

Managing Director, Roger Emmott Associates Limited**Qualifications and Experience**

- I am a metallurgist and Chartered Engineer with over 30 years international experience in the mining and steel sectors. Working with engineering consultancies Hatch and W S Atkins and my own firm Roger Emmott Associates Limited has provided me with an in-depth understanding of the iron ore mining sector and how it relates to the steel sector.
- My consulting work in the ferrous sector has developed into expert witness work that now forms a large part of my activities. I have recently been appointed co-arbitrator in a ferrous dispute under the Swiss Rules.
- I have over 30 years' experience in iron units (iron ore, DRI, HBI, scrap, pig iron), mining consulting, steel, due diligence, and market studies. Over the last 10 years expert witness activities have become a significant part of my work. Many of these have involved iron ore, steel and steel scrap pricing matters. I have worked for Claimants and Respondents and am experienced working with other experts and with clients and their legal advisers. I have been cross examined at Tribunals in London, The Hague, Singapore and Hong Kong. I have authored expert reports and been deposed in New York for a case in the US Courts.
- A recent large expert witness case involved working on behalf of an overseas government regarding gas supply to a DRI plant. The Award was made in favour of the government.
- From 2009 – 2011 I worked for Steel Business Briefing/Platts, the Price Reporting Agency acquired by Platts in July 2011. From that and subsequent experience I am familiar with Platts' pricing mechanisms for iron ore and pellets and the necessary freight calculations to convert CFR to FOB prices across geographies.
- Expert assignments have included exposure to issues and disputes concerning the shipping of iron ore, steel scrap and steel products. I am familiar with the process of shipping these products including the associated documentation. I have visited the ports of Antwerp and Rotterdam.
- As the steel industry continues to migrate towards electric arc furnace steelmaking, I have experience of the steel scrap and iron unit sectors from consulting and expert witness perspectives. I have conducted commercial due diligence on two large UK private ferrous scrap firms that that resulted in transactions. In the latter cases, I visited scrap collection and processing sites in the UK, (approximately 10 in total) during which I observed the process of collecting and processing many forms of steel scrap, including heavy melting scrap ("HMS") 1 and 2. These were both in-depth assignments that provided me with detailed insights and an understanding of the steel scrap industry. As an expert witness I have been involved with cases that involved quality and contractual matters.
- I have been involved in mining projects since 1998. I was director in the Investment and Business Planning Practice at engineering consultancy Hatch, responsible for mining sector business development, working with lenders and clients and performing due diligence and feasibility studies on their behalf.
- During that time, I was based in London and had regular contact with the teams of mining engineers and geologists in Perth, Australia and the iron unit technical team in Mississauga, Canada (on Lake Ontario). I was trained in resources and reserves standards (including NI 43-101 and JORC) by Dr Ed Sides, member of CRIRSCO.
- From 1998–2006 and from late 2006 until the end of 2008 I had a similar role as Head of Mining and Co-Head of the Heavy Industry Practice at engineering consultancy W S Atkins.
- Whilst at Hatch and W S Atkins I conducted a large number of feasibility studies and due diligence on transactions. The feasibility studies included involvement and project management of 4 feasibility studies for direct reduction plants and mining feasibility studies involving greenfield and brownfield

mine developments. These included understanding the logistics and economics of iron ore production, shipping and conversion to final product.

- From 2009-2011 I was Global Head of Research, Consulting and Training with Steel Business Briefing, a pricing reporting agency based in London. In this role I ran a team of 12 including 6 in China, providing a range of added value services involving steel and iron ore at a time when pricing was becoming more sophisticated. This period included the breakdown of the annual iron ore pricing mechanism and transition to shorter term contracts based on newly developed index pricing.
- Since 2011 I have run my own firm, Roger Emmott Associates Limited with experience in iron ore mining, steel consulting, and expert witness work. This experience has included analysing many investments in the mining, raw materials and steel sectors, including reviewing materials prepared for investors and other stakeholders and reviewing many detailed documents relating to investments in the mining sector or expansions within that sector.
- I have conducted many market studies in the ferrous sector and reviewed a large number of third party studies during my career.
- My experience includes extensive assignments on behalf of clients and lenders in the metals sector. I have conducted and been part of teams conducting due diligence and feasibility studies on greenfield and brownfield investments.
- I have visited mines around the globe including iron ore mines in China and other mines in Ukraine and Belgium. I have managed a scoping study for a greenfield iron ore mine development in West Africa and evaluated iron ore mines in Ethiopia.
- In all, I estimate that I have evaluated approximately 80 mining projects over the last 25 years, the majority with detailed mining reports to the NI 43-101 and JORC standard, which detailed areas to be mined and permitting.
- I was President of MinSouth (local society for Mining within the IOM3) in 2016-17 and have been involved with the society since 2012. As the key community of mining professionals in the UK, MinSouth had over 500 members during this period, and monthly technical meeting were held on mining topics with guest speakers from the mining sector made up of mining firms, engineering consultancies, mining engineers, geologists, lenders and others. Further joint meetings were held with organisations such as the Association of Mining Analysts. These included industry Masterclasses on topics that included iron ore. Since 2012 I have attended over 50 such meetings and gained valuable in-depth knowledge from mining professionals with contemporaneous international experience.

Career History

Dec 2011-present	Roger Emmott Associates Limited, Managing Director, metals and mining consulting and expert witness (steel/scrap/iron ore/foundry sector)
Mar 2009-Nov 2011	Steel Business Briefing/Platts, acquired by Platts in 2011 (steel/iron ore) Global Head of Research, Consulting and Training
Aug 2006-Dec 2008	WS Atkins Plc (steel/iron ore) Co-Head Heavy Industry practice and Head of Mining
Apr 1993-Aug 2006	Beddows & Company acquired by Hatch 1998 (steel/iron ore) Director, Investment and Business Planning Practice
Sept 1985-Apr 1993	Computer services positions with MBS, BP, Granada, Unisys
Sept 1983-June 1985	London Business School, MBA

Sept 1979-July 1983 Foseco Minsep Group (grey and ductile cast iron, aluminium) Product development. Seconded to Foseco Inc, Cleveland, 1982

Sept 1976-July 1979 University of Birmingham, BSc 2.1. Metallurgy and Materials

Professional Memberships

C Eng Chartered Engineer FIC Fellow of Institute of Consulting, London, UK

FIMMM Fellow of Institute of Materials, Minerals and Mining, London, UK

FCMI Fellow of the Chartered Management Institute

Expert Witness Work

I describe below relevant previous Expert Witness Testimony for Tribunals in London, The Hague, Singapore and Hong Kong, and a US case in which I was deposed in New York.

Technical and Market expert-iron unit plant

Middle East-based-DRI manufacturer and steelmaker (Claimants) and Government (Respondent)

Arbitration at The Hague. Acted for Respondent in dispute regarding construction and operation of a Midrex plant. This required in-depth understanding of domestic natural gas supply and iron ore supply to the plant from a number of international locations via alternative logistics routes, all of which were fully costed. The tribunal found in favour of the government.

Steel scrap disputes

Have represented parties with expert opinions and reports on a number of disputes relating to steel scrap involving criminal and civil matters. The civil matters concerned valuation of steel scrap cargoes at specific dates and also issues concerning steel scrap quality.

Industry expert in dispute regarding acquisition payment

Steel producer (Claimant) and Steel producer (Respondent)

Industry expert assessing dispute involving payment for acquired assets. Wrote five expert reports. Cross examined in London.

Valuation of cancelled iron ore shipments

Iron Ore Producer (Claimant) and Commodities Trader (Respondent)

Disputed valuation of cancelled iron ore shipment. Acted for Claimant. Knowledge of iron ore shipping costs formed a part of this work.

Industry expert for dispute in US bankruptcy proceedings

Iron Ore Producer (Claimant) and Integrated Steelmaker (Respondent)

Industry expert on major dispute involving North American assets. Worked with US law firm, damages and competition experts. Deposed in New York. Case is ongoing.

Valuation of mixed iron ore shipment

Iron Ore Supplier (Claimant) and Iron Ore Trader (Respondent)

Disputed valuation of iron ore shipment. Acted for Respondent. Singapore Tribunal. This case involved understanding of iron ore shipping costs to a number of locations on FOB and CFR basis.

Scrap shipment with alleged impurity issues

EAF steelmaker (Claimant) and Owner (Respondent)

Dispute concerned impurity levels in scrap, allegedly much higher than contract, causing issues in Claimant's meltshop. Detailed review of documentation concluded that scrap impurities did not cause meltshop issues. Litigation avoided.

Valuation of iron ore mine

Energy and Commodities Company (Claimant) and Mining Company (Respondent).

Disputed valuation of Mine in Sierra Leone. Acted for Claimant.

Valuation of iron ore mine

Commodities Trading House (Claimant) and Canadian Iron Ore Mine (Respondent).

Disputed value of Canadian Mine. Acted for Claimant.

Valuation of steel rebars following order cancellation

Middle East Steel Service Centre and Trader (Claimant) and Chinese Steel Producer (Respondent).

Damages claim for Claimant, London Tribunal. This required in-depth understanding of shipping costs to end user market.

Steel billet dispute

Steel Trader (Claimant) and Chinese Steel Producer (Respondent).

Damages claim re steel billet dispute. Hong Kong Tribunal.

UK government-business rating appeal for UK steelworks

UK Steel Producer (Claimant) and Government Agency (Respondent).

Complex appeal regarding use of land and business rates. London Tribunal.

Consulting assignments in mining and iron units

- Strategic review of Hong Kong listed Chinese iron ore miner with visit to mine sites in China.
- For a Canadian Junior Mining firm, a concept study of iron ore in the Central African Republic, involving geology, mine planning, rail and port components.
- Advising a global mining consultancy on strategic options.
- Confidential due diligence for mining divestment in North America by major mining house.

- US Private equity firm, due diligence on raw materials entry strategy for European firm.
- UK Private equity firm, due diligence on buy side and sell side of specialist recycling firm.
- For a European Export Credit Agency, feasibility studies on a DRI/HBI investment in SE Asia.
- For a consortium of investors, feasibility study for an iron unit facility to be constructed in the GCC region involving comparison of iron unit processes and recommendations.
- For a US listed energy company, market and pre-feasibility studies for steel investments using gas from the Pande field in Mozambique.

Consulting assignments in steel sector

- For a major international steelmaker, a full strategy review was conducted, as a result of which the company was significantly realigned into market facing units.
- For the lenders to an international trading and manufacturing firm, conducted a strategic review and valuation studies for lenders to evaluate the firm's strategy.
- A study of the market for aluminium zinc coated steels for a leading industry organisation.
- A study of the market for galvanised coatings using magnesium for a leading steelmaker.
- For a leading European steelmaker, a large number of strategic studies for new flat rolled investment. A product and profit optimization program implemented.
- Advising a leading international steelmaker on strategy and future technical requirements for the pipe and tube sector.
- For a European special steels company, a number of strategic, technical and commercial studies for special and engineering steels to optimize positioning and profitability across a number of specialist sectors.
- For an international steelmaker, a number of studies involving strategy and future direction.
- For a private steel firm in Saudi Arabia, a market and feasibility study for entry into galvanised coated steels.
- For an Indonesian industrial group, feasibility studies on relocated steelmills in Indonesia.

Due diligence

- Due diligence of limestone mine for international steelmaker.
- Due diligence of dolomite mine for private equity transaction.
- Due diligence on a number of firms involving steel scrap and recycled waste.
- Led international project team assessing global steel markets for international financial institution re US\$5bn financing of a major steel expansion project in South Korea.
- Due diligence for privatization of steelmaker in the former East Germany, for purchasing consortium.
- Due diligence of European steelmaker, prior to privatization.

- For a UK power utility, due diligence to acquire the power plant of an Indian steel company.
- For a European bank, market, technical and investment studies for proposed steelmaking investments.

Steel Market Studies-selected examples – multi client

- Multi client study on cold rolled and galvanised steel end use markets.
- Multi client study on automotive sector material demand and markets. Development and uses of high strength steels (AHSS and UHSS) as well as aluminium alloys and other key automotive materials.
- Multi client studies on linepipe and plate demand and end use markets including in-depth metallurgical understanding of standards (API 5L, X-grades) and properties.

Single client studies include:

- Steel flat products including galvanised and organic coated steels.

Publications and Conferences

2019. Chaired conference session, Kallanish Europe Steel Markets, Amsterdam.
2018. Chaired conference session, Kallanish Asia Steel and Raw Materials, Singapore.
2018. Chaired conference session, Kallanish Flat Steel Markets, Istanbul.
2018. Chaired conference session, Kallanish Europe Steel Markets, Antwerp.
2016. Letter in Materials World re blast furnace vs EAF-based steelmaking and raw materials.
2013. Presented paper on Steel end uses, Platts European Steel Conference, London, May 2013.
2012. Platts SBB Steelmaking Raw Materials Conference, Amsterdam.
2010. Letter in Financial Times regarding use of European steel scrap and its impact on China's steel exports.
2011. SBB Steel Markets Europe Conference, Barcelona. Chaired closing session.
2010. MinSouth Masterclass, Iron Ore. Presented paper on seaborne iron ore trade.
2010. SBB Steel Markets Europe. Attended as part of events team.

Training

2015. Kallanish Africa and Middle East Steel Masterclass, Dubai: trainer.
2015. Kallanish Steelmaking Raw Materials Masterclass, Zurich: trainer.
2014. Kallanish Africa Steel Masterclass, Dubai: trainer.
2014. Kallanish Steelmaking Raw Materials Masterclass, Zurich: trainer.
2014. Kallanish Energy Pipe and Tubes Masterclass, London: trainer.
2013. Kallanish Steel Masterclass, London: trainer.