

WORLD PLACER JOURNAL

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World Placer Journal - 2004 - Volume 4. **Illegal hard rock gold miners of Mongolia - major impacts on biological and socio-economic systems**

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ABSTRACT

"By 2003 hard-rock ninjas may have peaked at about 20,000 people in northern Mongolia, having absorbed most of the pool of village-based unemployed and under-employed."



GATHERING LOOSE COLLUVIAL...

ASM profitably remove easy-to-dig screens of weathered rubble found downhill of gold-bearing quartz veins.

A rapid growth in the number of illegal artisanal miners ('ninjas') is underway in Mongolia, both placer and hard-rock. The study documents the growth in hard-rock ninjas and highlights some major environmental and sociological impacts.

Until recently, ninjas were rare, but in the 1998-2002 interval a massive poverty-driven increase in hard-rock ninjas occurred, with its main focus in the Selenge watershed, using hand tools for mining and taking the bagged lump-ore home to their small rural towns ('soum centres') for crushing and hammering, milling by hand pestles and then panning/slucing using water and mercury. By 2003 hard-rock ninjas may have peaked at about 20,000 people in northern Mongolia, having absorbed most of the pool of village-based unemployed and under-employed, having alleviated poverty and boosted incomes rendering affordable medicare, travel, schooling, clothing and better nutrition. Farmers complain of labour shortages and farms now need to make more efficient use of labour and to pay higher wages. The general 'drift to the cities' did not occur in these regions, and standards of living are high for rural Mongolia. However the economic success of the villages is unsustainable being at a high price of health, safety and environment. Death and injury are frequent from roof-falls, shaft collapse, blasts and suffocation, often involving children.



MINERS TURN TO DYNAMITE...

Thousands of hard-rock illegal miners now use explosives in large amounts to mine underground along gold-bearing quartz veins.



DEEP STEEP UNDERGROUND DIGGINGS...

Many hard-rock ninjas cut slot-like stopes to extract gold-bearing quartz veins. Mine collapses are frequent and cause death and injury. Ventilation is poor and deaths from suffocation are increasing.

An epidemic of mercury poisoning is forecast to commence in several soum centres affecting entire households. Law enforcement is at breaking point and the legal rights of mining companies infringed, their costs increased and investment jeopardised.

Some hard-rock ninjas have moved up the technology ladder and financial ladder and now use advanced mining and processing methods. Many use dynamite in large quantities, posing a risk of nitrate contamination of groundwater and surface streams from residual explosives. Diesel generators, compressors and pneumatic drills are used with increasing frequency. Shafts are now often in excess of 30 metres deep, assisted by manual windlasses. Mineral processing remains village-based but is becoming increasingly mechanised with electric-driven crushers, ball mills, rotary wheel mills (= Muller mills), cyclones for dust extraction, heated indoor sluices and electrically heated furnaces.

Although most hard rock ninjas undertake illegal mining within 20-50 kilometres of their home village, several groups commenced in early 2004 in trucking to their villages loads of quartz gold ore mined illegally inside the South Gobi Protected Area close to the China border. Ten trucks were stopped by police and a 900-km shuttle service involving 100 trucks discovered.

Ecological damage to the Gobi by illegal mining and ecological damage to the Selenge watershed by mercury are demonstrated to now be linked.

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