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# Mercury in Goldmines in Uganda Influence Pregnancies on the Faroe Islands

by Asger Roejle Christensen ⌚ September 14, 2022

*Our working environments have become truly global. Even though they are often invisible, harmful substances are traveling long distances between the South and the North. Integrating research and NGO work can convince local governments and stakeholders in the Global South to make stronger efforts to avoid poisoning and improve the work environment for their citizens, says Erik Jørs, Clinical Associate Professor at the Research Unit of Occupational and Environmental Medicine University of Southern Denmark.*

Jørs has worked with workers' health at workplaces in the South and the North for decades. Among many other projects, he has been involved in studying the use of mercury in the extraction of gold powder at gold mines in the Philippines, Uganda as well as Bolivia. The purpose of this research is to limit the risk of poisoning among the miners – but also to avoid poisoning among other people living on continents far away.

"When small miners are extracting small amounts of gold in small gold mines, they add mercury to the ore when it has been broken", Erik Jørs explains. "Gold powder grains are so tiny that many of them would naturally be washed away. But if you add mercury, the gold and mercury will enter an amalgam which settles much easier at the bottom of the gold miner's vessels because the grains have become much larger".

When the gold miners afterward are heating up this amalgam with a Bunsen Burner, the mercury evaporates into the air, up into the atmosphere, before it tends to sediment at the globe's two poles. Here, it transforms into methylmercury, even more poisonous than metallic mercury, and enters the local food chain. "Therefore, when pregnant women in the Faroe Islands eat whale and fish, she risks exposing herself to this methylmercury, and it might in the worst case influence her unborn child".

Surveys, conducted at the Faroe Islands by SDU and researchers from the Faroe Islands, show a clear difference in intelligence and development between children, depending on how much methylmercury their mothers have consumed during their pregnancies. "Therefore, it's very important to stop pollution with methylmercury anywhere in the world", concludes Erik Jørs.

He mentions the long-term research into the gold miners' fateful routines as an example of a field in which he an expert into workers' health at the workplace has been able to cooperate with colleagues at SDU who are experts in environmental health.

### **An academic and a volunteer**

For many years, Erik Jørs has had a professional career as an academic at the university and a physician at the university hospital, and besides that he has been a very active volunteer in health-oriented development work around the globe.

He was one of the founders of a Danish NGO called Dialogos in 1994 and also International Center for Environmental and Public Health (ICOEPH) within the Danish Society of Occupational and Environmental Medicine in 2004. Since 2001 they have been collaborating in activities related to health at the workplace in Bolivia, Nepal, Uganda, and the Philippines, especially in relation to how to avoid pesticide poisonings within the agricultural sector and in public health campaigns and in homes. For the last twenty years, studies into small miners' use of mercury have also come into the picture. Based on this material, Erik Jørs wrote his Ph.D. about the prevention of such poisonings.

"Pesticides and mercury are creating the same kind of problems in Arctic areas. Both are very slowly degradable. Researchers have found remains of pesticides in Northern Greenland where you have never used DDT or other slowly degradable pesticides". Farmers as well as consumers are exposed to this kind of poisoning around the world. In most cases, they won't die from it, but "they might get serious chronic consequences like skin damages or diseases in their lungs or nerves", as Erik Jørs explains. For many years, he has been working in the intersection of academic research in cooperation with colleagues at SDU, education of the next generation of Danish medical doctors – and then NGO activities.

Some of his students from the North receive the opportunity to get study and work experience at health projects in Global South during stays at local clinics in Nepal, Vietnam, Tanzania, and other places. Some of them end up writing their master thesis about a global health issue. At the same time, some of the health projects, run together with local NGOs, are slowly beginning to have an integrated research aspect in which local researchers are involved and some capacity building takes place. Until recently, NGO work and academic studies had to be kept apart.

"We have always wanted to document the scope of the problem from the beginning, and we have always wanted to be able to evaluate our efforts at the end of a project. Recently, it has been more generally accepted, that research is a very strong tool as part of a development project. If you can present research results that show the importance and urgency of an issue, the local governments in i.e., Uganda and Bolivia are suddenly much more willing to engage themselves in projects and assist constructively with bureaucratic paperwork involved and advocacy towards governments and the international society".

"In this way, your research is not just an extra activity done in your spare time during the project. It becomes very useful; it becomes an important tool to avoid harmful pollution".

### **Learning by doing**

During projects in the Global South, Erik Jørs is cooperating with local NGOs as well as local universities. "Maybe we ask students from a local university to help us with the practical work during a survey. Maybe they can use the data in their own master thesis, or maybe a local postdoc can get merit if we write an academic article together afterward".

"Similarly, the employees and activists at the local NGOs get experience in research methods, data processing, and article writing. Several of them have actually become researchers themselves afterward". For all of them, it's "learning by doing", and according to Erik Jørs, quite a lot of capacity building has taken place. "It has worked quite effectively. A number of them are writing their own articles now".

However, Erik Jørs stresses, it is still preferable to have people at a local university as one of the partners. "It can be very hard to find time for research work during planning courses and other activities at a busy NGO project – and even harder to find time to analyze the data. However, if you cooperate with a university, you will always find somebody with experience in data processing".

The typical target group of an NGO project concerning the prevention of poisonings from pesticides is local farmers and mercury small-scale gold miners, health care workers, teachers, and professionals, who are voluntarily following the courses. The curriculum is prepared in cooperation with local doctors, occupational doctors, agronomists, mineworkers, and engineers. "They will continue teaching the course after we have left, and when the farmers or miners implement the new insights at their own farms, it will make their neighbors want to join next time."

"The primary purpose of our projects is to achieve better health at the place where the project takes place. The projects are small drops in the ocean, of course, but the fact that we combine health projects with research work has had the effect that we have been able to influence the local stakeholders as ministries of agriculture to pursue much safer handling of pesticides within their countries, and also raised international awareness on mercury-free gold mining methods". The strategy recommended in the agricultural projects is called "integrated pest management", and it's also being promoted by FAO as the best alternative to one-sided reliance on pesticides in the prevention of plant illnesses".

As mentioned, Erik Jørs and his staff are using results and experiences from the projects in the Global South extensively during teaching and mentoring students at SDU. Everybody who studies at the university will be taught on global poisonings with experiences from these projects. Students can also go deeper into Global health issues and select a semester course in "global health and research".

According to Erik Jørs, the recent announcement that SDU shall be a dedicated SDG university, a center for activities related to the SDG goals, has indeed had an effect on teaching and research taking place at the university. "Many of us have begun working with the SDG goals, and it is expressed through the activities that we do. I always relate to one or several SDG goals in my classes".

"Some people might say that it's just a branding exercise for the university, but we have indeed got a much more global approach to everything we do".





*Erik Jørs*

ResearchGate







*Gold mining in the Philippines. Photo: ILO*

**DASAM – Danish Society of Occupational and Environmental Medicine**





*Gold mining in Guanay, Bolivia. Photo: Wara Vargas*







*Gold panning, Chiquitamao, Bolivia. Photo: Jean-Francois*







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