

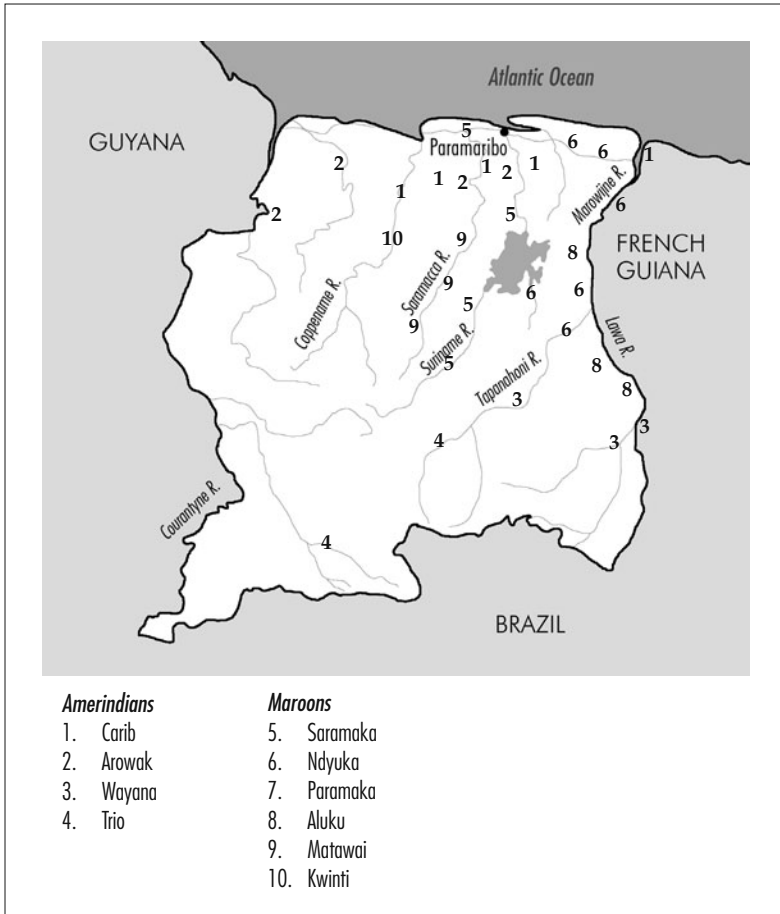
SURINAME

The indigenous Amerindian and tribal Maroon people of the dense rainforest region of Suriname's interior are facing the most destructive period in their history. The Amerindian people are descendants of some of the original inhabitants of the Amazon. Maroons are descendants of Africans who were sold into slavery, fought a war of liberation and today live in the interior. These indigenous and tribal people reside along the main rivers and are affected by artisanal gold mining and pollution from mercury, which is now found in fish, a primary source of protein. The impacts on public health, child development and community life from the growing and relentless extractive exploitation of gold, the successive waves of immigrant miners and the construction of roads and landing strips are signs that the indigenous and tribal people in Suriname are endangered.

The mining issue

Suriname's interior region covers an area of approximately 24,000 km². This region constitutes about 80% of the Surinamese land area and is home to a population of approximately 50,000 people, indigenous and tribal, representing 8% of the total population.¹ Six culturally distinct groups of Maroons (Ndyuka or Aukaner, Saramaka, Paramaka, Aluku or Boni, Kwinti and Matawai) and four Amerindian groups (Wayana, Carib, Arowaks and Trio) live in more than 50 riverside villages. They are not recognized by the government as having a legal claim to their traditional territories.

Many of these people have been displaced from their lands due to mining concessions. One example is the village of Kawenhakan, which is being relocated from the Suriname side of the Lawa River to the French Guiana side because of pollution of their traditional water



source by gold-mining activities. In June 2004, residents of Nieuw Koffie Kamp clashed with Cambior, the international gold mining giant from Canada, resulting in road barricades, police interaction, tear gas and the siege of a local police station. Meanwhile, the Saramaka people are awaiting a final decision from the Inter-American Court on Human Rights, which could issue a judicial order requiring the Surinamese government to annul concessions in Saramaka territory.

Most mining operations, however, are small (involving from 1 to 10 individuals), informal and illegal, including those owned by govern-

ment officials. It is estimated that between 30 and 60 thousand *garimpeiros* (informal, individual Brazilian miners) have migrated to Suriname's interior. They represent an overwhelming number relative to the region's indigenous and tribal population, which is at risk of being displaced by them.

It is difficult to make generalizations as to the relative importance of subsistence and cash economies in the interior villages. However, villages closer to the capital tend to be more integrated into the cash economy.² Economic integration is creating a greater dependence on imported goods, making the need for employment a necessity. Since the 1990s there has been an explosive increase in gold mining, and this sustains many indigenous and tribal families in forest villages, allows for the existence of stores, finances motorized transport to town or the nearest doctor and pays for electricity.³

The harmful impacts of mining

But mining also has many negative effects. It is estimated that between 30 and 60 metric tons of mercury are released into the environment annually by miners.⁴ Mercury pollution is causing irreversible damage to the environment and to the health of both miners and the general population living in the region where mining occurs.

Alongside the increase in gold mining activities there has been large-scale physical destruction of forests, creeks and rivers, an invasion of immigrant miners, the spread of HIV/AIDS and other sexually transmitted diseases, and an increased risk of malaria, which was virtually absent prior to the increase in gold mining activities. Now, malaria is rising due to the increasing number of abandoned mines with open pits that hold standing water and serve as a habitat for disease-carrying mosquitoes.

Male migrant labor, commercial sex workers and an infrequent use of condoms in mining camps combine to create a high-risk environment for HIV/AIDS and STD transmission. Modern small-scale mining also changes the social relations between those who benefit from

the mining economy (young men) and those who are excluded (elderly and women).

Many of these negative impacts are irreversible and it will be impossible to restore the original terrestrial and aquatic ecosystems that have been destroyed by mining activities. New interventions will consequently be required to prevent or minimize future health hazards caused by the consumption of fish from affected waters. A workshop to develop an action plan for conservation of the Guianan ecoregion complex attracted over seventy representatives from Guyana, French Guiana and Suriname to Paramaribo on March 2-3, 2004. Participants unanimously voiced concern over the effects of mercury contamination from gold mines. Scientists generally believe, however, that there is a lack of comprehensive and reliable information on the actual situation and therefore no solid data on which to base interventions to rectify the problem.

What kind of intervention is needed?

At the workshop, scientists, conservation professionals and representatives of government (GO) and non-government (NGO) organizations discussed the science-based approach to carrying out risk assessments and postponed intervention due to scientific uncertainty. The science-based policy model held by the scientific community is (1) that mercury pollution from gold mining is a science-based problem, (2) that GOs and NGOs are funding scientists to conduct research and collect data to demonstrate conclusively that mercury from gold mining is a threat to public and environmental health, (3) that scientists deliver comprehensive and reliable data to government and non-government organizations, (4) that the appropriate laws or decisions are made by GOs and NGOs on the basis of the results of scientific research, and (5) that the administration of laws and programs will solve the problem.

There are at least three reasons as to why this model is failing. First, government and non-government organizations continue to repeat risk assessment studies in order to meet their own internal goals without actually addressing the needs of affected individuals or communi-

ties in terms of reducing their exposure. Second, the problem of mercury contamination is more complex than the studies designed by scientists suggest, and the social, economic and health impacts of gold mining are not easily isolated. There are few direct relations between gold mining and its impacts that can be proven because multiple causes interact and contribute to these impacts. Third, the indigenous and tribal residents of Suriname's interior region are marginalized by the current process and given no opportunity to participate in the design, execution and analysis phases of projects that ultimately impact on their communities.

It is clear that there is a need for a more holistic view of the situation. A new research model is needed to integrate the entire range of social, cultural, economic, health and policy-related factors on the basis of community participation. To this end, it is essential to establish an effective system for an ethical review of the research. This includes the establishment and maintenance of a research ethics committee or institutional review board (IRB) independent of government and research sponsors. An IRB should include indigenous and tribal teams to guide the research. □

Notes and references

- 1 Suriname has a total population of 431,300 (2000). Other main ethnic groups are the "East Indians" whose ancestors emigrated from northern India (37%), Creole (mixed white and black) 31%, and Javanese 15%. Suriname is a former Dutch colony. —Ed.
- 2 **OAS. 1997.** *Natural Resources, Foreign Concessions and Land Rights: A Report on the Village of Nieuw Koffie Kamp*. Paramaribo, Suriname: Organization of American States.
- 3 **Heemskerck, M., M. Oliviera. 2004.** *Maroon perceptions of small-scale gold mining impacts, II: a survey in mining camps and affected communities in Suriname and French Guiana*. Paramaribo, Suriname: World Wildlife Fund-Guianas.
- 4 **Pollack, H., J. de Kom, J. Quik, L. Zuilen. 1998.** *Introducing Retorts for Abatement of Mercury Pollution In Suriname*. Paramaribo, Suriname: Organization of American States. **Gray, J.E., V.F. Labson, J.N. Weaver and D.P. Krabbenhoft. 2002.** Mercury and methyl mercury contamination related to artisanal gold mining, Suriname. *Geophysical Research Letters* 29:21-25.