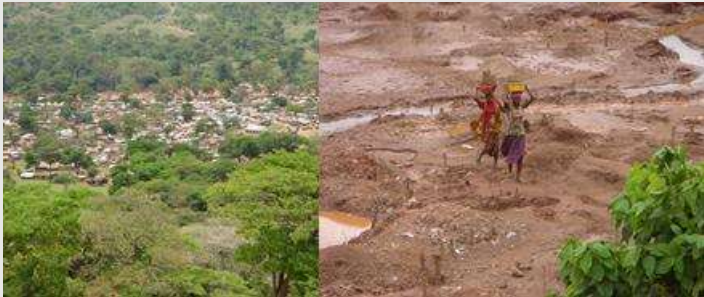


Exploring the fate of mercury in artisanal gold mining in Tanzania

Clavery Tungaraza¹, Eliapenda Elisante¹, Christopher Mwankuna¹ and Mark Cohen².

¹Sokoine University of Agriculture, ²NOAA Air Resources Laboratory



- In Tanzania, there is large population involved in gold extraction.
- It's widely distributed; Major areas are in the L. Victoria region and the southern highlands
 - Lake Victoria region is of major concern due to its fisheries potential
 - The southern highlands considered due to its vicinity to the National Park
- Artisanal gold miners carelessly use mercury in the amalgamation process.
- Mercury has been detected in human, water, sediments, fish, invertebrates, in cereals, tubers, etc.



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**Environmental
remedy**



**Cyanidation
plant**

- Two areas for data collection established and initial sampling done
- Ongoing environmental remedy initiatives documented
- Cyanidation method Evaluated; not easily adopted by artisanal miners
 - cost and size of mining still limiting
- Mercury use still in use with no caution
- Miners aware of mercury health effects but not able to adopt alternatives

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Field survey results of analyzed water sampled from three major mining sites in the L. Victoria region

Sample ID	[Hg] ng/L = ppb	Site/sample description
Mgusu mine Point 1	846.38	Point 1 ground water for community
Mgusu mine point 2	1,814.71	Point 2 – 3 downstream points along the river
Mgusu mine point 3	2,120.12	
Nungwe Bay pint 1	1849.86	Point 1; 4 km downstream from mining site, Rice farm
Nungwe Bay point 2	1,975.52	point 2; 4 km downstream from Mgusu mine, Rice farm
Nyarugusu mine	1,307.72	rice farm, old mining site
Mgongo mine	3,927.78	water from residue. central region
Londoni mine	2,794.17	recycled water from gold extraction, central region

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Next steps:

- Sampling site for southern highlands will be established
- Msc. student will be recruited
- Seasonal sampling of all sites initiated

Data impacts:

- Contribution to public health and environmental safety
 - Fish and the environment

Challenges:

- Need for changing research focus at one sampling site as we expect increased methylation.
- ASGM association not favoured by small scale miners
- Phragmites affect natural river flow to the lake victoria.

