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Shale gas: Technological mapping, scientific legislation and environmental problems, Brazilian perspective

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The exploitation and production technologies of shale gas and its regulatory aspects are discussed, focusing on analysis for decision-makers. The data collected comprehended technology assessment through patent applications, scientific research evaluation through articles, regulatory aspects and accidents. This work maps countries, authors and journals with more articles, and companies with more patent applications. Several relationships and networks are discussed: Between authors and articles, among the main themes of articles, among countries with articles, and among 37 International Patent Classification codes. The environmental legislation is discussed for 9 countries and over 20 states, yielding regulatory analysis in several countries and in Brazil. A risk map is presented showing the geographic distribution of accidents. The main themes found are health, water, pollutant emission, regulations and policies, economic aspects, environmental impacts, risk and shale gas characteristics. It was found that there are few alternative technologies to hydraulic fracturing, being the research efforts more concentrated on mitigation technologies. United States and China are the countries with greater scientific and technological production as these countries possess large reserves of this resource and great interest in expanding their scale of operation and commercialization of this raw material, as well as export technologies. This work points several items of technical and sociological assessments of the production of shale gas, highlighting the need for better technical evaluation and better structuring the regulatory aspects, aiming to the possible exploitation of shale gas on large scale in Brazil.

Biography

Cristina M Quintella has obtained her DPh in 1993 from University of Sussex. She is full Professor at UFBA, President of FORTEC, has won 5 technology prizes from Petrobras, published more than 80 papers, 20 chapters or books, has created the journal Cadernos de Prospecção, coordinates the Northeast of Brazil TTO Network. She does technology forecast for several companies and is the Academic Coordinator of PROFNIT (a Brazilian Master's degree with over 100 professors on intellectual property and technology transfer for innovation).

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