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Economic and financial aspects of mine closure

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Abstract

Today, mine reclamation is a key component to a successful mine plan. Most of the industrialized nations have recognized the need to make mining activities relatively environmentally friendly, if they want to continue to benefit from the economic gains from mineral resource development. Countries such as the United States, Canada, Australia and South Africa are leaders in the field and have implemented relatively sophisticated legislation to ensure environmentally correct mine closure. These countries rely on a combination of strict control strategies and economic penalties to ensure compliance.

Yet, from the firm's perspective, reclamation activities are counterproductive as they cut into profits. In order to attract economic development and earn much needed economic capital, most of the rest of the world, particularly the developing countries, lack effective mine closure legislation. The traditional command and control type of legislation that is sometimes used is either vague and therefore avoided, or not enforced appropriately, resulting in an undesirable level of environmental degradation.

With the use of case studies from Brazil, this article shows that direct controls are effective in some instances and not in others. It proposes that economic and financial tools may be more effective than the traditional direct controls in getting firms to comply with environmental standards, particularly in developing countries where environmental compliance is more difficult to achieve. It explains the use of performance bonding as one type of economic incentive that has proven to be an effective environmental policy in mine planning and closure.

The authors additionally push beyond the typical style of performance bonds to introduce a flexible bonding and insurance system that allows governments to maintain strict environmental standards but limits firms financial exposure during the mining process. Such a system learns from the successes of the industrialized countries that use performance bonding and is sensitive to the needs of developing nations to attract investment yet maintain environmental integrity.

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