

6th International Conference on

EARTH SCIENCE AND CLIMATE CHANGE

September 18-19, 2017 Hong Kong

Coal fires a major source of greenhouse gases: A forgotten problem**Hartwig Gielisch**

DMT GmbH & Co. KG, Germany

Coal fires seriously pollute the environment in several states of the world. Today most coal fires are manmade and emerge from illegal or unprofessional mining activities. The most disastrous coal fires of the world currently occur in China and India. In China the program "Big Step Forward" in the beginning of the 60's together with inefficient small scale mining is the main reason of the 750 coal fires in China, where almost 200 m of excellent, near surface coal were burned in uncontrolled coal fires. In India disregard of standards with regards to coal fire prevention is the reason of the burning coal fields. The Jharia Coalfield in Jharkhand started burning in 1916 and burns this year for 100 years. General data on the volume of coal, which burns in Indian coal mine, are not available. In general, coal fires start as result of unprofessional or illegal mining activities in open pits and uncontrolled, inactive coal mines by self-combustion of coal. Self-combustion is mainly controlled by the grain size of the coals, in other words the smaller the grain size the higher the risk of oxidation and subsequent temperature build-up. Many coal fires burn underground with variable supply of oxygen. Hence, the coal does not burn completely like in power plants, but it smolders in the underground. Emissions from these smoldering fires and an incomplete combustion of the coal create dust and greenhouse gases such as NO_x, CO₂, CO and CH₄. These emissions pollute the soil, groundwater and the atmosphere. Coal fire experts discuss since years the percentage and the cumulative influence of coal fires on global warming and climate change. Until now the percentage of greenhouse gases resulting from coal fires is unknown. The quantification of this percentage is a future duty of firefighting companies and organizations.

Biography

Hartwig Gielisch is an Exploration Geologist, studied at the Ruhr-University Bochum, Germany. Since more than 20 years he works as Geologist and Exploration Manager in natural resource exploration projects, mainly searching for hard coal and lignite. He is a qualified/competent person for natural resource estimation reports and registered as European Geologist (Certificate No. 752) with the European Federation of Geologists EFG, Brussels, Belgium. Since 2006, he works in India, exploring several coal fires and has extinguished fires together with Coal India Ltd.

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