

Overall questions to discuss:

- How widely would you aim to scale the interventions in each target geography? For example:
 - Bangladesh: will the goal be to focus interventions in Mymensingh, Kishoregani, and Tangail. Or to gather evidence from those regions and scale an intervention nationwide?

Typically, we expect interventions to have national impact. In India, this would be state level, but there is ambition for a national intervention, albeit not planned until those state programs are tested. In the Philippines, response might become state level, depending on the results of RMS and baseline. While we aim to seek as wide an audience as possible, the design and scale of the intervention(s) may be determined on the nature of the findings of the RMS.

The effort in Bangladesh will focus on conducting post-hoc baseline plus endline blood lead level measurements to assess the effectiveness of a nation-wide turmeric lead reduction intervention that was implemented between 2019-2020. Colleagues at Stanford and icddr,b measured a 90% reduction in the prevalence of lead-tainted turmeric post-intervention, but the key next step is to assess its impact on blood lead level changes. We are focusing the blood lead level analysis in the Mymensingh, Kishoreganj, and Tangail where a large randomized controlled trial was previously conducted ([WASH Benefits](#)). This trial enrolled over 5,000 children and pregnant women. As part of the trial, blood was collected from pregnant women and children between 2012-2013 and has been stored in a -80 deg. C freezer ever since. With funding from GiveWell, we are proposing to do the following 1) analyze the lead concentrations of the stored blood of 500 randomly selected children and pregnant women to provide a baseline blood lead level prior to the turmeric intervention, and 2) re-visit these districts to collect blood and analyze blood lead levels among 500 children and pregnant women who are in the same trimester of pregnancy and who live in the same neighborhoods as those selected for baseline.

- Mexico: how many potters do you expect you'd be able to reach with this work?

The work in Michoacan will cover 10 potter communities. We estimate that at least 5 artisans per potter studio from 100 studios will participate = 500 potters. Further, Michoacan currently has 29 lead-free potters who we will train in marketing and sales. In total, at least 529 potters will be reached.

- Why are Jharkhand, Uttar Pradesh, and West Bengal, India split out as separate rather than included in "additional"? How sure are you that there will be tractable interventions in those states following the RMS?

These three northern states neighbor Bihar, and have been identified by Stanford as states likely to have lead chromate contaminated spices. The quality of spices in the south is generally higher, because of the export markets, and there is little adulteration per our recent study. Our hypothesis is that cities in neighboring states may also be affected by spice adulteration because of their proximity to Bihar. These nearby cities may either trade directly

with vendors in Patna or may have local spice processors who adulterate with lead chromate. However, we do not have direct evidence of excessive lead levels in spices in these states as of now. If we do not find contaminated spices we will pivot accordingly.

- How representative / big do we expect BLL endlines to be? Will they be nationwide? Only in areas where interventions took place?

The statisticians at Vital Strategies (or others) will make decisions on the sampling methodology, guided by available resources, logistical constraints, and the level of confidence desired / possible. Likely, the number of tests for endlines will be the same as baselines, albeit a different cohort of children (age needs to be similar). They will need to be representative to mimic the baseline, in order to detect meaningful differences. This is expected to be national, or state level.

- The Rapid Market Screenings mentioned "potentially" sampling paint. What are the reasons you could end up not sampling paint?

We will plan on collecting and testing representative latex wall paint samples in each country to augment any existing data. Note that we do not intend that this be a comprehensive paint study for each country, rather just a few spot checks of latex paint. However, and most importantly, all of the home-based source analyses will test paint in situ in homes with elevated BLLs.

Questions on budget

- Are the funds in the budget the only funds that are expected to be allocated to each location? (Bangladesh, Bihar, other Indian states, Philippines, Mexico, Peru) o Could you give an estimate of any funds you expect to spend in those countries/states other than through GiveWell funding?

In several locations GiveWell's funding will complement other donors' funding for different aspects of Pure Earth's global lead program. In Bangladesh and Mexico, Year 2 of the three-year Clarios Foundation grant has just begun (\$1.25M and \$2.12M respectively). For Bangladesh we also anticipate receiving a grant in 2022 of approx. \$1M from the French Facility for Global Environment. In addition, renewal grants are also anticipated from several current donors, including the Clarios Foundation, Trafigura Foundation and USAID.

- How are direct and indirect costs defined?

Direct costs are expenses that are attributable to a specific project, activity or deliverable. These include all in-country costs, as well as HQ costs incurred to oversee and support country program staff and project delivery, such as program management and technical staff and their travel costs. In-country and HQ personnel direct costs are proportionally distributed on a level-of-effort basis among all projects in the portfolio.

Indirect costs extend beyond the expenses we incur delivering a specific project to include the costs involved with maintaining and running the organization. While these costs contribute to the organization as a whole and to all projects in the portfolio, they are not assignable to the delivery of any single project or activity. At Pure Earth, indirect costs are incurred at the HQ level and include non-program, non-technical staff (executive management, finance, HR, operational support) personnel and travel costs; occupancy; information and communications technology; external audit fees; legal services; insurance; office equipment; office supplies; representation; etc.

- Are overhead / imputed HQ costs included in the budget?

Pure Earth's indirect cost recovery (overhead) rate is 18%, applied to all direct costs. This rate covers the expenses described above as indirect costs. HQ program management and technical staff are included in the GiveWell budget at 1.25FTE as direct costs, apportioned to each country budget on an estimated LOE basis and identified in the columns labeled "HQ Staff." International travel costs for these staff are included in the respective in-country budgets.

HQ M&E (1.0FTE) and Comms staff (0.75FTE) and their international travel costs are included as direct costs.

All other HQ costs are considered indirect costs and are recovered in the 18% overhead rate.

Source requests

Could you please provide sources for each of the following:

- BLL estimates in Bangladesh, Bihar (Patna), West Bengal, Philippines, Mexico, Peru

Bangladesh: IHME

West Bengal: We do not have an estimate. Working with IHME to calculate BLL levels for each state in India.

Bihar: Pure Earth Source Study in Feb. 2020 of Patna, not statewide

Mexico: IHME and ENSANUT

Philippines: IHME

Peru: IHME

- High prevalence of contaminated spices in Patna

During our recent national turmeric sampling effort in India in the past 6 months, we only identified alarmingly high lead levels in samples from Patna, Bihar. We sampled 12 different types of turmeric from 4 vendors based at the two major retail and wholesale bazaars in the city. Every sample contained lead, with a median of 2,066 ppm and a maximum of 5,847 ppm. Although no level of lead is safe, India has set a standard of 10 ppm lead as the maximum permissible level in spices.

We also conducted a prior study of lead exposure among 136 children in Patna. This study found a high prevalence of adulterated spices from children's homes, particularly turmeric, but

also coriander and chili powder. Among turmeric samples, 53% were above 100 ppm, and 28% were above 1,000 ppm. The source of lead was confirmed to be lead chromate and not unintentional contamination.

The source of high lead concentrations in spices comes from Pure Earth's source apportionment study completed in Patna in February 2020, as well as followup work completed by Pure Earth and Stanford in other areas of India in late 2020 and early 2021. We seek to complete further evaluation of potential lead-adulterated spices in West Bengal, Uttar Pradesh, and Jharkhand due to their proximity to Bihar and sharing trade routes with Bihar. Note that we collected limited spice data from Kolkata, Lucknow, and Dhanbad (major cities in West Bengal, Uttar Pradesh, and Jharkhand), and there was limited evidence of excessive Pb in turmeric. However, those cities are relatively far from the Bihar border. Testing completed on turmeric sold in Assam (Guwahati), imported from Bihar, had high lead levels.

Other specific questions

- GAHP: What would funding be used for specifically (e.g. 1-2 FTEs in GAHP?)

GiveWell funds for GAHP will be used to:

Secretariat Program manager (1 FTE) - \$100k/year = \$300k Secretariat

Exec Director - \$20k/year - 1/6 FT = \$60k Lead.pollution.org - \$20k/year =

\$60k Case study research /interns - \$20k = \$20k

Regional plans \$20k/region = \$40k Senior Advisors = \$20k/year = \$60k IT/

Comms / Web support = \$20k/year = \$60k Subtotal Direct Costs = \$600k

- What are your policies around any potential conflict of interest with Clarios Foundation?

This issue has been recently a subject of board discussions. While no concerns regarding conflict of interest have arisen under the current Clarios contract, we have decided to define a donor conflict-of-interest policy broadly, and it's currently under development. The policy will establish grant boundaries such that there is no perceived conflict of interest specifically where our work might be seen to provide a competitive benefit for the donor, or where our work (especially research) might be criticized as being compromised.

Further, our current contract with Clarios Foundation has Ethical Standard clauses including, "Both parties confirm that no official of the other party has been offered or received (and will not in the future receive) any benefit as a result of this collaboration."

"Because each Party is committed to achieving the goals of the collaboration, and the collaboration between Parties is not designed to afford commercial advantage, it is confirmed that this is not an exclusive arrangement between the parties."