Rising gold prices drive Peruvian deforestation and mercury imports

Record high prices for gold have driven a recent six-fold increase in deforestation in parts of the Peruvian Amazon with damage that can be measured from space, according to a new study. Rates of forest clearance and imports of mercury, used to process gold ore by local, small-scale miners, were both found to increase with the rising international price of gold.

Much natural resource extraction is in developing countries, who are burdened with an unequal level of environmental damage, compared to the developed countries that import the raw materials. Gold is a key example – over the last decade, its price has risen dramatically; in July 2011, it hit a record high price of over US$1600 per ounce. As a result, artisanal, or small-scale, gold mining in developing countries has increased. This is largely unregulated, ‘informal’ mining, usually by the very poor seeking to escape poverty. However, it creates major environmental and health consequences, including toxic pollution and deforestation.

This study provides an example of environmental damage in the developing world driven by global markets. The researchers analysed NASA satellite images of the Madre de Dios region in the Peruvian rainforest, one of the most biodiverse areas in the world. They focused on deforestation around two major artisanal mines for the period 2003-2009. Peru is currently likely to be the fifth largest gold producer in the world, and globally, artisanal mining produces 20-30 per cent of all gold.

To assess deforestation levels in the region, the researchers identified and measured the mined areas in these images and mapped their growth into previously untouched forest and wetland over the course of the six years. They found that 6600 hectares of forest and wetland were cleared at the two sites during this time, where miners had blasted away riverbanks and floodplains to expose underlying gold deposits. Forest clearance for mines increased from a rate of 292 hectares per year for 2003-2006, to 1915 hectares per year for 2006-2009. Significantly, this was in conjunction with an 18% increase in the price of gold each year.

As well as deforestation levels, the study also looked at mercury imports to Peru and found that they were significantly related to the rise in gold prices. The researchers predict that Peru could increase mercury imports to around 500 tons a year by the end of 2011, from around 280 tons in 2010. Nearly all mercury imported to Peru is for artisanal gold mining. Mercury pollution of air, soil and water is a major concern surrounding artisanal gold mining, which uses mercury to extract gold from tailings (mining residue). It has been previously estimated that, globally, it is the second largest source of mercury pollution after burning of fossil fuels.

Control and regulation of mining will be difficult in the short-term without national restrictions on mercury imports and given its economic significance. The Peruvian government has introduced measures to control gold mining, such as fines for illegal mining, strengthening the mining approval process and improving mining practices. At a global level, UNEP’s 2009 agreement to tackle mercury contamination may support Peru’s efforts. The study suggests that other developing countries with gold mines are also likely to suffer environmental degradation in response to record high gold prices.

Other policies suggested by the study include fair trade gold programmes, developing safer methods of gold extraction and education of miners. However, the researchers predict that major environmental improvements will not be seen within the next few years and conditions will worsen with a stable or increasing price of gold.

Contact: jswenson@duke.edu
Theme(s): Chemicals, Forests, Sustainable consumption and production