Ji Whan Ahn, J Earth Sci Clim Change 2017, 8:8 (Suppl)
DOI: 10.4172/2157-7617-C1-029

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Carbon resource recycling appropriate technology for sustainable solutions of climate change and water resources

Currently, global warming is an emerging issue to all over the world. The goal of reducing our greenhouse gas emissions gives us an opportunity to search for a new solution. Carbon capture utilization and storage technology is a significant world top technology tool to reduce and utilization of CO_2. In Korea, a new "21C Frontier Project" started and established a Center for Resource Recycling working on CCUS. This research results revealed that demonstration/commercialization of two technologies such as low carbon green cement and *in situ* PCC waste paper recycling technology. In 2012 DOE started a coordinated updates of "Carbon Capture Utilization and Storage" potential across over United States and MIT suggested green concrete/cement manufacture is one of the top 10 emerging technologies in 2010. In Korea, carbon mineralization technology is the center of excellent, could start a new CDM model, carbon credits and recycling of waste resources for resource security strategy. CO_2 is utilized for green algae removal, human waste water recycling and hard water treatment by using carbonation process. The developed technology provides the solution for urban mine recycling such as critical elements extraction from waste mineral, manufacture of green cement, permeable concrete for smart city, carbonated materials for mining backfill and sink holes and precipitated calcium carbonates as advanced materials for light weight plastics. The carbon resources recycling appropriate technologies are the real solutions for sustainable climate change.

Biography

Ji Whan Ahn has completed her BS, MS and PhD degrees in Mining and Minerals Engineering from Inha University and she has another Master's degree in Resources Environmental Economics from Yonsei University. Currently she is working as an Executive Director in Carbon Resource Recycling Appropriate Technology Center, Korea Institute of Geosciences and Mineral Resources, President for Korea Institute of Limestone & Advanced Materials, Chairperson and Vice President of Korea Institute of Resources and Recycling. She is the Representative for ISO 102 (Iron Ore) from South Korea. She has published more than 175 papers, 716 proceedings papers/conference presentations and 71 patents. She has received many awards for her research excellence which include: National Science Merit (Presidential Citation Award), The Excellent Research award from Ministry of Knowledge Economy and The First Women Ceramist award, etc.

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