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Ahn Ji Whan

Korea Institute of Geosciences and Mineral Resources, Korea

The grand challenges of emerging environmental issues

Over the several years, population growth, water pollution, air pollution, climate change and global warming are the most discussing and emerging environmental issues. Greenhouse gas emissions are caused to global warming and it was a serious problem that should be one of the primary challenges for governments. The above mentioned issues are all interrelated to each one. Prevention of CO₂ emissions from all sectors is the primary solution of the global warming issue and simultaneously we can control the climate change. In the 21st century, water scarcity, water quality and pollution are expected to become more acute as population growth. Currently 600 million people face water scarcity and nearly 3.2 billion people may be living in either water scarce or water stressed conditions by 2025. In developing countries, many areas are serious contaminated of natural resources and serious effects on human health. The transmission of pathogens through tap water and drinking water remains a significant problem. Worldwide, nearly 10 to 20 million deaths occur a year due to the water borne bacterial pathogens diseases. The other biggest issue is air pollution. Particulate matter is released from various industrial processes via stack emissions to air. Particulate matter can cause long term effects on people's health and reduce life expectancy; particularly those are suffering with pre-existing heart and lung disease. PM 2.5 is an emerging priority pollutant in global. The solutions of these major problems are CO₂ emissions prevention and CO₂ utilization. Accelerated carbonation is a multipurpose technique for water purification, heavy metals stabilization which is presented in water and improving the CO₂ capturing capacity. CO₂ capture, utilization (CCU) is a promising technology where in CO₂ is captured and stored in solid form for further utilization instead of being released into the atmosphere. The new advanced process called accelerated carbonation has been widely researched and developed.

Biography

Ahn Ji Whan has received her BS, MS and PhD degree in Mining and Minerals Engineering during the years 1986-1997 from Inha University and she has another Master's degree in Resources Environmental Economics from Yonsei University. Presently she is working as a Principal Researcher in Korea Institute of Geosciences and Mineral Resources, Director for Resources, Environment and Materials R&D Center, KIGAM, President for Korea Institute of Limestone & Advanced Materials (KILAM), Chairperson, Japan/Korea International Symposium on Resources Recycling and Materials Science, Vice President of Korean Society for Geosystem Engineering and Vice President of Korea Institute of Resources and Recycling. She is an Advisory Member for Ministry of Environment-consulting committee of waste treatment technology (ME-CCWTT) and she is Representative for ISO 102 (Iron Ore) from South Korea. In KIGAM, she has 20 years research experience and she started the multidisciplinary research areas and developed new novel technologies. She has published more than 154 papers, 716 proceedings papers/conference presentations and 71 patents. She has received many awards, National Science Merit (Presidential Citation Award), The Excellent Research award from Ministry of Knowledge Economy and The First Women Ceramist award etc., for her research excellence.

ahnjw@kigam.re.kr

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