

Health sector involvement in federal environmental licensing and malaria control in the Brazilian Amazon: a retrospective observational study

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Background: Malaria remains a major public health concern in the Brazilian Amazon. Large infrastructure developments, such as hydroelectric dams, can intensify transmission by altering ecosystems and attracting workers and settlers. Since 2001, Brazilian rules require health sector participation in environmental licensing in endemic areas, but implementation has not been comprehensively assessed. We analysed how malaria-related health actions are implemented in federal licensing.

Methods: Retrospective observational study of all federal developments licensed by Ibama, 2008-2024. Licensing records were cross-referenced with Ministry of Health (MoH) malariological evaluation files. We assessed the share of Amazon developments monitored by MoH, differences by sector and location, and the time from licensing start to the first formal MoH response.

Results: Of 3,335 developments, 897 (26.9%) were in the Amazon. Only 140 of these (15.6%) were monitored by MoH. Coverage varied by sector: mining (20.3%), power generation (19.1%), power transmission (16.3%), and transportation (14.2%). Most monitored developments had MoH engagement within one year (70.0%), but delays reached 16 years. Monitoring declined after 2015, reaching 7.8% in 2024.

Conclusions: Most Amazon infrastructure developments proceed without MoH oversight, and even higher-risk sectors remain largely unmonitored. Despite regulations, health-environment integration in federal licensing is limited and inconsistent, creating risk of unmitigated impacts that can undermine malaria control. Strengthening MoH participation across Amazon developments is essential to better align economic development with public health protection.