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Dental bonds to small-scale gold mining

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Photo credits: SVEN-OLOF ENGLUND, left, LARS HYLANDER, right

☿ Mercury travels globally and is a global pollutant

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A small-scale gold mining village in the Philippines

getting mercury from Spain, the US, Russia, China.

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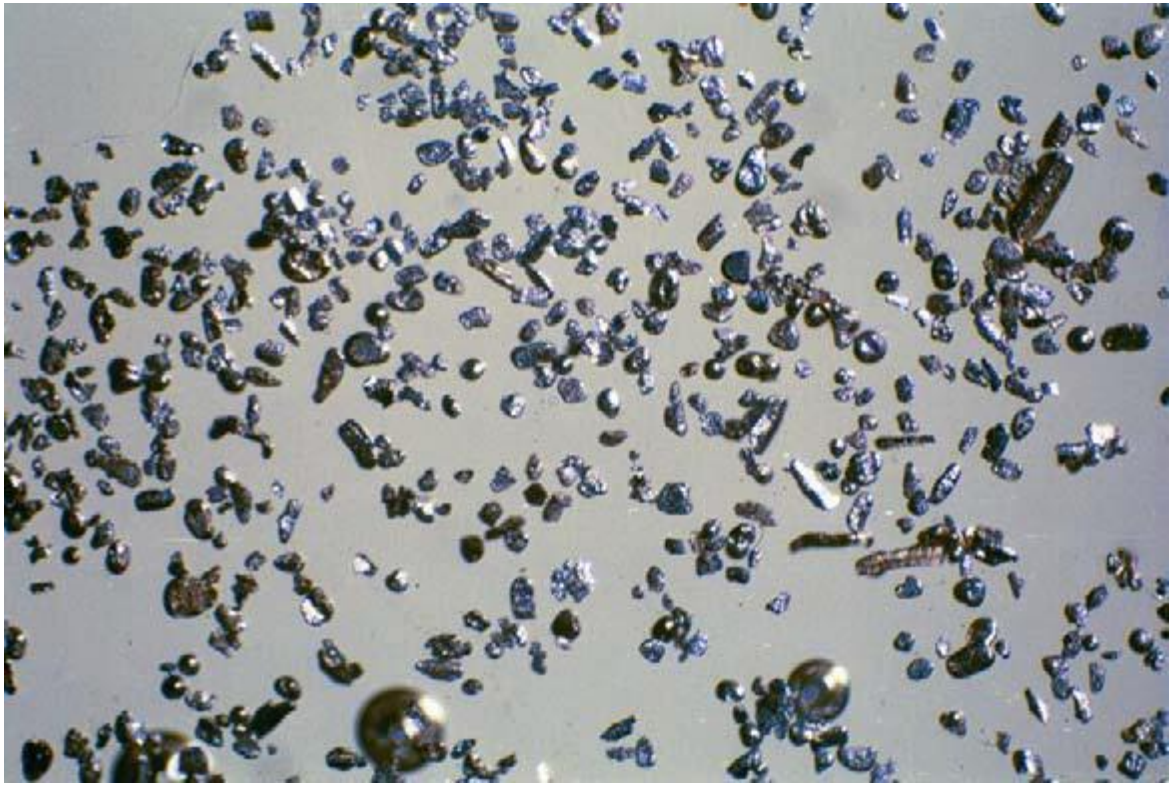
Mercury traded nowadays is generally recovered from mercury containing waste.



Dental amalgam captured from dental office wastewater, USA, (100× nominal magnification). Photo credit David Plath, ww.cleangold.com

Dental amalgam waste is profitable to recover due to its silver content (35%). But what to do with the mercury (50%)?

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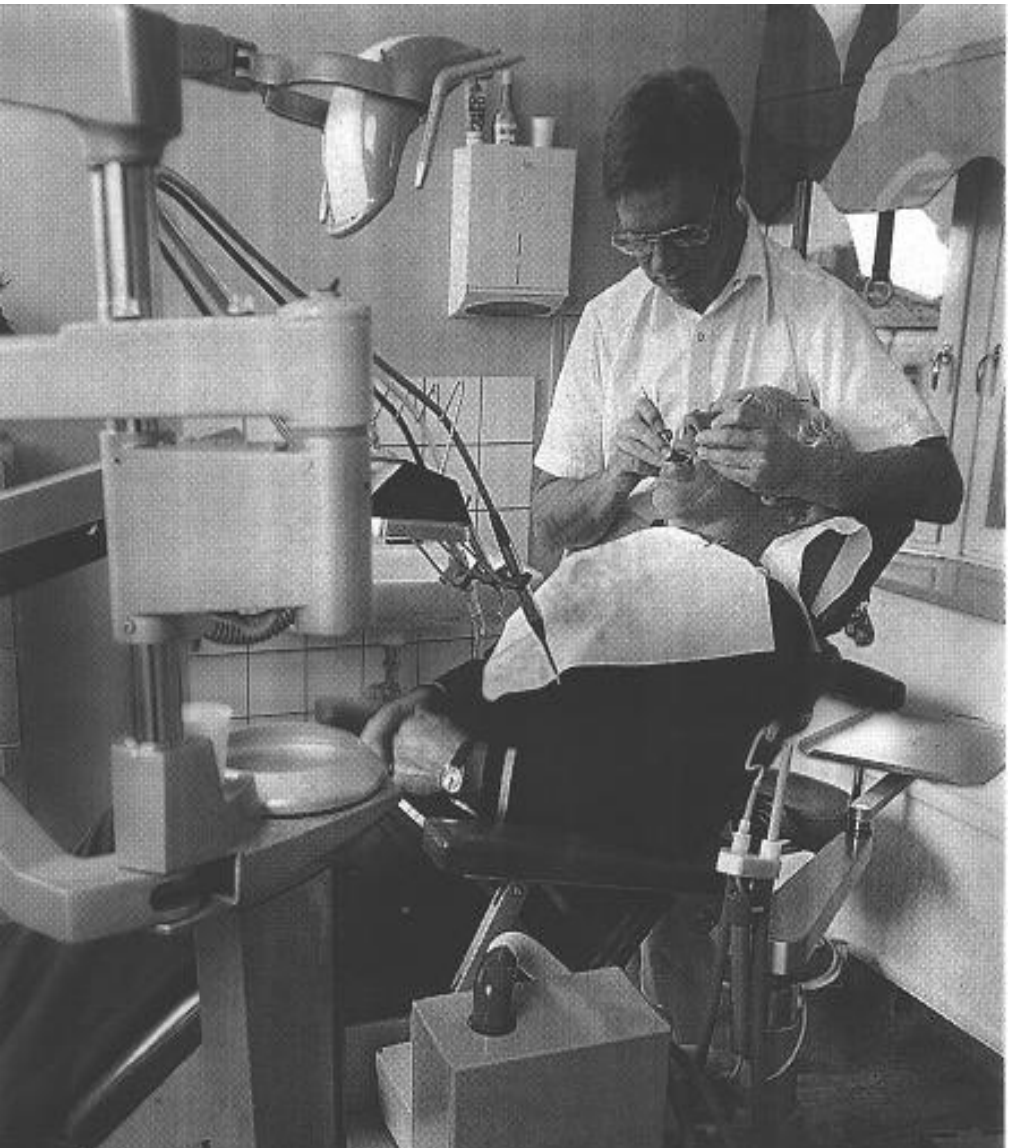
Two main options:

Dental fillings as dental amalgam *,

also called silverfillings



or for use in gold mining.

* Amalgam is a compound of mercury and other metal/s.

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Mercury is imported for dental use to countries such as Brazil and Peru. Once inside the countries most of it is used for gold mining.

Mercury from Almadén, Spain,
for sale at a gold miners shop in Peru.

Foto: David Plath

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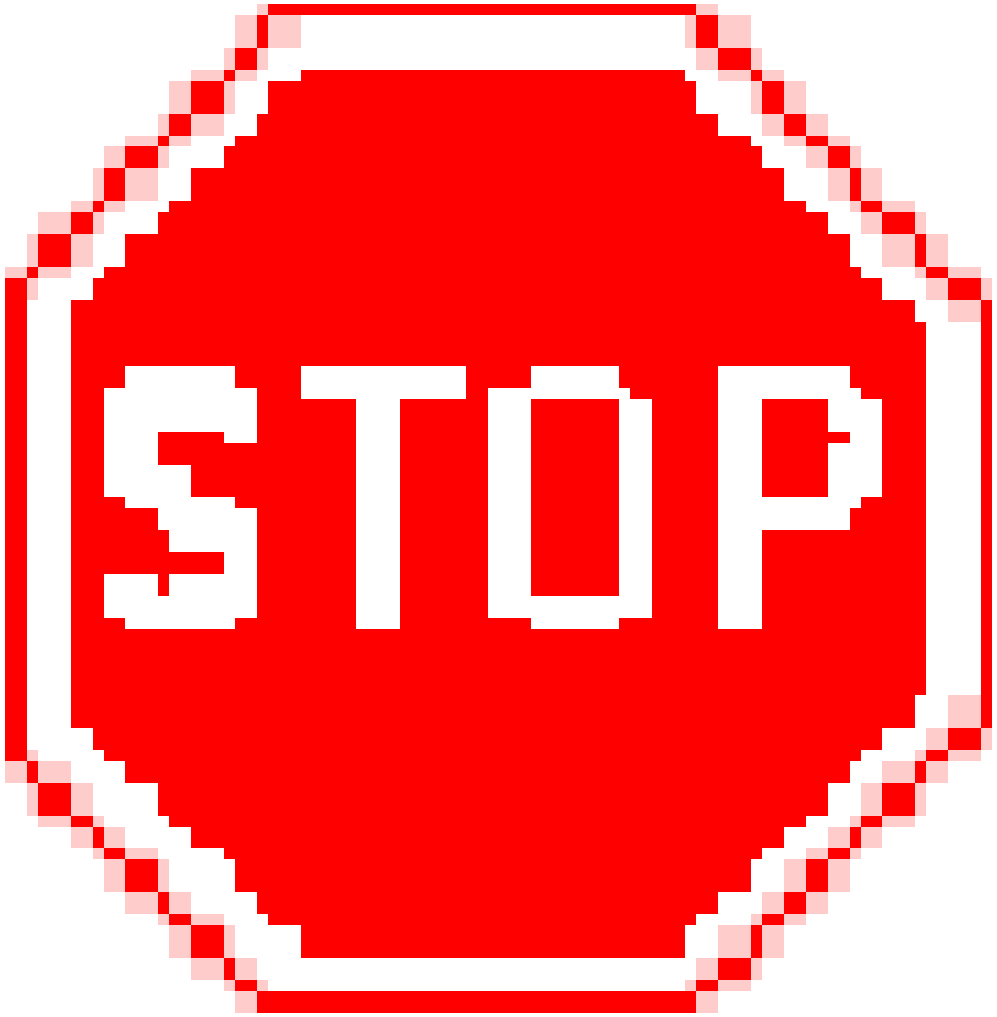

continued use of mercury!

Paying too little may cost too much!

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Minamata disease patients poisoned in their mothers' wombs half a century ago

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Foto: Lars Hylander

ARTISANAL and SMALL-SCALE GOLDMINING

* now the largest intentional consumtion of mercury

* taking place in countries with no or poor health and environmental protection

* can use low-grade mercury after processing of dental amalgam waste

* resulting in large emissions of mercury to air, water and soil

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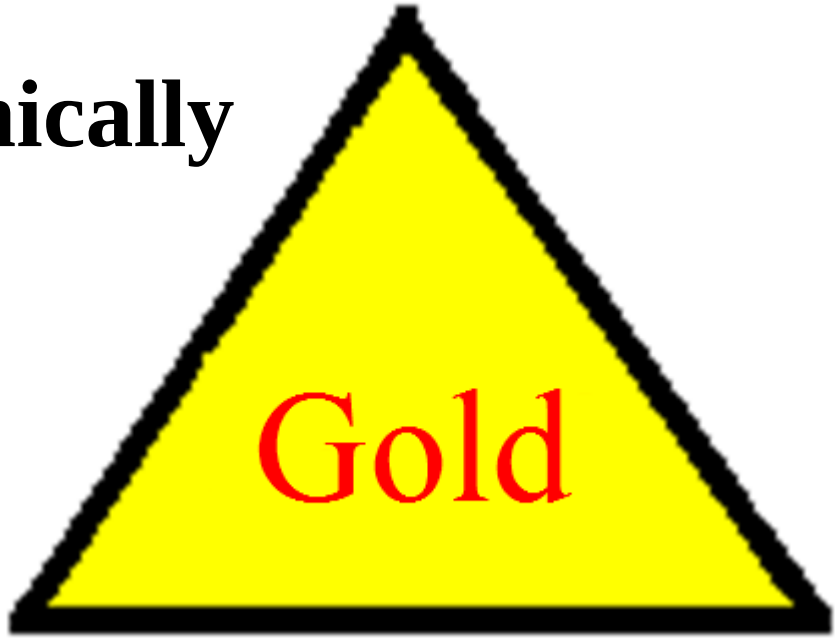
Why is mercury used?

Technically easy

Mix, stir, wash, and burn!



Economically profitable

1 g gold (Au) buys
1 kg mercury (Hg)

No incentive to reduce mercury as long as cheap and available!

Physically possible

Melting point –39 °C (cf. Au 1065)

”Dissolving” gold

Boiling point 357 °C (cf. Au 3700)

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Goldminer in the Amazonas

using the amalgamation method by massaging the milled ore into mercury covered sheets with his bare hands.

Photo: Lars.Hylander, Lars.Hylander@SLU.SE

Amalgamation can also be done in the washing pan. Amalgam and mercury is then poured into a cloth…

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and excess mercury squeezed out.

Foto: Lars.Hylander

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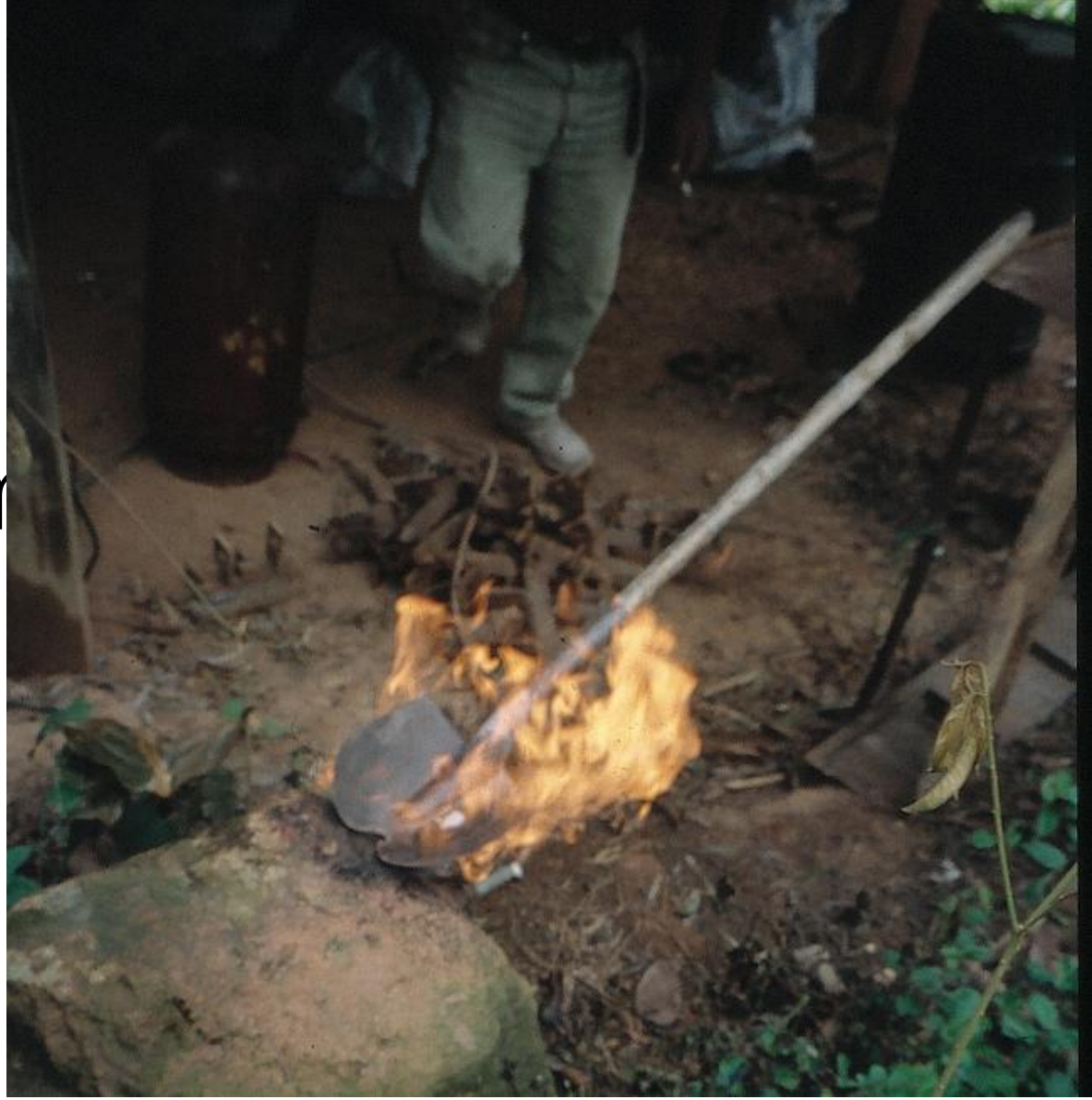

Gold amalgam is put on a spade and heated by a gas burner. Mercury evaporates, leaving pure gold behind.

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An effect of awareness raising campaigns:

Let's protect the men…

and leave the dangerous burning off mercury to the women!

Foto: Lars.Hylander

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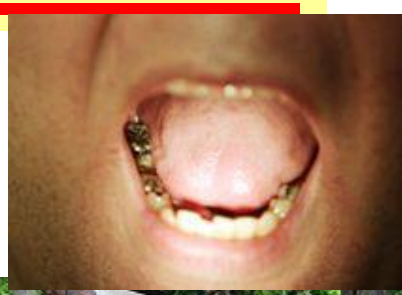
Voluntary agreements on mercury restrictions have been in effect for decades, but without desired effect.

Time to go for a **global, legally binding agreement!**

If not including dental amalgam,
mercury will be traded legally for dental usage



and then be used in disastrous goldmining.

http://www.unep.org/hazardoussubstances/Mercury/Negotiations/INC5/tabid/3471/Default.aspx

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Thank you for working for a bright future for coming generations

Acknowledgements

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Swedish University of Agricultural Sciences

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Some related litterature

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More related litterature

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