in Belgium, Italy and Russian Federation to be offset by a decrease in France.
- Overall global **zinc mine output** is expected to increase by 6.7% to 13.70 million tonnes with 4.6% growth and 8.1% growth in China and the rest of world respectively. Output in India will recover strongly thanks to the completed and successful transition to underground operation at Hindustan Zinc's Rampura Agucha operation. Higher output at Antamina mine in Peru, increases at Terrfame's Sotkamo operation in Finland, significant increase forecasted in China, output recovery in Australia and full capacity reached at Nevsun Resources' Bisha mine in Eritrea will also contribute to the higher growth expectations.
- Global **refined zinc metal production** is predicted to increase by 2.6% to 14.08 million tonnes in 2017 with a forecast 3.6% increase in China being offset by an ex-China reduction of 1.8%. Indian output will benefit from increased availability of concentrate in the domestic market. Negative factors for metal output include the ongoing strike at the Noranda Income Fund plant in Canada, recent floods in Peru, output decreases in the Republic of Korea and the closure of Padaeng's Tak refinery in Thailand.
- Information recently collected from ILZSG member countries indicates that global demand for refined zinc metal will exceed supply by 226kt in 2017. This deficit is lower than that indicated by the Group during its meetings last October with

the difference due primarily to the completed transition to underground mining in Hindustan Zinc's Rampura Agucha operation which will raise India's refined metal output.

For further details of the outcomes of the ILZSG meetings or questions on the market outlook please email **Paul White** at paul_white@ilzsg.org

NEXT STUDY GROUPS' MEETINGS
The dates for the next International Study Groups' meetings in Lisbon, Portugal are:

ICSG: 23 – 24 Oct. 2017, Lisbon, Portugal

INSG: 23 - 24 Oct. 2017, Lisbon, Portugal

ILZSG: 26-27 Oct. 2017, Lisbon, Portugal

Joint Study Groups' Seminar 10:30am to 5:30pm on 25 October 2017: "China and East Asia: Continuing Dominance of Metals Markets"

COPPER FORECAST

The International Copper Study Group (ICSG) met on 27-28 April 2017 in Lisbon and reviewed the current outlook and trends in World copper supply and demand. The following forecast was issued:

World refined copper balance projections indicate a deficit of about 150,000 t for 2017 and 170,000 t for 2018:

- ICSG recognizes that global market balances can vary from those projected owing to numerous factors that could alter projections for both production and usage. In this context it can be noted that actual market balance outcomes have on recent occasions deviated significantly from ICSG market balance forecasts due to unforeseen developments.
- In developing its global market balance, ICSG uses an apparent demand calculation for China that does not take into account changes in unreported stocks [State Reserve Bureau (SRB), producer, consumer, merchant/trader, bonded]. To facilitate global market analysis, however, an additional line item—Refined World Balance Adjusted for Chinese Bonded Stock Changes—is included that adjusts the world refined copper balance based on an average estimate of changes in unreported inventories provided by three consultants with expertise in China's copper market.
- Current ICSG projections are for a deficit of about 150,000 metric tonnes (t) in 2017, and about 170,000 t in 2018. This compares with a surplus of 160,000 t and a deficit of 100,000 t for 2017 and 2018, respectively, forecast at our October 2016 meeting. The change is due to stronger than previously anticipated growth in refined copper usage, mainly

this year supported by improved global economic outlook.

After growth of almost 6% in 2016, world mine production, after adjusting for historical disruption factors, is expected to decline by 1% in 2017 and remain essentially unchanged in 2018:

- World mine production increased strongly in 2016 benefitting from new and expanded capacity brought on stream mainly in Mexico and Peru and the low frequency of supply disruptions due to strikes, accidents or adverse weather conditions.
- Lack of significant output from new projects or expansions, contrary to what happened in 2016, and reduced output from some SX-EW mines will impact world mine production growth rates in 2017 and 2018.
- Furthermore, 2017 production growth is also impacted by the significant supply disruptions that occurred in the 1st quarter of the year notably in Chile, Indonesia and Peru.
- While world concentrate production is expected to remain essentially unchanged in 2017, an anticipated decline of around 5% in SX-EW output will lead to an overall decline in world mine production of around 1%.

World refined production is expected to increase by around 2% in 2017 with lower growth of about 1.5 % expected for 2018:

- In 2017, although a 2.5% growth is expected in electrolytic refined production from concentrates, and 5% growth in secondary (from scrap) refined production, world refined production growth will be partially offset by an anticipated decline of 5% in SX-EW output.
- In 2018, although world secondary refined production is expected to increase and SX-EW output to level off, it is anticipated that growth in electrolytic refined production might be lower constrained by the availability of concentrate.
- Improved availability of scrap should support growth in secondary refined production after a decline in 2016.
- China will remain the biggest contributor to world refined production growth in 2017 and 2018.

World apparent refined usage is expected to increase by around 2% in 2017 and 2018:

- Sustained growth in copper demand is expected to continue because copper is essential to economic activity and even more so to the modern technological society. Infrastructural development in major countries like China and India will continue to sustain growth in copper demand.
- Improvement is anticipated for the world economy for 2017 and 2018 which, although modest, should support copper demand growth.
- Better prospects for global and Chinese economies as compared to last October led us to revise upwards 2017 world apparent refined usage growth from 1% to 2% with 2018 growth remaining essentially unchanged.

- However it is expected that improved scrap supply might constrain world refined copper usage growth globally.
- China will remain the biggest contributor to world growth in copper usage. After a decline in 2015, and practically no growth in 2016, we may see an improvement in world ex-China usage growth in 2017 and 2018.

For further details of the outcomes of the ICSG meetings or questions on the market outlook please e-mail **Ana Rebelo** at rebelo@icsg.org.

NICKEL FORECAST

The International Nickel Study Group (INSG) met on 25 and 26 April 2017 in Lisbon and reviewed the current outlook and trends in World nickel supply and demand. The following forecast was issued:

World primary **nickel usage** was 1.882 Mt in 2015 and increased to 1.2.027 Mt in 2016. For 2017 INSG estimates an increase to around 2.11 Mt.

World **primary nickel production** was 1.976 Mt in 2015, and decreased to 1.989 Mt in 2016. INSG projects an increase in production which could reach around 2.07 Mt in 2017. There is a degree of uncertainty in these figures in regard to Chinese and Indonesian NPI production. The estimates do not include any general adjustment factor for possible production disruptions.

INSG members also discussed **market trends**. Nickel pig iron (NPI) production in China continued to decline in 2016 due to prices and ore availability. In the Philippines, nickel mine production and exports declined in 2016 due to bad weather conditions and also to low ore prices. The country has released the result of environment mine audit and ordered suspension and closure of some mines. The impact of the recent replacement of the environment minister is as yet unknown. On the other hand, the Indonesian government loosened the ban on nickel ore exports in January 2017, which should result in more material availability to feed NPI production in China. In Indonesia, NPI productions will continue to increase in 2017 led by the ramp-up of new projects.

According to the International Stainless Steel Forum (ISSF), world stainless steel melting production reached a new record of 45.8 million tonnes in 2016, representing a 10.2% growth year-on-year. More robust economic activity worldwide stimulated stainless steel production, with positive growth in all regions, except for Central/Eastern Europe. China's production grew 15.7%, after declining 0.6% in 2015. Stainless steel production is expected to continue to grow in 2017 but at a lower level compared to 2016. In the non-stainless steel sectors, including nonferrous-alloys and super alloys, electroplating and

batteries, primary nickel demand will maintain a positive trend.

INSG recognizes the significant impact of the current financial, economic and political uncertainty in many parts of the world. The effects on both the supply and demand for nickel are not fully known. The Study Group cautions that future market developments could alter the forward-looking market balance.

For further details of the outcomes of the INSG meetings or questions on the market outlook please email **Ricardo Ferreira** at ricardo.ferreira@insg.org

JOINT STUDY GROUPS´ SEMINAR

A Joint Study Groups´ seminar on "Meeting the Challenge of Mining and Smelting/Refining Waste" was held on 27 April under the chairmanship of **Mr. Don Smale**, Joint Secretary-General of the three Metal Study Groups.

Eight invited speakers from governments, industry associations and non-ferrous metals companies addressed this issue from a variety of perspectives ranging from the generation of mine and smelting/refining waste; existing and potential risks imposed by mine and smelting/refining waste; lessons learned from past and experience gained; economic and cost analysis of dealing with mine and smelting/refining waste; role of regulation and governments; technological processes and innovation for better monitoring and treating wastes.

1. **Mr. John Atherton**, Director, International Council on Mining and Metals delivered the Keynote Presentation on "Challenges and opportunities for effective management of waste in the mining and metals sector".

2. **Dr. Stephen Coulson**, Head of Industry Section, European Space Agency made a presentation on "Earth Observation Products & Services in support of the Mining Industry".

3. **Mr. Pepe Moreno**, Principal Consultant (Mine Waste) SRK Perth, Australia made a presentation on "Tailings dewatering for risk reduction: the possibilities and pitfalls".

4. **Mr. Ivan Valenzuela**, General Manager, Ecometales Ltd Chile made a presentation on "Towards a Sustainable Mining Industry: The Ecometales Experience".

5. **Mr. Luca Demicheli**, Secretary General, EuroGeoSurveys made a presentation on "Minerals, metals and mining statistics: The role of Geological Surveys in building continental-scale official data sets.

6.Mr. Masatoshi Kawada, JX Nippon Mining and Metals Corporation, Japan made a presentation on "Our Initiatives on Tailing Dams and Copper Slag".

7.Ms. Eibhlin Doyle, Chief Geologist, Department of Communications, Climate Actions and Environment made a presentation on "Ireland's Rehabilitation Policy: Eliminating Risk and Providing Benefits".

8.Mr. Patrick D'Hughes, Specialist, BRGM, France made a presentation on "Reprocessing of mineral processing waste: an overview". BRGM is France's leading public institution for Earth Science applications in the management of surface and subsurface resources and risks.

Following each presentation, the Chairman invited questions from the audience. The presentations, questions and discussions aided all participants to better understand the challenges, opportunities, technologies and prospect of dealing with mine waste, smelting and refining waste. Separately, the member countries approved a joint Study Group project on Mine, Smelting & Refining Waste. The Chairman underlined the importance of holding events such as the current seminar and affirmed that the Study Groups would continue to develop joint seminars focused on specific important non-ferrous metals issues.

**INSG 27th GENERAL SESSION
JOINT STATISTICS COMMITTEE
ENVIRONMENTAL & ECONOMIC COMMITTEE
INDUSTRY ADVISORY PANEL MEETING**

More than 60 delegates from INSG member countries, industry and observing countries/organisations met in Lisbon on 25-26 April for the 27th INSG General Session to review statistical, economic and environmental issues related to nickel in conjunction with Metal Bulletin's International Nickel Conference.

Mr. Don Smale, INSG Secretary-General welcomed the delegates and introduced INSG as an intergovernmental organization that was established in 1990 in order to promote international co-operation on issues concerning nickel by improving the information available on the international nickel economy and by providing a forum for intergovernmental consultations on nickel. He highlighted the important fact that the industry is heavily involved in activities of the Study Group.

The Secretary-General explained that the three Study Groups also regularly organise special seminars on topics related to minerals and metals. The most recent joint seminar was on "Social Acceptance of the Mining and Metals Industry".

The work developed on economic and environmental issues was described, including the reports "The

Market for Nickel" and "Use of Nickel in Batteries", the Environment, Health and Safety Issues compendium, the Survey of Regulatory Developments Affecting Nickel and the joint INSG, ILZSG and ICSG research reports.

The Secretary-General described the main outputs of the Study Group: Nickel Bulletin (monthly), Nickel Yearbook (annually), Online Statistical Database, World Directory of Nickel Production Facilities and Special Reports.

Mr. Barry Jackson, Market Intelligence Manager, Anglo American, United Kingdom, gave a presentation on "Nickel Perspectives and the Important Role of INSG".

He stressed that INSG's role as an independent authority is becoming even more important due to the increased uncertainty on both supply side (Indonesia, Philippines, NPI) and demand side (size of new additional demand growth from, for example, renewable energy, nickel in batteries).

Mr. Kai Hasenclever, Director Economics & Statistics and Long Products, ISSF, Belgium, made a presentation on latest developments in the world of stainless steel and its markets.

World stainless steel apparent consumption (all products) grew by 10% in 2016 and the preliminary forecast assumes increases of 4.6% and 4.3% for 2017 and 2018, respectively.

World stainless melting production reached 41.5 Mt in 2015 (-0.5% y-o-y) and 45.8 Mt in 2016 (+10.4% y-o-y), with production growing in all main regions but stronger in China and other Asian countries.

Ms. Xu Aidong, Chief Analyst Nickel, Antaika, China P.R., gave a presentation on "Nickel in China and South East Asia". The presentation started with figures on the nickel market in China. Primary nickel production was 608kt in 2016, down by 2.1% compared with 2015. NPI output was 375kt, accounting for 62% of the total. In 2017, production is forecasted to be around 580kt, with NPI decreasing to 360kt.

In 2016, nickel sulphate output was 151kt (in gross weight; from primary raw materials), an increase of 23.8%. In 2017, the production will grow to 173kt. Primary nickel usage reached 1090kt in 2016, an increase of 11.6%. The usage of nickel in the battery sector reached 31kt in 2016, increasing by 18.3%, and is expected to continue to grow in the future.

Mr. Tim Biggs, UK Sector Leader Metals & Mining, Deloitte LLP, United Kingdom gave a presentation on "The Key Issues Impacting the Mining Industry in 2017 and Beyond".

He presented the top 10 trends mining companies will face in the current year, explain each of the points and presenting examples to the audience.

Mr. Matteo Rigamonti, Director, Eurofer Specialty Steel, Belgium, made a presentation on "The European Specialty Steel Sector: Challenges and Opportunities".

Stainless steel production from 2004 to 2016 in the world and in the EU was presented. In 2016, there was strong growth globally, while the EU saw only a small increase. The stainless steel trade balance in the EU was described as being in surplus from 2004 to 2013 and in deficit since then. In 2017 it is expected to continue in deficit.

Mr. Christian Jessen, Cronimet Group, Germany, spoke on the latest world trends in the supply and demand for stainless steel scrap from the point of view of a large processor.

Stainless steel scrap availability improved worldwide in 2016 and will continue to improve in the next four years. Asia is expected to increase market share in contrast to America and Europe. Stainless steel scrap prices have increased in the first part of the year.

ILZSG 27 APRIL 2017 MEETING

The International Lead and Zinc Study Group held its latest meeting in Lisbon on 26 April 2017. The Director of Market Research and Statistics presented a review of the current outlook for World supply and demand. Meetings of the Standing Committee, Economic and Environment Committee and the ILZSG Industry Advisory Panel were held.

The Industry Advisory Panel meeting on 26 April provided an opportunity for an exchange of information between members and industry on the latest developments in the lead and zinc market.

Ms. Nia Bell, Technical Consultant, Oakdene Hollins presented on "Lead and Zinc First Uses in Europe". The main findings were that batteries accounted for 85% of total lead usage in the region of which 64% were automotive, 25% motive and 11% stationary. Lead use in plastic stabilisers in Europe had been eliminated. There had been a steep decline in leaded glass production and lead based paints and frits had also been phased out.

For zinc, overall usage in the region was lower than before the recession due mainly to a decline in construction-related applications. Other first uses had been affected by volatility in the zinc price.

Mr. Jeremy Woolridge, President, European General Galvanizers Association, made a presentation on "Latest Developments in the European General Galvanizing Sector".

Mr. Woolridge commented that there were currently about 800 general galvanizing plants operating in Europe and that these were responsible for protecting about 7.5 million tonnes of steel annually.

Regarding the national share of European general galvanized steel production, Germany accounted for 25%, Italy 12%, Turkey 10%, Poland and the UK/Ireland both 9%, Spain 8% and France and Benelux 7%.

The Study Group's Economic and Environment Committee met on 27 April. Besides updating the progress on the work program, three interesting presentations were made.

Ms. Monica Sousa, Executive Director of the Portuguese Association of Geologists, spoke on "Overview of the Work of the Association and an Analysis of the Latest Portuguese Mining Regulations".

Ms. Sousa introduced the role of the Portuguese Association of Geologists as a non-profit socio-professional association that brings together geology professionals who are dedicated to diverse activities in the field of Earth Sciences. Ms. Sousa also informed delegates about the legal and institutional framework guiding mining industries in Portugal.

Mr. Robin Bhar, Head of Metals Research at Societe General, UK, made a presentation on "Current Fund Activities in the Base Metal Markets". Mr. Bhar covered the topic focusing on five aspects. Base metals price rallied in 2016. Funds are building up more open interest driven by positive market fundamentals rather than pure speculation motivation. He described the four main categories of commodities investors and speculators as: Index Funds, Commodity Trading Advisors, Hedge Funds and Physical Investors. Long term fundamentals remain the driving force behind price trends.

Mr. Jianbin Meng, ILZSG Director of Economics and Environment, spoke on "Impact of Macroeconomic Factors on Lead and Zinc". He began by noting that the world base metal market witnessed a price rally in year 2016, and said the price rally was expected to continue into 2017 and beyond. In 2016 China consumed over 50% of the world refined metal production. Observed through the GDP growth projection from IMF, UN and financial institutions, it could be considered that the recovery is not one-off. The GDP of the world top ten economies will further increase through the year. As a result, more commodities will be used to support this growth.

ICSG 25th General Session

Representatives from ICSG member governments, industry associations, companies and observer governments attended the 25th General Session of the International Copper Study Group that was held in Lisbon, Portugal on Thursday 27 and Friday 28 April 2017.

At the Statistical Committee Meeting, Ms Ana Rebelo, ICSG Director of Market Research and Statistics, presented the results of the preliminary forecast of global copper mine production and the balance of refined copper production and usage and explained the main assumptions behind it.

Mr. Li Yusheng, Deputy Director General, China Non-ferrous Metals Industry Association (CNIA), gave two presentations. The first was an overview on how Chinese copper statistics are gathered and then presented to the international copper market. This was followed by a presentation examining current conditions in the Chinese copper market.

Ms. Rebelo prepared and presented a short overview of the copper industry in Brazil based on ICSG database and available information. She also gave a presentation on the latest edition of the bi-annual ICSG Directory of Copper Mines and Plants.

Mr. Shairaz Ahmed, ICSG Manager of Statistical Analysis, presented a summary of the Country Profile that had been prepared on important copper producer Mongolia.

At the Economics and Environment Committee Meeting, **Mr Carlos Risopatron**, ICSG Director of Economics and Environment, summarized the progress of regional studies on copper use and fabrication of wire rod, tube, flat rolled and brass mill products in China and in the Americas outside the US. He also presented a summary of ICSG work on impurities and waste management in the copper industry.

Ms Julia Tilley, S&P Global Market Intelligence delivered a presentation covering recent copper market trends, balances, stocks, prices and premiums. Ms. Tilley presented global copper supply trends and prospects including mine supply, production disruptions, smelter and refined production and a forecast of capacity additions and mine output to 2019.

Mr Jorge Cantallopts, Chilean Copper Commission (COCHILCO), Chile, introduced a recent comparative analysis of the situation of operational copper smelters in terms of competitiveness and technologies. The study compared the competitiveness of different copper smelting

technologies and concluded with some lessons about the future for the global copper smelting sector.

Mr Michelangelo Margherita, Deputy Head of Trade Unit, DG Trade, EU, delivered a presentation on regulatory developments in the European Union in relation to the trade in conflict minerals, including initiatives underway to assist small and medium enterprises in complying with the legislation.

At the Industry Advisory Panel meeting, industry advisers were present from a range of member countries along with industry association and government representatives. The Chairman, Dr. Mark Loveitt (IWCC), opened the meeting by reminding participants that the Industry Advisory Panel (IAP) provides an opportunity for industry to meet as a group, raise issues for the attention of government members and provide feedback, guidance and advice to the Group on its priorities, work program and activities. Mr. Diego Garcia Carvajal, Director, European Copper Institute (ECI) Office in Spain, made a presentation on "Benefits and impacts of the energy transition for the copper industry".

ICSG ATTENDED IWCC SESSION IN MALAYSIA

The ICSG Secretary-General attended the 2017 Joint Meeting of the International Wrought Copper Council (IWCC) in Kuala Lumpur in May 2017. Most recent changes in the regional use and production of refined copper were discussed in the meeting with representatives of both copper producers and copper and copper alloy fabricators from different regions of the world.

ICSG ATTENDS "COPPER 2016" INTERNATIONAL CONFERENCE IN KOBE, JAPAN

In November 2016 the ICSG Director of Economics and Environment represented the Study Group at "COPPER 2016" in the city of Kobe in Japan. This major global copper industry event is held every four years in a different country and has been the place where professionals from the industry, academia and governments come together. There were more than 200 presentations, including plenary lectures by world leaders of the copper community and technical papers by outstanding professionals including technicians, engineers, specialists, researchers, scientists and professors.

ICSG PRESENTATION AT METAL BULLETIN INTERNATIONAL COPPER CONFERENCE IN LEIPZIG, GERMANY

In March 2017 the ICSG Director of Economics and Environment represented the Study Group at the Metal Bulletin copper conference in Leipzig and made a presentation on the perspectives and market outlook for the global copper industry. The ICSG presentation can be requested from: risopatron@icsg.org.

ICSG PRESENTATION AT SHANGHAI METAL MARKETS INTERNATIONAL COPPER CONFERENCE IN SHANGHAI, CHINA

In April 2017 the ICSG Director of Economics represented the Study Group at Shanghai Metal Markets (SMM) in Shanghai, China. He delivered a presentation on global trends and perspectives for copper concentrates and smelters. The ICSG presentation can be requested from: risopatron@icsg.org.

ICSG SECRETARY-GENERAL DELIVERS KEYNOTE SPEECH AT CHILE CESCO WEEK 1ST SEMINAR IN COPPER INDUSTRY IMPURITIES

The Secretary-General presented a global review on copper industry pollution-related regulation prepared by ICSG secretariat. Issues include the scope of occupational health and safety, environmental impacts in air, soil and waterways and transport, where the IMO (International Maritime Organization) has played a major role. The ICSG presentation summarizing global trends in regulations relating to copper industry impurities can be requested from: risopatron@icsg.org.

ILZSG PRESENTS AT METALS BULLETIN'S 9TH WORLD LEAD CONFERENCE

The ILZSG Director of Market Research and Statistics gave the opening presentation at Metal Bulletin's 9th World Lead Conference. The event was held in Krakow, Poland from 28 to 30 March 2017. Copies of the paper entitled "The Progress of Business Fundamentals in the Global Lead Market" are available from the secretariat at paul_white@ilzsg.org.

ILZSG AT 2016 CHINA INTERNATIONAL LEAD AND ZINC WEEK AND 19TH CHINA INTERNATIONAL LEAD AND ZINC CONFERENCE

The International Lead and Zinc Study Group was represented at the 2016 China International Lead and Zinc Week and 19th China International Lead and Zinc Conference held in Chengdu from 14 to 17 November 2016 by Mr Paul White, Director of Market Research and Statistics and Mr Jianbin Meng, Director of Economics and Environment. During the course of the conference Mr. White gave a presentation discussing the outlook for the global lead and zinc market in 2017. Copies of the Powerpoint slides are available from the secretariat at paul_white@ilzsg.org.

ILZSG AT THE ASSOCIAÇÃO PORTUGUESE DE GEÓLOGOS (APG)

The Group was honoured to be invited to present a paper on "Promotion of Transparency in the Global Base Metal Markets" at 40th anniversary conference of Portuguese Association of Geologists. The event was held at the prestigious University of Coimbra in Portugal on 11 November 2016. Copies of the ILZSG paper are available from paul_white@ilzsg.org. In

addition the Group provided an article on "The Outlook for Lead and Zinc in 2016 and 2017" for publication in the APG's annual Geonovas Journal.

PRESENTATION BY ILZSG AT METAL BULLETIN'S 21ST ZINC AND ITS MARKETS SEMINAR

Joao Jorge, ILZSG Manager of Statistical Analysis presented a paper on "Zinc Concentrates: Outlook and Potential New Supply" at Metal Bulletin's 21st Zinc and its Markets Seminar held in Krakow, Poland in May 2017. The presentation focused on recent and likely future developments in global zinc mine supply. Copies are available from the secretariat at joao_jorge@ilzsg.org.

ILZSG ATTENDS AABC EUROPE 2017

The International Lead and Zinc Study Group was present at the 7th International Advanced Automotive Battery Conference held in Mainz, Germany in February 2017. During the course of the event the latest developments in automotive battery technology were discussed in detail, in particular lithium-ion batteries, by a number of major car manufacturers.

ILZSG ATTENDS IZA EUROPEAN CONFERENCE 2017

The ILZSG Director of Market Research and Statistics and ILZSG Director of Economics and Environment were invited to participate in IZA's first European Zinc Conference in Brussels in May 2017.

ILZSG PRESENTS AT SHFE ANNUAL MEETING

The ILZSG Director of Economics and Environment was invited to speak at SHFE Annual Meeting held Shanghai in May 2017. Mr. Meng briefed the audience on major macro economic factors impacting the lead and zinc industry and presented ILZSG's forecast of world lead and zinc production, usage and trade. He also comments on the recycling of metal scrap and environment issues during panel discussions. Copies are available from the secretariat at Jianbin_meng@ilzsg.org

STAINLESS STEEL WORLD MAGAZINE PUBLISHES INSG ARTICLES

INSG staff once again collaborated in writing articles for important industry publications. Two INSG articles have recently been written for Stainless Steel World Magazine. The latest article was published in June 2017 looks at nickel market developments and was entitled "The Nickel Market to be in Deficit for Another Year in 2017". Copies of the articles are available from the INSG secretariat.

INSG ATTENDS THE 5TH INTERNATIONAL NICKEL CONFERENCE

In April 2017 the INSG Director of Market Research and Statistics represented the Study Group at the 5th International Nickel Conference organized by Metal Bulletin which was held in Lisbon, Portugal, from 24

to 25 April 2017. Mr Ferreira gave a presentation on "Nickel in 2016 and early 2017: from surplus to deficit". Anyone interested in receiving a copy of this paper should contact the secretariat at ricardo.ferreira@insg.org.

INSG PAPER PRESENTED AT THE 12th ASIAN STAINLESS STEEL CONFERENCE

In June 2017, Mr Ricardo Ferreira, INSG Director of Market Research and Statistics, represented the Study Group at the 12th Asian Stainless Steel Conference organized by the Metal Bulletin and SMR in Hong Kong, China P.R., from 14 to 15 June 2017.

Forthcoming Events

MEETINGS, CONFERENCES and SEMINARS

- *On 18-20 October 2017 China Non-ferrous Metal Industry Association (CNIA) and Antaike will host the annual **Chinese International Copper Forum** in the city of Nanchang, Jiangxi, China.*
- ***The China Nonferrous Metals Forum** will be held on 31 October 2017 in London, hosted by China Nonferrous Metals Industry Association (CNIA)*
- ***The China International Nickel and Cobalt Conference 2017** will be held on 6-9 November 2017 in Guangzhou, China, hosted by China Nonferrous Metals Industry Association (CNIA) and organised by Antaike.*
- *China CNIA and Antaike will host the annual **China International Lead & Zinc Conference and Lead & Zinc Week** in Shenzhen, China, 21-24 November 2017.*

JOINT PROJECTS CONDUCTED BY THE STUDY GROUPS

The co-location of the three Study Groups in Lisbon enhances their ability to conduct joint projects. Highlighted here are some of the joint projects which are underway or have been completed recently.

SOCIAL ACCEPTANCE FOR MINERAL AND METAL PROJECTS

This joint study was approved by each of the Study Groups in April 2015 and the contract was awarded to a team from the University of Queensland. The study looks at recent and current community acceptance issues on a project by project and country by country basis to see what lessons can be learnt and what best practice approaches can be identified. The final report was released by December 2016.

UPDATE OF THE REPORT ON BY-PRODUCT METALS OF COPPER, LEAD, ZINC AND NICKEL

This joint report and directory updates and builds on the 2012 report on the same topic and provides information on the by-product metals of copper, zinc, lead and nickel. Updated information is included on bismuth, germanium, indium, cobalt, platinum group metals, scandium, molybdenum, rhenium, selenium, tellurium and rare earth elements. In addition, this new report adds coverage of gallium, cadmium, gold, silver, arsenic and mercury. The work was carried out by Oakdene Hollins of the UK under a contract for the three Study Groups and the report was published in December 2015.

COBALT AS A BY-PRODUCT OF COPPER AND NICKEL

This joint report of the International Nickel Study Group and the International Copper Study Group provides improved information on cobalt, and the relationship between nickel, copper and cobalt production, refining and use. The work was carried out by Roskill Consulting Group on behalf of the Study Groups and is intended to be a reference document for governments and companies.

NON FERROUS METALS BY-PRODUCTS: JOINT STUDY GROUPS' RESEARCH PROJECT

A project by the three Study Groups to generate information on the by-product metals of copper, lead, zinc and nickel was initiated by member countries at the September 2012 meetings. A contractor was selected to gather information on production, usage, trade and other data, on by-product metals. The project resulted in the completion of a 221 page Study of By-Products of Copper, Lead, Zinc and Nickel as well as a Directory of Producers. These publications have been distributed to member countries. A Joint Seminar on by-product metals was held in October 2013. In early 2014 separate publications were issued for each of the metals in the original study: bismuth, indium, germanium, scandium, cobalt, rhenium, tellurium, selenium, rare earths and molybdenum.

JOINT STUDY ON TAXATION AND FISCAL INCENTIVES

This joint project was approved by each of the Study Groups in October 2012 and a contract was awarded to RMG of Sweden to conduct the study. A preliminary report on the project was presented at the April 2013 Joint Seminar in Lisbon. A copy of this presentation is available on the ILZSG website. The final report of the project was widely disseminated in 2014.

JOINT STUDY ON RISK FACTORS

The Study Groups jointly collaborated on a project to examine the main risk factors likely to inhibit companies' ability to meet production targets or to develop planned mining and metals projects. A presentation on the study was made at the October 2013 meetings and the full report was published in January 2014.

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PUBLICATIONS

1. *Lead and Zinc New Mine and Smelter Projects 2017*
 2. *World Directory of Lead and Zinc Mines 2017*
 3. *World Directory of Primary and Secondary zinc Plants 2017*
 4. *Directory of Copper Mines and Plants (1st edition 2017)*
 5. *World Directory of Continuous Galvanizing Lines 2017*
 6. *ICSG 2016 Statistical Yearbook*
 7. *World Directory of Nickel Production Facilities 2016*
 8. *World Nickel-based Alloys 2016*
 9. *Nickel Production in South East Asia: Trends and Perspectives 2016*
 10. *Social Acceptance of Mining 2016*
 11. *Directory of Copper and Copper Alloy Fabrication Capacity (First Use)*
 12. *Lead and Zinc Mine and Smelter Database*
 13. *Study on the Main End Use Markets for Lead and Zinc in Europe*
 14. *Manufacture and Use of Semi-Fabricated Copper in Latin America/Canada (2017)*
- ❖ *A brief description of each publication is attached in following pages.*

1. Lead and Zinc New Mine and Smelter Projects 2017

This 68 page report covers lead and zinc mines and smelters opened or closed during 2016, firm projects currently committed and other projects under consideration. Developments in 44 countries spread throughout all the continents are covered with a total of over 200 separate entries. In addition, where available, estimates of ore reserves and the percentages of the metals they contain are also given. *Published January 2017*

2. World Directory of Lead and Zinc Mines 2017

Comprehensive 72 page report covering mines located in 43 countries. It includes information on ownership, type of mine and start-up date, and full contact details. Also provides data regarding annual production capacities for lead and zinc. Extensive coverage of mines located in China. *Updated March 2017*

3. World Directory of Primary and Secondary Zinc Plants 2017

This 56 page report provides a fully updated, detailed listing of primary and secondary zinc smelters and refineries throughout the world including extensive coverage of China. The directory contains a total of 152 plants comprising 121 primary refineries and 31 secondary operations spread over 35 countries. Information listed includes addresses, telephone and fax nos., e-mail and web addresses, processes used and current capacities. *Published March 2017*

4. Directory of Copper Mines and Plants (1st edition 2017)

ICSG publishes a Directory of Copper Mines and Plants bi-annually. The Directory highlights past and current production capacity and provides a near term outlook of forecasted capacity for more than 1,000 existing and planned copper mines, plants and refineries on a country by country basis, including separate tables for SX-EW plants. An additional cost detailed data for copper mines, smelters and refineries may be accessed through the ICSG interactive online statistical database. The 2017 edition presents the major developments in the projected world copper mine, smelter and refinery production capacity based on the Directory covering the period up to 2020. Detailed information on a mine by mine, plant by plant and country by country basis is available in the Directory. *Published February 2017*

5. World Directory of Continuous Galvanizing Lines 2017

Approximately 54% of total world zinc consumption is accounted for by the galvanizing industry and of

this 65% is consumed in the continuous sheet sector. The ILZSG has been closely monitoring developments in zinc's largest end use sector and has now published the fourth edition of its comprehensive worldwide Directory of Continuous Galvanizing Lines. The Directory, which comprises 92 pages, lists the details of over 500 galvanizing lines in 64 countries, including a detailed listing for China. It also incorporates a concise overview of the continuous galvanizing industry. *Published February 2017*

6. ICSG 2016 Statistical Yearbook

The Yearbook includes annual statistics on copper and copper products, their production, usage and trade by country, as well as stocks and exchange prices, providing a global view of supply and demand for the past 10 years. The Yearbook serves as a useful tool for consultations and analysis on the longer term evolution of world copper production, usage, stocks and prices. *Published December 2016*

7. World Directory of Nickel Production Facilities 2016

This comprehensive directory lists nickel mines, smelters and refineries as well as new nickel industry developments (committed, likely and potential) together with recent closures in more than twenty countries. (2017 edition coming soon) *Published July 2016*

8. World Nickel-based Alloys 2016

This report was commissioned by INSG to provide a comprehensive overview of the World Nickel-based Alloys market. Work on the report was carried out for the Study Group by Heinz H. Pariser, Alloy Metals & Steel Market Research. *Published September 2016*

9. Nickel Production in South East Asia: Trends and Perspectives 2016

This report was commissioned by INSG to provide a comprehensive overview of primary nickel production in South East Asia and was carried out by Beijing Antaike Information Development Co. Nickel reserves and mine production, with company details, are provided for nickel production in Indonesia, Philippines, Myanmar, Vietnam, Papua New Guinea and Solomon Islands. *Published April 2016*

10. Social Acceptance of Mining 2016

This 62 page report was prepared by the University of Queensland-based Centre for Social Responsibility in Mining on behalf of the ILZSG, INSG and ICSG. While there is focus on copper, lead, zinc and nickel the bulk of the report is

relevant to all non-ferrous metals. The information provided is intended for all stakeholders with an interest in social acceptance and social responsibility in the mining and metals sector. Both local and national government agencies involved in regulating mining can use the guide as a reference.

Published December 2016

11. 2016 Directory of Copper & Copper Alloy Fabricators (First Use)

This directory provides a systematic global overview of companies and plants involved in the first use of copper. First users are mainly semi-fabricators that process refinery shapes into semi-finished copper and copper alloy products. The Directory covers wire rod plants, ingot makers (for castings), master alloy plants, brass mills, and electrodeposited copper foil mills. The 2016 edition includes a complete update of copper wire rod plants and projects in most countries. (2017 edition coming soon) *Published September 2016*

12. Lead and Zinc Mine and Smelter Database

An interactive interface on the ILZSG website provides access to the comprehensive records contained in the extensive ILZSG mine and smelter databases. Information on operating mines and smelters with contact details, capacities and location. Listings of both currently committed and under consideration mine and smelter projects are provided as are details of all mine and smelter openings and closures back to 2000. Information can be filtered by country and date and downloaded in various formats including Excel. *Continuously updated.*

13. Study on the Main End Use Markets for Lead and Zinc in Europe

This 39 page report continues the International Lead and Zinc Study Group's work, after an eight year intermission, related to the analysis of trend in the main first uses of lead and zinc in Europe. The report was prepared for the Group by the highly regarded UK consulting firm Oakdene Hollins who carried out extensive original research that involved direct contact with a broad range of industry experts and associations. All major first use categories are covered for both lead and zinc.

Published January 2017

14. Manufacture and Use of Semi-Fabricated Copper in Latin America/Canada (2017)

This study fills the gap of a limited knowledge of the effective industrial use of copper in Mexico, Brazil and other countries of the region. In April 2015 ICSG members agreed to fund a study is to improve the quality and quantity of information available on copper and copper alloy fabrication

and the industrial use of refined and recycled copper in the region including Canada, Mexico, South America and the Caribbean. Specific objectives are to obtain country by country data on capacity, supply, use and trade of copper fabricated products, copper alloy fabricated products and their raw materials, including copper scrap, copper alloy scrap and refined copper. *To be published July 2017*