



Metals Despatch

Newsletter of the International Metals Study Groups

December 2017, Issue No. 23

NEW SECRETARY-GENERAL ANNOUNCED

Mr Paul White has been selected by the member governments of the International Copper Study Group, the International Lead and Zinc Study Group and the International Nickel Study Group to serve as the new Common Secretary-General of the three International Metals Study Groups. Mr. Don Smale, the outgoing Common Secretary-General, received unanimous commendation from member governments for his successful tenure.

ICSG WELCOMES NEW MEMBER COUNTRIES



Mongolia and the Democratic Republic of Congo joined ICSG, with effect from October 2017, bringing membership to 26 countries plus the European Union. Welcome Mongolia and the Democratic Republic of Congo!

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LEAD AND ZINC MARKET FORECAST

The outlook for World supply and demand for lead and zinc was presented during the ILZSG meetings held in Lisbon on 26-27 October 2017.

Lead Demand

Global lead demand is expected to increase by 5% to 11.704Mt this year and a further 0.9% to

11.815Mt in 2018 driven primarily by forecast growth in China. This growth is will be driven by increasing demand for batteries for three-wheeled e-trikes which is replacing demand from e-bikes where the market appears saturated.

Lead Mine Supply

The Group anticipates that world lead mine supply will rise by 5.6% in 2017 and by a more sedate 1.1% in 2018 to reach 5.057 million tonnes (Mt) and 5.114Mt respectively. The rise this year will be mainly due to higher output in China with smaller contributions from India, Kazakhstan and Canada where Coeur Mining's Silvertip mine was commissioned in January.

Refined Lead Supply

Increases of 3.7% and 1.6% are forecast for world refined lead metal production to reach 11.579Mt and 11,770Mt in 2017 and 2018 respectively. The principal driver behind these increases will be the renewed expansion of Chinese production. Output in China has stagnated since 2014 due to the need to close outdated capacity combined with a slowing in demand growth.

World Refined Lead Metal Balance

Having taken into account all of the information recently received from its member countries, the Group anticipates that global demand for refined lead metal will exceed supply by 125kt in 2017. This represents a change to the previous prediction of a balanced market with the main reasons for the revision being lower than expected lead metal output in the United States and increased Chinese net imports. In 2018, a deficit of 45kt is expected.

STUDY GROUPS' NEXT MEETINGS

The dates of the next meetings of the International Study Groups' are:

**INSG: 23-24 April 2018, Lisbon, Portugal
ILZSG: 25 April 2018, Lisbon, Portugal
ICSG: 26-27 April 2018, Lisbon, Portugal**

Joint Study Groups' Seminar on 25 April 2018 on "The Growing Importance of Responsible Minerals and Metals Supply Chains".

Zinc Demand

World demand for refined zinc metal is forecast to increase by a modest 0.7% to 13.926Mt this year and then by 2.5% to 14.278Mt in 2018. In the United States, apparent demand will rebound by 12.2% in 2017, and a further increase of 2% is anticipated in 2018. European usage is forecast to increase by a modest 0.4% this year, and a more robust increase of 2.8% is anticipated in 2018. In China, the apparent demand is expected to fall by 1.8% in 2017. However, in 2018 demand is expected to rise by 3% mainly as a consequence of increased galvanised steel production. Japanese usage is forecast to rise by 4% this year but then remain flat in 2018. Increases are also anticipated in Brazil, Canada, Taiwan (China) and Turkey in 2017.

Zinc Mine Supply

After falling by 6.2% in 2016, world zinc mine production is forecast to increase by 1.8% this year and a more significant 6% in 2018. The rise this year will be driven mainly by higher output in Eritrea, India, Peru and Turkey that will more than offset reductions in Australia, China and the United States.

Zinc Metal Supply

Despite a substantial recovery in Indian output global refined zinc metal production this year is forecast to decrease 1.4% to 13.528Mt in 2017. This is mainly a consequence of reductions in Canada, China, Peru, the Republic of Korea and Thailand. In 2018, output in Europe will be augmented by increases in Belgium, Finland and Norway. Canadian output is expected to recover with rises also forecast in Australia, China, Japan and the Republic of Korea. A 3.9% increase to 14.055Mt is anticipated for the year 2018.

World Refined Zinc Metal Balance

With regard to the global refined zinc metal market balance, in 2017 the Group continues to anticipate that metal output will be constrained by a shortage in the availability of zinc concentrates and that global demand will exceed supply by just under 400kt resulting in a further draw down of both reported and unreported stocks. In 2018, the market is expected to remain in deficit with the extent of the shortage forecast at 223kt.

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

COPPER MARKET FORECAST

The International Copper Study Group (ICSG) met on 23-24 October 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 around 150,000 t for 2017 and around 105,000 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.

We are still forecasting market deficits for 2017 and 2018 although at a slightly lower level than expected at our April 2017 meeting. Current ICSG projections are for a deficit of about 150,000 metric tonnes (t) in 2017, and about 105,000 t in 2018. This compares to a similar deficit in 2017 and a deficit of 170,000 t in 2018, respectively, forecast at our April meeting.

Following growth of 6% in 2016, world mine production, after adjusting for historical disruption factors, is expected to decline by around 3% in 2017 and grow by 2.5% 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.

On the contrary, world mine production in 2017 is being impacted by significant supply disruptions, namely in Indonesia and Chile, reducing output in major mining production countries. In addition, overall lack of major new projects or expansions and lower grades in planned mining sequencing in some countries negatively impacted world growth.

Therefore, world mine production is expected to decline by around 3% this year, with concentrate output declining by around 2.5% and SX-EW output by around 3.5%.

In 2018, the expected recovery from 2017 constrained output, the re-starting of temporary closed/reduced capacity in the DRC and Zambia, and to a lesser extent additional output from new projects/expansions coming on stream, could lead to a growth in world mine production of around 2.5%.

Although 2018 world mine production is expected to reach 20.3 million tonnes (Mt) copper it will be about the same level as in 2016. Chile the DRC, Peru and Zambia are expected to be the biggest contributors to mine production growth in 2018.

World refined production is expected to increase by just 1% in 2017 with growth of 2.5 % expected for 2018:

In 2017, planned/unplanned shutdowns at major smelters and lower output at SX-EW plants are significantly reducing refined production in major producing countries such as Chile, Japan and the United States. This is partially offsetting both the continued capacity increases in China and the production recovery seen in other countries from lower 2016 levels.

Primary refined production (from concentrates and SX-EW) is expected to grow by only 0.5%, mainly impacted by a 3% decline in SX-EW output.

After a decline in 2016, secondary refined production is expected to grow by 4% in 2017 with improved availability of scrap.

In 2018, an anticipated recovery from the constrained level of output in 2017, the re-start of electrolytic/SX-EW operations that had been temporarily closed and continued capacity expansion in China, is supporting higher growth in world refined production. 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 1% in 2017 and 2% in 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. Infrastructure development in major countries such as 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.

However, improved scrap supply is constraining world refined copper usage growth globally.

Although in April we were forecasting a world apparent refined usage growth of about 2% for 2017 and 2018, we have revised down the expected growth for 2017 based on weaker than anticipated usage mainly in the EU and Brazil and lower than anticipated Chinese apparent usage.

Although underlying "real" demand growth in China is estimated by others at around 4% in 2017, Chinese apparent demand is expected to grow by only 1% impacted by lower net imports of refined copper. Chinese copper demand growth is expected to be at around 3% in 2018 for both apparent and real usage.

World ex-China usage growth in 2017 is expected to be at around 1% and might improve in 2018 to 1.5%.

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 MARKET FORECAST

The International Nickel Study Group (INSG) met on 23 and 24 October 2017 in Lisbon, Portugal. More than 60 government and industry

representatives from member countries, observers and several international organizations participated in the meetings.

Nickel market observations for 2016, 2017 and 2018

The government and industry participants extensively discussed current nickel market trends during the meetings. According to the International Stainless Steel Forum (ISSF), world stainless steel melting production reached 23.2 million tonnes (Mt) in the first half of 2017, representing a 5% growth year-on-year. In the second half, production is expected to grow at a slower rate. 2018 should also be a positive year for stainless steel but with lower projected growth. Increasing production of nickel-containing batteries will have a positive effect on nickel usage as well.

Nickel pig iron (NPI) production in China declined in 2016, but could increase in 2017 and 2018 due to more ore availability from Indonesia - the government loosened the ban on nickel ore exports in January 2017. Also in Indonesia, NPI production will continue to increase in 2017 and 2018 due to the ramp up of new projects. In the Philippines it was announced that the review of suspended mines would be concluded by the end of the year. World primary nickel production was 1.991Mt in 2016, and it is projected to increase to 2.07Mt in 2017 and to around 2.224Mt in 2018. There is a degree of uncertainty in these figures, especially in regard to Chinese and Indonesian NPI production. The estimates do not include any general adjustment factor for possible production disruptions. World primary nickel usage was 2.027Mt in 2016. INSG forecasts increases to 2.137Mt in 2017 and to around 2.267Mt in 2018.

INSG recognizes the significant impact of the current financial, economic and political uncertainties on commodity market in many parts of the world. The effects of the above 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/Antaika/China Non-Ferrous Metals Industry Association (Cnia) Seminar on "China And East Asia: Continuing Dominance Of Metals Markets" was held on 25 October under the chairmanship of **Mr. Don Smale**, Joint Secretary-General of the three Metal Study Groups.

The Secretary-General opened the seminar noting that China and the countries of East and Southeast

Asia have been playing the major role in world metals markets in terms of both production and usage. For this reason the Study Groups had decided to hold a seminar focusing on the metals markets in China and East Asian countries and their implications for the rest of the world.

Mr. Shang Fushan, Vice President, China Nonferrous Metals Industry Association (CNIA) delivered the opening address on "Review and Prospect of Chinese Nonferrous Metals Industry in 2017".

Mr. Tong Mingke, Vice General Manager, Dongling Group Holdings Co. Ltd briefed the audience on the development history and activities of his company over the past 37 years along with China's policy of economic opening.

Dr. Frederick R Demler, Managing Director, Demler Hedge Advisory LLC, U.S. made a presentation on "Macroeconomic Trends and the Role of the Funds Globally and in East/Southeast Asia and the Implications for Nonferrous Metals".

Mr. Jim Lennon, Managing Director, Red Door Research, U.K., made a presentation on nickel/stainless steel markets in East Asia ex-China.

Ms. Xu Aidong, Chief Analyst, Antaike, PR China focused her presentation on the Chinese stainless steel and battery industries which proved to be the two driving forces in the nickel market.

Mr. Yukio Kawaguchi, President, Metals Research Institute, Japan (MERIJ) made a presentation on "Japanese Nonferrous Metals Industry Developments and Market Outlook".

Ms. Xia Cong, Senior Analyst, Antaike, P.R. China made a presentation on "Chinese Lead and Zinc Market Overview and Outlook".

Mr. Dan Smith, CFA, Director of Commodity Services, Oxford Economics, spoke on "Lead and Zinc - Key Drivers across the Tiger Economies".

Mr. He Xiaohui, Senior Analyst, Antaike, P. R. China made a presentation on "Chinese Copper Supply and Demand Analysis and Outlook".

Mr. Simon Hunt, Founder & Managing Director, Simon Hunt Strategic Services, U.K. made a presentation on "Copper Industry Developments and Market Outlook in East Asia ex-China & Japan".

Copies of these presentations are available on the ILZSG website.

The Seminar concluded with a panel discussion involving all the speakers. Among the topics

addressed were the world macroeconomic situation, geopolitics risks, environment protection regulations, infrastructure construction, industrial production, demographic trends, technological innovation, and the implications for non-ferrous metals of electrification of vehicles and renewable energy generation. It was agreed that China and East Asia have considerable potential to develop further and will remain the dominant force for metal production and usage in coming years – driven by relatively underdeveloped infrastructure and the large size of population.

INSG MEETINGS OCTOBER 2017

More than 60 delegates from INSG member countries, industry and observing countries/organisations met in Lisbon on 23-24 October for the INSG meetings to review statistical, economic and environmental issues related to nickel.

Delegates reviewed the INSG primary nickel market statistics in detail, and discussed the market forecast, which was prepared by the secretariat based on information provided by governments and industry.

The INSG Environmental and Economic Committee received presentations on a range of topics that related to nickel. Discussions in the Committee covered a wide range of topics including economic trends and changes in regulations on environment, health and safety relating to nickel. During the meeting the following presentations were made and discussed:

Dr Veronique Steukers, Director, H&E Public Policy, Nickel Institute, spoke to members on the importance of nickel in meeting the challenges of sustainable development.

Ms. Krisztina Kalman-Schueler, Managing Partner, DMM Advisory Group, made a presentation on the megatrends impacting nickel demand.

Mr. Ross Bartley, Trade and Environment Director, Bureau of International, made a presentation on BIR's perspective on the recycling industry related to UN//OECD/EU policies and regulations.

Mr. Meng Jianbin, the INSG Director of Economics and Environment, briefed delegates on progress in the Nickel in Batteries Project. He also presented an overview of the Nickel Factbook project. He concluded the 39th Meeting of the Environmental and Economics Committee with an update on the progress in the 2017/2018 Environmental and Economics Work Program.

The Statistics Committee reviewed and discussed the latest statistical data. The Committee also received valuable input to its work through presentations and discussions:

Mr. Kai Hasenclever, Director, Economics & Statistics and Long Products, ISSF, Belgium, made a presentation on “The current situation on the global stainless steel market”

Mr. Robert Messmer, SMR, Austria, made a presentation “E-mobility – What does it mean for Stainless Steel?”

Ms. Lara Smith, Managing Director and Founder, Core Consultants, United Kingdom, made a video-presentation on “Lithium ion batteries: From mine to market”.

Mr. Paolo Viganò, Centro Inox, Italy, and Mr. Stefano Ferrari, Siderweb, Italy, made a presentation on “Italian stainless steel: market and distribution”.

The INSG Industry Advisory Panel, comprised of representatives from the world’s nickel producing, using and recycling industries, provided valuable input on the Study Group’s work program priorities. During the meeting of the Panel several presentations were made and discussed:

Mr. Sean Mulshaw, Principal Analyst Nickel Markets, Wood Mackenzie, United Kingdom, made a presentation on “Nickel Outlook – A demanding supply challenge”.

Mr. Magnus Völkner, Group Sales, ELG Haniel, Germany, made a presentation on “Scrap: Part of the Raw Material Mix & an Environmental Friendly Option”.

Mr. Robert Fig, United Kingdom, made a presentation on “Managing Raw Material Risks – What’s New and Useful”.

Copies of these presentations are available on the INSG website.

ILZSG 62nd SESSION OCTOBER 2017

The International Lead and Zinc Study Group held its 62nd Session on 26-27 October 2017 in the conference facilities of the Altis Grand Hotel in Lisbon. Delegates were presented with a review of the current levels of world supply and demand and the outlook for 2018 at the meeting of the ILZSG Statistical and Forecasting Committee (See details on page 1). Meetings of the Standing Committee, Economic and Environment Committee, Mines and Smelter Project Committee and the ILZSG Industry Advisory Panel were held.

The Industry Advisory Panel met on 26 October and provided an opportunity for members to comment on the latest developments in the lead

and zinc market. Three presentations were made during the meeting:

Ms. Christine Meilton, Senior Analyst at CRU made a presentation on “Lead – the Fight for Feed”.

Mr. Oliver Nugent, Base Metal Development, London Metal Exchange, presented a paper on “LME Lead and Zinc: The Ringside View”.

Ms. Maria Chappuis spoke on behalf of Mr. Ricardo Labo, Vice Minister of Mines at the Peruvian Ministry of Energy and Mines, on the topic “Prospects for the Peruvian Lead and Zinc Industry”.

Copies of these presentations are available on the ILZSG website.

The Mine and Smelter Projects Committee was convened on 26 October. Information was provided on the openings and closures of lead and zinc mines and refineries in 2017 and the outlook for the short to medium term. Delegates received informative presentations as follows:

Mr. Brandon Macdonald, Chief Executive Officer, Fireweed Zinc, Canada, spoke on “An Introduction to Fireweed Zinc”.

Mr. Ali Yayan, Commercial Executive, Marzinc Marmara Recycling Co., Turkey, made a presentation on “Turkish Zinc Demand – A Positive Outlook”.

Copies of these presentations are available on the ILZSG website.

The Statistical and Forecasting Committee Meeting also received three very informative presentations:

Mr. Anssi Laitinen, Director of Marketing, Reserve Power EMEA at Enersys, Switzerland, spoke on “The Outlook for the Industrial Battery Sector”.

Mr. Nicholas Snowden, Executive Director, Metals Analysts Global Research at Standard Chartered Bank, UK, made a presentation on “How Demand for Zinc is Likely to be Influenced by Macroeconomic Trends in the Medium Term”.

Mr. L. Pugazhenthay, Executive Director of the Indian Lead Zinc Development Association (ILZDA) made a presentation on “The Lead and Zinc Industry in India – Emerging Perspectives”.

The Study Group’s Economic and Environment Committee met on 27 October. Mr. Meng Jianbin, Director of Economics and Environment, presented the Work Program, reporting on activities undertaken in 2017 and those proposed for 2018. A number of presentations were then received.

Mr. Stephen Wilkinson, Executive Director of the International Zinc Association, made a presentation on "Zinc: Building Markets and a New Future".

Dr Andy Bush, Executive Director, International Lead Association, made a presentation on "The Lead Industry – Overview of Recent Developments".

Dr. Violaine Verougstraete, Director of Environment, Health and Safety, European Non-ferrous Metal Association (Eurometaux), delivered a speech on "Turn the Challenges of EHS to New Growth Initiatives".

Dr. Chris Broadbent, Research Director and **Ms. Christine Blackmore**, Associate Director of Wardell Armstrong LLP, were invited to brief delegates on the approach adopted and major findings of the Market Research Zinc Chemicals study which was awarded to Wardell Armstrong following a competitive bidding process in July 2017.

Mr. William Brooks, Director, Energy & Resources, Deloitte LLP, UK, made a presentation on "Tracking the Trends in Mining 2017".

Mr. Meng Jianbin, ILZSG Director of Economics and Environment made a presentation on the "Market for Zinc" study. He outlined the process of completing this report using internal resources, and advised delegates that the report assessed the world zinc market in six chapters: Balance of World Supply and Demand; Zinc Supply; Zinc Demand; International Trade; Price and Stock Movements and The Future for Zinc.

Copies of the presentations are available on the ILZSG website.

ICSG MEETINGS OCTOBER 2017

Representatives from ICSG member governments, industry associations, companies and observer governments attended the 50th regular meeting of the International Copper Study Group that was held in Lisbon, Portugal on 23-24 October 2017.

At the Economics and Environment Committee Meeting, **Mr Carlos Risopatron**, ICSG Director of Economics and Environment, presented latest data and updates from a study on the use of refined copper and recycled copper in China and the current progress in a study on copper use in Japan, the Korean Republic, Taiwan and Vietnam. He summarized selected findings of the 2017 Edition of the ICSG Global Directory of Copper and Copper Alloy Semi-fabricators Capacity.

Mr. Patrick Jones, Deutsche Bank Metals & Mining Analyst, London, United Kingdom, delivered a presentation on the outlook for the global copper market and for the major copper mining companies. The presentation covered global supply/demand for 2017-2021, operating and capital costs and industry trends. On the supply side possible mine disruptions, geopolitical factors and the potential for restarts of idled capacity were addressed. On the demand side Chinese grid investment, activity in the air conditioning sector and demand prospects related to electric vehicles were examined.

Mr. Murat Bayram, Director of European Non-Ferrous Metals, EMR Ltd, Germany, presented an insider view of the evolution of copper scrap supply and trade flows, discussed the trends towards closed loop recycling, and examined current and expected availability of copper scrap and the capacity situation in nonferrous metals scrap yards.

The ICSG Director of Economics and Environment presented selected outcomes and conclusions of the 2017 edition of the ICSG Survey of Regulatory Developments Affecting Copper. The 2017 survey covered an extensive range of new regulations in copper mining, processing, trade and end use.

Mrs. Emma Beatty, Chief Legal Editor MineHutte, London, United Kingdom, introduced changes in mining codes in recent years in various mining districts of relevance to copper. She presented trends towards an internationally accepted common mining code, show cases of investment risk indexes due to changes in mining codes and impact on investments as a result of modifications in the codes. Finally some lessons learned and proposals on ways to move forward were introduced.

The Secretary-General provided a report on progress in relation to the activities in the approved 2017/2018 EEC Work Program for ICSG, including a new joint Study Groups' project on mining, smelting and refining waste and a new ICSG study on smelters and technologies to process copper sulphides.

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. Paul Dewison, Managing Director, **MetalsPlus**, made a presentation on Copper Regulation. He commenced his presentation by looking at megatrends and opportunities for copper. These included population growth, urbanisation, smart solutions in infrastructure, sustainable future and new business models among others. He then

looked at the role of governments and the types of government intervention that could be identified. He stressed that regulation was a major driver of market changes and listed five key legislative issues affecting copper: Carbon Footprint/Climate Change, Resource Conservation, Toxicity, Product Integrity and Social Licence to Operate. The remainder of his presentation looked at these five key points in detail, in particular, how they affect copper. He concluded by observing that society is changing with a drive towards sustainability and that changing societal megatrends are reflected in legislation implemented through regulation and standards which have a direct bearing on materials use.

The ICSG Director of Market Research and Statistics gave a presentation on comparisons between ICSG forecasts for 2016 and actual data for 2016. She covered mine and refined production, refined usage and the refined market balance.

Delegates were invited to discuss the 2017/2018 Work Program. Ms Rebelo provided a review of the Statistical Committee's Work Program, in which she explained that the Copper Factbook had been completed in October 2017 and made available on the ICSG website. She gave an update on the ongoing Zambian project and noted that the Study Group is reviewing proposals from two consultants for the project on "Smelting and Hydrometallurgy Treatment for Copper Sulphide Ores and Concentrates: Technologies, Challenges and Trends."

ICSG INDUSTRY ADVISORY PANEL MEETING

At the ICSG Industry Advisory Panel meeting in London on the 2nd of November 2017, industry advisers were present from a range of member countries along with industry association representatives. Industry advisers from Australia, Chile, Germany, Italy, Poland, Spain, Sweden and the United States were present.

Topics discussed included the latest copper forecast, the ICSG Work Program, the latest studies on scrap, ICSG Directories and the 2017 Survey of Regulatory Developments Affecting Copper.

Mr. Paul Dewison, Managing Director, MetalsPlus made a presentation on Copper Regulation. He commenced his presentation by looking at megatrends and opportunities for copper. These included population growth, sustainable future, urbanisation, and smart solutions in infrastructure among others. He then looked at the role of governments and the types of government intervention. He concluded that society is changing with a drive towards sustainability and that copper is deeply embedded in sustainability, especially in

clean energy, and that this was a major market volume driver for copper use.

Mr. Bernard Respaut, European Copper Institute (ECI) gave an update on regulatory issues affecting copper. Through a series of detailed slides on the complex web of regulations impacting the industry, Mr. Respaut focused on the themes of Chemicals Management, Circular Economy and Efficiency, Climate Change and Global Licence to Operate. He described several topics within these themes such as non-toxic environment, life cycle assessment, emissions trading system, clean energy package and IMO, highlighting the importance for the copper industry of each of these topics and describing relevant work currently being undertaken by the ECI. Mr. Respaut concluded by saying that such a complex web of regulations can contribute to a better quality of life and continued economic prosperity in Europe but that is important the European industry remains competitive - regulations need to be consistent and complementary and industry and regulators need to synchronize their approaches.

ILZSG ATTENDS ILA 20TH INTERNATIONAL LEAD CONFERENCE

Mr. Paul White, ILZSG Director of Market Research and Statistics attended the International Lead Association's 20th International Lead Conference held in Berlin, Germany from 28 to 30 June. Mr. White chaired the first session of the conference which focused on the future outlook for lead and lead batteries.

INSG ATTENDS 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.

LME INVITES ILZSG TO ATTEND ZINC COMMITTEE MEETING

The International Lead and Zinc Study Group accepted an invitation by the London Metal Exchange (LME) to attend the June 2017 meeting of the LME Zinc Committee as an observer. The ILZSG was represented by Mr. Paul White, Director of Market Research and Statistics. This further cements the ongoing co-operation between the Metals Study Groups and the LME.

SECRETARY-GENERAL PARTICIPATES IN ISRI SCRAP CONFERENCE

In September 2017, the Secretary-General made a presentation on the market outlook for copper, lead, zinc and nickel at the Institute of Scrap Recycling Industries (ISRI) Industry Roundtable meeting in

Chicago, U.S and chaired a panel on nickel/stainless steel.

ICSG PRESENTATION AT ANTAIKE/CNIA COPPER CONFERENCE IN NANCHANG, CHINA

In October 2017 the ICSG Manager of Statistical Analysis **Mr. Shairaz Ahmed** represented the Study Group at the Antaika/CNIA Copper Conference in Nanchang and made a detailed presentation on the recent trends in global copper supply and demand. The ICSG presentation can be requested from: ahmed@icsg.org.

ILZSG AT 2017 CHINA INTERNATIONAL LEAD AND ZINC WEEK AND 20TH CHINA INTERNATIONAL LEAD AND ZINC CONFERENCE

The International Lead and Zinc Study Group was represented at the 2017 China International Lead and Zinc Week and 20th China International Lead and Zinc Conference held in Shengzhen from 21 to 24 November 2017 by the Director of Market Research and Statistics. The conference was attended by around 1000 delegates. During the course of the conference Mr. White gave a presentation discussing the outlook for the global lead and zinc market in 2017 and 2018. Copies of the Powerpoint slides are available from the secretariat at paul_white@ilzsg.org.

ICSG ATTENDS 5TH ASIA COPPER WEEK AND PRESENTS AT METAL BULLETIN COPPER CONFERENCE IN SHANGHAI, CHINA

In November 2017 the ICSG Secretary-General represented the Study Group at the 5th Asia Copper Week and the Metal Bulletin Copper Conference in Shanghai and made a detailed presentation on the perspectives and market outlook for the global copper industry and projected capacity developments. The ICSG presentation can be requested from: rebelo@icsg.org.

ILZSG PRESENTS AT INDIA NATIONAL CONFERENCE ON LEAD BATTERIES

The ILZSG Director of Economics and Environment was invited to speak at the National Conference on Lead Batteries in Bangalore, India in November 2017. Mr. Meng briefed the audience on the world lead industry, world lead acid batteries industry and relevant environment issues. Copies of the presentation are available from the secretariat at Jianbin_meng@ilzsg.org

INSG SPEAKS AT THE CHINA INTERNATIONAL NICKEL & COBALT INDUSTRY FORUM 2017

In November 2017, Mr Ricardo Ferreira, INSG Director of Market Research and Statistics, represented the Study Group at the "China International Nickel & Cobalt Industry Forum 2017, Guangzhou, China P.R., organized by Antaika and hosted by the China Nonferrous Metals Industry

Association (CNIA) and made a presentation on nickel market development.

INSG ATTENDS THE 33RD INTERNATIONAL FERROALLOYS CONFERENCE

In November 2017, Mr. Francisco Pinto, INSG Manager of Statistical Analysis, represented the Study Group at the "33rd International Ferroalloys Conference", Lisbon, Portugal, organized by Metal Bulletin.

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 December 2017 looking at nickel market developments and was titled "Nickel Market in 2017 and 2018: Energizing the Future". Copies of the articles are available from the INSG secretariat.

Forthcoming Events

MEETINGS, CONFERENCES and SEMINARS

- Mr. Paul White, the incoming Secretary-General of ILZSG, has been invited to speak on **2018 International Zinc & Zinc Oxide Industry Conferences** hosted by International Zinc Association at Park Hyatt Aviara Resort, Carlsbad, California in February 11-14, 2018.
- Mr. Meng Jianbin, ILZSG Director of Environment and Economics has been invited to speak at the 8th Forum of Non-Ferrous Metals hosted by Insitute of Non-Ferros Metals, Economic Chamber of Non-Ferrous Metals and Recycling and Association of Engineers and Technicians of Non-Ferrous Metals of Poland at Hotel Novotel, Cracow Centrum, Poland in February 2018.

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.

JOINT PROJECT ON MINING AND SMELTING/REFINING WASTE

The general objective of the Metals Study Groups in this activity is to create improved information on the waste generated in the process of mining, smelting and refining of metals, to provide references for member countries to use while managing their own mining, smelting/refining waste, and to give assistance to member countries in developing their policies, legislation and administration regarding mining, smelting/refining waste. The final report will be published by November 2018.

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 in 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.

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.

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.

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PUBLICATIONS

1. *Directory of Copper and Copper Alloy Fabrication Capacity (First Use) 2017 Edition*
2. *Market Study on Industrial Use of Refined Copper and Scrap in Fabrication in China*
3. *Market Research Zinc Chemicals 2017*
4. *Market for Zinc*
5. *World Directory of Nickel Production Facilities 2017*
6. *Lead and Zinc New Mine and Smelter Projects 2017*
7. *World Directory of Lead and Zinc Mines 2017*
8. *World Directory of Primary and Secondary zinc Plants 2017*
9. *Directory of Copper Mines and Plants (2nd edition July 2017)*
10. *ICSG World Copper Factbook 2017 (Oct)*
11. *World Directory of Continuous Galvanizing Lines 2017*
12. *ICSG 2017 Statistical Yearbook*
INSG 2017 Statistical Yearbook
13. *World Nickel-based Alloys 2016*
14. *Nickel Production in South East Asia: Trends and Perspectives 2016*
15. *Social Acceptance of Mining 2016*
16. *Lead and Zinc Mine and Smelter Database*
17. *Study on the Main End Use Markets for Lead and Zinc in Europe*
18. *Manufacture and Use of Semi-Fabricated Copper in Latin America/Canada (2017)*
19. *ICSG Statistical/Online Database*

❖ *A brief description of each publication is attached in following pages.*

1. Directory of Copper and Copper Alloy Fabrication Capacity (First Use) 2017 Edition

This directory provides a systematic global overview of companies and plants involved in the first use of copper. First users are mainly semis 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 2017 edition includes a complete update of copper wire rod plants and projects in most countries.

Published October 2017

2. Market Study on Industrial Use of Refined Copper and Scrap in Fabrication in China

This survey covered well over 19 million tonnes of copper and copper alloy semi-fabrication capacity in China and a copper and alloy fabrication output reported in the survey of over 12.4 million tonnes in copper content. This 38 pages report allows the reader to understand the current situation of the industrial use of refined copper and scrap in the Chinese fabrication industry and future industry perspectives. Three research outputs include a detailed update of fabrication capacity, the survey of copper (refined copper and scrap) use in the fabrication industry, and a copper end use market study covering detailed downstream applications of copper semis in main industries.

Published November 2017

3. Market Research Zinc Chemicals 2017

The 136-page report provides details on markets for zinc chemicals covering zinc chemical production, markets and usage, technology, zinc in the environment and recycling. The main zinc chemicals reviewed in the study includes zinc oxide, zinc borate, zinc carbonate, zinc chloride, zinc sulphate, zinc sulphide, zinc selenite, zinc powder and nano-form zinc compounds.

Published November 2017

4. Market for Zinc

The Comprehensive 55 page analysis prepared depending on ILZSG's internal resources provides an overview of the balance in supply and demand for zinc since year 2005, analyses the current trends and structure of mined and refined world zinc production and planned future developments, assesses demand trends of refined zinc metal in different regions and sectors, analyses the international trade flow in zinc concentrate and zinc metal and its structure, and examines developments in stock holding behaviour including a historical view of the price of zinc and identifies trends. *Published October 2017*

5. World Directory of Nickel Production Facilities 2017

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.

Published October 2017

6. 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*

7. 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*

8. 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*

9. Directory of Copper Mines and Plants (2nd 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. At 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 July 2017*

10. ICSG World Copper Factbook

ICSG's World Copper Factbook provides a broad overview of all facets of copper: from how it is

produced, traded, used and recycled, to health, environmental, and sustainable development issues. Filled with facts, figures and explanations, the Factbook is a useful reference guide for all. Available on ICSG website for download or request a hard copy.

11. 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

12. 2017 Statistical Yearbooks

The Yearbooks includes annual statistics on copper and nickel, 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 years. The Yearbooks serve as a useful tool for consultations and analysis on the longer term evolution of world copper, nickel production, usage, stocks and prices. *Published December 2017*

13. 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*

14. 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 Antaika 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*

15. 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*

16. 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.*

17. 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*

18. 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. *Published July 2017*

19. ICSG Statistical Database

ICSG maintains one of the world's most complete historical and current databases with statistics on copper production capacities, data on copper production, usage, stocks, prices, recycling and trade for copper products. In 2012 ICSG launched its ONLINE STATISTICAL DATABASE that will give subscribers the opportunity to have direct access to detailed ICSG historical data.