



Economic Geology – Project Generation – Mineral Exploration – Due Diligence – Mine Assessment – Hydrogeology

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## List of References as of May 2018

### A) Economic Geology, Mineral Resources & Mining :

#### 2018 :

- On-Site assessment of tin - tungsten potentials in Central Namibia
- Desk - Top study on gold potentials in the Republic of Ghana
- Assessment of multiple gold deposits in Eastern Siberia and Mongolia
- Desk - Top study on gold potentials in Eastern Siberia, Kamchatka and Sakhalin

#### 2017 :

- Target generation of mining projects in the Republics of Armenia, Tajikistan, Turkmenistan and Uzbekistan
- Assessment of gypsum deposits and consulting on quality / whiteness improvement in Yanbu area, Western Saudi-Arabia
- Valuation of a ceramic clay deposit in Northern Bavaria, Germany
- On-site visit and assessment of various mineral deposits in Scotland
- Analysis of geotourism potentials - coal show mines, fluorspar mines and geosites in the Mazandaran Province, Iran

#### 2016 :

- Maiden assessment of gold and copper deposits in Kayseri – Kahramanmaras area, Central Anatolia, Turkey
- Procurement and detailed mineralogical description including ore microscopy of lead – zinc ores in the Ruhr area / Ruhrgebiet as part of the “HTMET” research project for the German Geological Survey / BGR in Hanover.
- Economic geology field trip to the “Golden Quadrangle” in the Apuseni Mountains and the polymetallic deposits of Baia Mare area / Maramures in Romania
- Continent wide desk top study on talc potentials of 48 African countries for a major mineral filler company
- Assessment of huntite and antimony deposits in Western Anatolia, Turkey



## **Economic Geology, Mineral Resources & Mining (continued) :**

### **2015 :**

- Assessment of a Quartz deposit in British Columbia, Canada
- Visit and Geological Investigation of Kaolin deposits in Western Germany
- Valuation of a ceramic clay deposit near Regensburg, Bavaria
- Reconnaissance of Zinc – Lead Potential in the Western Harz Mountains, Northern Germany
- Planning, Organisation und Execution of a diamond exploration program in Southwestern Europe

### **2014 :**

- Short Study on current global tin and antimony supply situation for private client
- Assessment of a major wollastonite deposit at Aroche, Andalucia, Spain
- Desk Top Study on barite potentials in Turkey, Egypt, Jordan, Morocco and Greece
- Consulting on the economic potential for limestone deposits in the Ndola area, Copperbelt, Zambia
- Evaluation of copper – gold deposits and smelter slags in Albania

### **2013 :**

- Study on REE – Potential of phosphogypsum – dumps in Middle Europe
- Assessment of a giant graphite deposit in Lindi region, Southern Tanzania
- Due Diligence on several copper deposits in the Sultanate of Oman
- Exploration for kimberlites with diamond potential in Southern Spain

### **2012 :**

- Prospection and reconnaissance on hydrothermal lead – zinc deposits in the Ruhr area, Germany
- Reservoir assessment of the Lüdersfeld methane deposit, Lower Saxony, Germany
- Major country wide assessment of the mining sector, mineral potential and mineral development potential of the Sultanate of Oman (metals, building materials, industrial minerals, kaolin) with 6 months of geological field work
- Reconnaissance of two potential REE – Mineralisations in Eastern Germany



## **Economic Geology, Mineral Resources & Mining (continued) :**

### **2011 :**

- Prospecting and assessment for economic scandium mineralisation in Eastern Bavaria, Saxony and the Czech Republic.
- Due Diligence of the Springer tungsten mine property, Nevada
- Appraisal of the current status of Uis and Neineis tin mines, Namibia for DRAG
- Preliminary assessment of the Mertens copper mine, Rehoboth, Namibia
- Field visit of Aljustrel and Neves Corvo polymetallic deposits, Portugal

### **2010 :**

- Exploration for an underground blasting chamber for explosion clad metal production in Belgium, France and Switzerland for Dynaplats
- Prospection and evaluation of a prospective gold – copper deposit, Hungary
- Due Diligence / Assessment of Antimony Deposits in the Halong area, Vietnam
- Prospection of marble deposits in Central Namibia
- Study on flooding behaviour and rock stability in the Kropfmühl graphite mine, Bavaria
- Reconnaissance field visits of massive sulphide deposits in Southern Cyprus

### **2009 :**

- Exploration for an underground blasting chamber for explosion clad metal production in Germany for Dynaplats
- Global study on flat ore reefs / ore horizons for a leading German mining equipment company,
- Evaluation of an extensive manganese shale deposit in the Northern Austrian Alps
- Desk Top study of the high grade REE deposit Steenkampskraal in Namaqualand, RSA
- Assessment of a potential REE deposit near Trujillo, Northern Peru
- Reconnaissance study on the use of the Kohnstein and Döhlau Gypsum mines as underground blasting chambers for Dynaplats

### **2008 :**

- Evaluation of potentially economic gold projects in the Czech Republic, Slovakia and Hungary,
- Assessment of the copper, gold and sulphuric acid potential of northern Cyprus
- Project Generation : Assessment of multielement Noble and Base Metal potential ( gold, silver, platinum, nickel, cobalt, tungsten) in Germany and Austria



## **Economic Geology, Mineral Resources & Mining (continued) :**

### **2008 :**

- Prospection for synsedimentary fluorspar mineralization in Hessen, Germany
- Global study on economics and target generation for tungsten, molybdenum and ferro-vanadium deposits
- Visit and geological research on various kaolin deposits and mines in Upper Palatinate, Bavaria
- Identification of aggregate resources in Germany and Finland, 2008 - 2010
- Experts opinion on the viability of Armenian chromite deposits
- Organisation and management of a full scale gold exploration program in Eastern Bavaria at Gütting, Unterlangau for Deutsche Rohstoff AG

### **2007 :**

- Assessment / Research of the giant Pebble Porphyry Copper Project, Alaska
- Project Generation : Assessment of 15 European base metal deposits for further exploration work for Deutsche Rohstoff AG
- Assessment of potentially economic gold deposits in the Czech Republic, Slovakia and Hungary
- Assessment of economics of the Namibian mining company Weatherly Plc
- Project Generation : Assessment of various industrial mineral deposits (quartz, feldspar, garnet, soda ash) for future exploitation for Wolf & Müller
- Due Diligence of a north Mexican coal exploration project at Monclova

### **2006 :**

- Full scale exploration program and evaluation for CBM - Coal Bed Methane resources in the Schaumburg coal field, Northern Germany, 2007 - 2010
- Analysis / Research of the investment potential of Pan African Mining operations for Dr. Kalliwoda Research
- Analysis / Due Diligence of the geological potential of Moto Goldmines, North Eastern - Congo

### **2005 :**

- Evaluation of the mineral potential of borate and base metal deposits in Turkey
- Exploration for aquamarine gemstones and iron ores in the central Damaraland, Namibia,
- Study of market potential for Namibian marble fillers



## **Economic Geology, Mineral Resources & Mining** (continued) :

### **2004 :**

- Evaluation of amethyst and quartz deposits in western Turkey
- Exploration for mineable red granite ornamental stones deposits in Germany
- Visit and stability assessment of underground kaolin mines in Eastern Bavaria and Bohemia

### **2002 :**

- Evaluation of travertine, gypsum and specularite iron ore pigment deposits in Central and Eastern Turkey
- Mapping and documentation of historic landslides in the vicinity of a newly developed gypsum underground mine Breitenstein near Bodenwerder, Weserbergland, 2003 - today

### **2001 :**

- Prospection of aggregates / crushed rock resources in northern Germany
- Geological mapping, exploration and core logging of a potential limestone aggregate deposit close to Alfeld / Lower Saxony, 2001 - 2002

### **2000 :**

- Market study on calcium carbonate fillers for Oppermann KG, Hedemünden
- Consulting and planning work on underground bituminous limestone mining at Eschershausen – Hils, Lower Saxony for DASAG, 2000 - 2001

### **1999 :**

- Comprehensive study about the market potential, usages and economic geology of chalk filler deposits in northern Germany
- Due Diligence of a proposed remediation & backfill project of a former dolomite quarry in the Spessart area, Germany
- Market Study on the geology and economics of lapislazuli gemstones
- Evaluation of the mineral potential of Mount Malosa area and Kangankunde phosphate - REE carbonatite, Malawi
- Economic appraisal of blue lapislazuli mineral pigments in Zambia



## **Economic Geology, Mineral Resources and Mining (continued) :**

### **1998 :**

- Literature survey about the potential usage of bituminous limestones in waste disposal site construction
- Evaluation of the mineral potential of the DASAG - concession area in the Leinebergland, resulting in the definition and delineation of a 20 Million ton high grade carbonate deposit
- Research and evaluation of the geothermal potential of flooded mine shafts in Northern Germany for geothermal energy usage

### **1997 :**

- Exploration for crushed rock / aggregates resources, Southern Lower Saxony

### **1996 :**

- Geological consultancy on various exploration- and small mining projects (iron, copper, tourmaline) in the Solwezi area, Northern Zambia
- Development of a rehabilitation scheme for an underground limestone mine in Eschershausen, Lower Saxony, Northern Germany
- Investigation and development of sanitation proposals for an imminent landslide in a limestone quarry in the Weserbergland, Northern Germany

### **1994 – 1995 :**

- Evaluation of several gemstone and precious metal deposits (emeralds, peridot, gold) in and developing of an exploration concept in South Eastern Egypt
- Detailed mapping and examination of abandoned underground asphalt mines and evaluation of mine subsidence risks in the Holzen Asphalt mines, Hils
- Desk Top Study / Literature survey about natural spinel deposits for use as refractories for Refratechnik GmbH
- Exploration and Documentation of a karst cave in Northeastern Ibiza, Baleares, Spain

### **1988 :**

- Detailed mapping of gold mineralisation in high metamorphic volcanosedimentary rocks on the Daheim prospect, southern Erongo foreland, Namibia
- Gold exploration program on gold quartz vein mineralisation on the Ondundu project, central Damaraland, Namibia

### **1986 :**

- Resource interpretation of a major drilling program on pegmatitic tin - tantalum mineralisation at Uis tin mine, Namibia



## **Economic Geology, Mineral Resources and Mining (continued) :**

### **1984 – 1985 :**

- Detailed assessment of the geology and formation of the Helmstedt lignite basin, Lower Saxony, Germany (M.Sc. thesis)
- Detailed mapping of a part of the Coppengrave – Brunkensen – Hoyershausen area in the Hils with scientific research on the historic „Gute Hoffnung“ lead mine / mineralisation.

### **1982 :**

- Exploration on gold - quartz vein mineralisation with detailed mapping, sampling, underground mine exploration etc. in high alpine terrain, Rauris Valley, Austria

## **B) References Environmental Geology / Waste & Waste Site Remediation :**

### **2017 :**

- Senior consulting on an EIA of a planned coking plant near Savadkooh, Mazandaran Province, Northern Iran

### **2015 :**

- Evaluation and Potential Assessment of large historic copper slag dumps in the Mansfeld Area, Sachsen – Anhalt
- Valuation of potential landfill rehabilitation of a clay pit in Central Bavaria
- Assessment and Due Diligence of an innovative, environmentally friendly dust elimination system for open pit mines and quarries using biocementation

### **2014 :**

- Assessment and management plan on mine waste water of the graphite mine at Kropfmühl, Bavaria

### **2013 :**

- Environmental consulting of construction of a dinosaur park on a former WW II - ammunition factory, Central Bavaria

### **2009 :**

- Evaluation of the retention potential of a potash mine dump near Hanover, Lower Saxony for hazardous organics and heavy metals



## **Environmental Geology / Waste & Waste Site Remediation (continued) :**

### **2007 :**

- Exploration and Due Diligence of a CBM Methane Project in the Schaumburg Area, Lower Saxony, 2007 – 2009
- Assessment of iron ore and zinc potential from large iron smelter slag dumps in Upper Palatinate, Eastern Bavaria

### **2006 :**

- Historical Research on Methane emissions from coal beds in the Schaumburg Area, Lower Saxony

### **2005 :**

- 3D Immersive Photodocumentation of the "Kristallgrotte Merkers" with giant halite crystals, Merkers Potash Mine, Thuringia
- Development of a tourism marketing concept for the historic Silberberg Show Mine at Bodenmais, Bayerischer Wald, Bavaria
- Participation in a national Geological Heritage competition, with two proposed Geosites -- Silberberg Bodenmais and Wachsender Felsen Usterling – being awarded the title of “National Geosite of outstanding Beauty and Importance”

### **2004 :**

- 3D Immersive Photodocumentation of various World Heritage Sites in Turkey for the National Tourism Ministry of Turkey

### **2003 :**

- Exploration and Documentation of historic underground sandstone mines in Ansbach, Bavaria

### **2000 :**

- Detailed exploration and documentation of the historic underground Badewasserkanal monument in Bad Nauheim, Hessen

### **1999 :**

- Detailed historical investigation of a II World War underground factory in Marienhagen, Hils area, 1999 - 2001
- Historical Research on fine coal dust emissions in the former Carolus Magnus colliery in Übach - Palenberg near Aachen
- Assessment and economic valuation of a landfill rehabilitation scheme of a large dolomite quarry in Hessen





## **Environmental Geology / Waste & Waste Site Remediation** (continued) :

### **1998 :**

- Consulting on possible TNT - contaminated drainage systems in the Werk Tanne explosive factory area, Harz Mountains
- Literature survey and benefit study on the usage of bituminous limestones in waste disposal sites for DASAG / Eschershausen
- Fact-Finding and Assessment of wastewater purification potential of natural reed beds at Lake Titicaca, Peru for Kreditanstalt für Wiederaufbau / KfW
- Exploration and documentation of an underground cable and transport network on the HANOMAG factory in Hannover-Linden, Lower Saxony

### **1996 :**

- Detailed exploration of underground workings and transport channels below the LHB factory in Salzgitter, Lower Saxony, 1996 – 1997
- Exploration and environmental risk assessment of landfills at the Kurhessenkaserne, Hannoversch Münden, Lower Saxony

### **1995 :**

- Detailed historical research and exploration of a historic underground structure on the upper part of the Kurhessenkaserne in Hannoversch – Münden, Lower Saxony, 1995 - 1997
- Planning and conceptual design of a reed bed waste water treatment plant for Hemeln village, Lower Saxony

### **1994 :**

- Detailed investigation and environmental risk assessment of a former ammunition factory at Carlshütte – Delligsen, Northern Germany, 1994 - 1995
- Drilling and ecological risk assessment of former sludge ponds in Salzgitter - Lebenstedt

### **1993 :**

- Major historical research of the Salzgitter mining industrial area as part of investigations of a local cancer cluster.
- Testing of short term and long term radon emanation/strain of local inhabitants of Salzgitter - Heerte as part of the research project on local cancer clusters
- Exploration of various mine adits / underground structures near the Carlshütte Delligsen as part of a major environmental risk assessment program, 1993 - 1994
- Detailed historical research of the ammunition factory Carlshütte Delligsen, Leinebergland, Lower Saxony, 1993 - 1994



## **Environmental Geology / Waste & Waste Site Remediation (continued) :**

### **1993 :**

- Detailed exploration and mapping of underground transport systems below a part of the Salzgitter smelter complex in Salzgitter-Watenstedt, Lower Saxony
- Planning of a rehabilitation scheme of the hazardous waste disposal site "Flüssigschadstoffdeponie Osterwiek" in Sachsen – Anhalt
- Major historical research on hazardous waste in the southern part of the Salzgitter smelter complex as part of research on a local cancer cluster in Salzgitter – Heerte
- Critical review and assessment of previous planning work on a landfill site near Holzminden

### **1991 - 1992 :**

- Geological / geophysical assessment of hazardous waste contaminations in the vicinity of a landfill in Halberstadt County, Sachsen – Anhalt
- Environmental risk assessment of a hazardous CKW contamination on a railway station near Bremen, Northern Germany
- Detailed historical research of contamination hazards of a liquid waste disposal site near Magdeburg, Sachsen – Anhalt
- Literature survey / desk top study on land fill sealing systems

## **C) References – Hydrogeology :**

### **2018 :**

- Scoping for water potentials on a farm in the Mount Etjo area, Namibia

### **2015 :**

- Assessment of potential spa - usage of geothermal waters in Muscat / Sultanate of Oman

### **2014 :**

- Hydrogeological Consulting on karst water aquifers in the Ndola Area, Zambia

### **2013 :**

- Hydrological assessment of tailing ponds of the Kropfmühl graphite mine, Bavaria



## **C) Hydrogeology (continued) :**

### **2012 :**

- Assessment of hot spring geothermal power potential in the Sultanate of Oman

### **2010 :**

- Hydrogeological assessment of the flooding behaviour of the Kropfmühl graphite mine, Bavaria

### **2009 :**

- Hydrogeological study of the Lüdersfeld methane gas field, Schaumburg Area
- Assessment of salt water flow within a potash dump and optimisation of adsorption systems near Hanover

### **2006 :**

- Concept study on exploration and commercial extraction from submarine fresh water springs in karstic aquifers along the Mediterranean coasts (Spain, Italy, Greece, Croatia) using thermographic imagery

### **2003 :**

- Hydrogeological investigation and assessment of a landslide area near Rühle, Weser

### **2001 :**

- Evaluation of rain water drainage potential in the housing area "Am Johannishof" in Stadthagen

### **2000 :**

- Risk assessment and exploration of the historic "Badewasserkanal" in Bad Nauheim spa, Hessen

### **1999 :**

- Planning and Reconstruction of an underground fresh water plant in an historic 80 meter deep mine shaft in the Bückeberge using SRT techniques
- Hydrogeological Assessment of soil permeability for a new housing area in Rinteln-Steinbergen
- Hydrogeological calculation of a flood protection scheme in Rodenberg, Lower Saxony
- Assessment of the hydrogeological potential of the Obernkirchen golf course and localisation of favourable drilling targets, successfully drilled later.



## **C) Hydrogeology (continued) :**

### **1998 :**

- Evaluation of the fresh water potential of the former mining area of Altenau / Harz Mountains
- Fact Finding and Evaluation of the usage of large natural Totorá – reed beds at Puno / Peru as waste water ponds with KfW

### **1997 :**

- Potential assessment of geothermal mine water from historic coal mines in the Schaumburg area for EMR - Elektrizitätswerk Minden-Ravensberg, 1997 - 1998
- Hydrogeological consulting on soil drainage of pre-cleaned waste water in Hellenthal – Ramscheid, Eifel, Rheinland - Pfalz
- Exploration and evaluation of mine drainage waters for use as communal fresh water, Stadthagen, Northern Germany

### **1996 :**

- Assessment of soil water permeabilities in ten different construction areas in Southern Lower Saxony for decentral rainwater drainage; 1996 - 2002
- Examination and refurbishment of the historic Reinsen water adit for fresh water production
- Risk assessment and refurbishment of the Schierborner water adit for fresh water production, Samtgemeinde Nienstädt

### **1995 :**

- Feasibility study for a reed bed waste water treatment scheme at Hemeln near Hannoversch Münden
- Analysis and reconstruction concept of a fresh water well in an former mine shaft at Obernkirchen, Lower Saxony including all necessary reconstruction work
- Feasibility study for renewed utilisation of water adits in the Bückeberge near Reinsen

### **1994 :**

- Drilling and investigation of soil drain capabilities for artificial wetlands / eco - waste water purification system in Lahstedt (approved as EXPO - project)
- Investigation of water biocontamination and development of a sanitation scheme at the Bernsen well site, Auetal community, Lower Saxony