Tungsten (known also as “wolfram”) was first discovered in 1779 by an Irish chemist Peter Woulfe. Once isolated as a metal in 1783 in Spain, this steel-gray metal soon became known and sought after due to its remarkable properties - hardness, high density, the highest melting point (3422°C), the lowest vapour pressure and the highest tensile strength among all elements. Today tungsten is recognised as a strategic raw material. As a result, its production and supply is subject to increased controls through export quotas, mining quotas and restrictive licensing systems. Most notably China, a leading producer (and a consumer) of tungsten, has limited the number of mining licenses and foreign investments and imposed constraints on the mining and processing of tungsten as well as export taxes on tungsten products.

Tungsten’s many applications
The best known application of tungsten is in the production of hard materials. It is well known that tungsten is irreplaceable in the production of industrial drilling, cutting and milling tools for metalworking, mining and construction industries. Tungsten is also widely used in production of incandescent light bulbs, X-ray tubes and electrodes in TIG welding. In its alloy form, tungsten benefits aerospace, automotive and military industry (where it is used in the production of rocket nozzles, projectiles, missiles etc). Its less known applications which are possible thanks to tungsten’s density - similar to that of gold - include jewellery where it is used as an alternative to gold (which has also been exploited by counterfeiters trying to fake gold bars by plating tungsten bars with gold).

Where to find it and the main industry players
The largest deposits of tungsten minerals (scheelite and wolframite) are located in China. The remaining production originates in Canada, Russia, Bolivia, Peru, Brazil and some European countries. Although China has been producing approximately 80% of global tungsten supply, the introduction of the restrictions on tungsten export seems to create new opportunities for the development of tungsten projects outside of China.

The best known tungsten projects in other parts of the world include the Can Tung mine in Canada run by North American Tungsten Corporation which, together with the not yet developed Mac Tung project (owned by the same company), is believed to hold 15% of the world's known tungsten. Another project, Woulfe Mining Corp's Sangdong mine is being developed in South Korea. Production is due to start there later this year. In Western Australia, the Tungsten Mining NL's Kilba project is being developed with production expected to start by 3rd quarter of 2014.

There are also tungsten reserves in Europe, some of which have a long mining history and which are currently revived. The tungsten deposits in the UK are concentrated in western Devon and Cornwall. These resources have been explored by Wolf Minerals which is currently developing the Hemerdon project. Spain is another European country with tungsten resources. The smaller-scale Los Santos project run by Almonty Industries has been developed there as well as three other tungsten projects owned by Ormonde Mining, the...
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most significant of them being the Barruecopardo project. It is Portugal however, which has the richest tungsten reserves in Europe. The Panasqueira mine, a tin and tungsten mine which has been in production since 1898, is one of the largest tungsten mines in the world yet the only project of that scale in Portugal. Other Portuguese tungsten projects include the Covas project, a past-producing mine, where Blackheath Resources is currently running metallurgical testing and Colt Resources’ advanced stage Tabuaço project.

As demand for tungsten is gradually outweighing supply, Europe seems to be the best hope for future - a fact welcomed by many, given the relatively easy and developed legal environment in the European countries. Europe is not alone however, in gearing up to rival China in tungsten production. Africa has recently emerged as a hotspot for tungsten activity. Most notably, Premier African Minerals is to start production at its RHA tungsten project in the Kamativi tin belt in Zimbabwe, while Solomon Resources is running an exploration program for tungsten and other mineralization at the Rurembo project in Rwanda.

Financing of tungsten projects

With current tungsten projects already producing at close to their capacity, China controlling tungsten export and the world demand for tungsten growing, new projects will need to be developed to meet that demand. New projects however, need funding to develop - the biggest obstacle for the growth of the industry, as is the case more generally in mining. Due to the specific place of tungsten in the market, finding investors for tungsten projects is even more challenging. In addition, as the number of tungsten buyers is quite small, the offtake arrangements may play a more significant role in tungsten project financings that in other mining-related financing.

There have however, been some recent success stories. The Sangdong tungsten-molybdenum mine secured a US$104 million loan from the Korean Shinhan Bank in 2012 and in 2013 Wolf Minerals obtained a GBP75 million funding from a syndicate of commercial lenders which, together with an investor loan, has effectively provided full funding for the Hemerdon project.

As the lending market is slowly recovering and the Chinese tungsten does not seem to be sufficient to meet the worldwide demand, the market is very definitely hoping to see more tungsten projects developed around the world in the coming years.