

Mine Surveying in Finland - Education and Professional Practices

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SUMMARY

Finland is a European hub for mineral exploration and mine development. Nickel, zinc, copper, chrome and gold form Finland's most significant metal mineral resources. Metal, industrial mineral, and rock mines can be found all over Finland. Especially Lapland, which is located in Northern Finland, and Eastern Finland are important mining areas. Mines in Lapland are the biggest producers of cobalt, platinum, palladium and gold in European Community. Land surveyors are important for mining industry. It is land surveyors' benefit that land surveying is a multidisciplinary science, which has three strong sides, namely measurement science, land management and spatial information management. Mine surveyors are land surveyors who work in demanding working conditions in open-pit and underground mines. They are capable to use highly sophisticated surveying techniques to produce accurately, quickly and efficiently various 2D and 3D representations of the real mining world in purpose to assist various mining operations. In every mine you can find a mine surveyor, or even more. Mine surveyors are especially responsible for maintaining an accurate plan of the mine as a whole. Quite often they are for more than that. Well educated and practiced they can be involved in every aspect of a mining operation. This includes land use planning, legal issues, initial exploration, initial construction of mine operations, ongoing mining works, and rehabilitation of mine site after mining is completed. Mine surveyor can be seen as a kind of manager of the resources of a mine. Accurate surveying starts from control points, which define coordinate and height reference frames. Quite often mine reference frames are local systems. Anyway, coordinate transformations between local and national frames has to be defined, because the national authorities use documents and GIS data sets in the national frame. Control surveys can be seen as a weak point of the present professional practices in Finnish mines. Control surveys, and education related to them, has to be developed in the coming years.