

Agricultural protection

1) Of the 135 active ingredients you sent that are unambiguously HHPs, what is the denominator (i.e. how many active ingredients aren't defined as HHPs)?

There are around 900 pesticide active ingredients in use globally at present. So around 1:6 or 7 products on the market could be considered an HHP.

However, in poorer countries the ratio is likely to be higher because HHPs are typically cheaper, older products that tend to be more widely used in LMIC. Newer, less hazardous chemical and biological pesticides are more likely to be registered in HICs where they are also more costly and often more complicated to apply.

2) Of those HHPs, roughly how many are deregistered in the EU / US?

In the EU, 108 of the 135 are not approved, either because they have been actively banned or voluntarily withdrawn or not put forward for registration by the producers/importers. A further 15 weren't in the EU database, so their status is unclear at the moment. 12 of the 135 are approved for use in the EU at present.

A newly published [report from Public Eye](#) nicely presents a case showing that 41 active ingredients banned in the EU continue to be exported to other countries.

The same data is not easily available for the US. The USEPA pesticides register needs to be interrogated for each individual chemical. A 2019 paper (<https://ehjournal.biomedcentral.com/articles/10.1186/s12940-019-0488-0#MOESM1>) and its attachments does some of the work, but it is also incomplete. From this we find that of the 135 HHPs, 22 are banned, 31 are voluntarily withdrawn or not registered, one is under review and 14 are approved. 67 were not found in the lists and need to be researched further.

In general, European pesticide controls are more stringent than US controls and more pesticides are banned in the EU than in the US. The specifics could be studied but it would be a fairly substantial exercise.

3) What steps would be taken to determine whether pesticides which are essential to crop protection are not phased out?

The process recommended by FAO and WHO consists of three key steps:

1. **Identification** – Identify pesticides on the national register that meet any of the HHP criteria or that are causing problems to health or the environment for other reasons (criterion 8).

2. **Risk assessment** – determine the extent to which these pesticides are used (in several cases it has been found that pesticides are registered but not used), as well as the purposes and circumstances in which they are used. The information is used to carry out a needs assessment to determine whether the pesticide is actually needed or whether there are viable (lower risk) alternatives available. A risk assessment is carried out for those pesticides that are deemed necessary, in order to evaluate the benefits against the costs of using the pesticides. That analysis should include all externalities such as health care, DALYs, environmental remediation, resource (e.g. water) decontamination etc. balanced against demonstrable and quantifiable prevention of crop losses – although complicated, many LMIC (including SL, Bangladesh, Mozambique, state of Kerala and now India) have been able to do this either alone or with support of FAO with no observed reductions in agricultural output.
3. **Mitigation** – With the information gained from the previous step, decision can be made whether to remove a HHP from use and replace it with less hazardous options, or to continue its use with the implementation of appropriate risk mitigation measures.

Effective implementation of these steps will prevent ‘essential’ products from being removed, thereby causing crop losses, and will ensure that where HHPs in active use are removed, they are replaced with accessible, viable, cost effective alternative control measures.

4) Can you give me a specific example of a pesticide that was deregistered, and how it was determined that substitutes were available?

Sri Lanka acted to ban pesticides that were found to be frequently used in suicides in the 1990s. The [2008 paper](#) by the Sri Lankan regulator, Gamini Manuweera with Michael and others, says:

Before the regulations, in 1988–1990, monocrotophos and methamidophos were widely used. They accounted for 60–75% of the total volume of OPs imported each year (Ministry of agriculture, unpublished data). These two OPs were also approved for use on a wide variety of crops, and yet their bans led to no obvious adverse effect on agricultural output of any single crop. For each crop and pest, a number of other affordable pesticides with equivalent activity were approved and available for use.

In rice, the most important crop in Sri Lanka, banned pesticides were replaced with IPM which was being widely adopted throughout S Asia at the time and was clearly demonstrating that insecticide use in rice was excessive and frequently unnecessary. In the main therefore, banned pesticides used in rice were replaced with agroecological pest management techniques and not with any other chemicals.

Mozambique was the first country in which the FAO process described above (based on experience from other countries) was piloted under a small project implemented in 2012-14. During the course of the exercise 59 pesticide formulations (out of 648 registered) that included

26 active ingredients (out of 192 registered) were identified as HHPs under criteria 1-7 and a further 54 products and 16 active ingredients were 'of concern'. All these pesticides were taken forward for further need and risk assessment. Ultimately 31 active ingredients, encompassing 61 products were de-registered.

Among the cancellations was methamidophos, used as a broad-spectrum insecticide in vegetable production, which was imported and used in considerable quantities. To help the growers adapt, the Ministry of Agriculture simultaneously initiated a programme to strengthen IPM in vegetables while pesticide importers, who were active participants in the re-evaluation process, committed themselves to introducing lower-risk alternatives. Farmers were satisfied with the additional support they were given and pesticide importers and traders were happy to seek and provide alternatives. No additional crop losses were recorded.

Objectives

4) What are the key barriers to deregistering HHPs and how do your planned activities address each of them?

There are several possible barriers to deregistering HHPs that tend to be context specific and cannot be clearly identified until work on the review process starts with national pesticide regulators. Barriers might include:

- Lack of understanding of the harms associated with HHPs use and lack of knowledge of the extent of pesticide suicide deaths. **CPSP response** = Work to collect data of pesticide suicide deaths and pesticides that are causing most harm. Raise awareness of the need to ban HHPs.
- Perceptions that pesticides are essential for productivity and food security. **CPSP response** = work with other stakeholders to provide examples and evidence that the HHPs can be banned without risking food security.
- Limited human and technical capacity within the regulatory service to undertake a detailed review of the pesticide register (most LMIC have <5 people working on pesticide regulation). **CPSP response** = CPSP will support full time administrators/technical advisors in each of the regional regulatory bodies (Easter Africa, Western Africa, Caribbean) to facilitate continuity of their work and connect the regulators to external resources such as training, information resources, technical guidance and experience sharing platforms offered by FAO.
- Concern among technical staff that senior decision makers will not accept proposals to de-register pesticides. **CPSP response** = Working in collaboration with FAO, WHO, UNEP and other organizations supporting national and regional policy, CPSP will support development and dissemination of policy guidance supporting HHP removal and replacement.
- Strong influence (including corruption) from pesticide producers/importers on decision makers. **CPSP response** = help develop and distribute reliable science-based evidence

that HHPs bans do not negatively impact food security and farmers output, and that alternatives are available.

- Actual or perceived absence of alternatives. **CPSP response** = provide international evidence and examples of available alternatives.
- Weak institutional capacity to support dissemination of alternatives – e.g. eroded extension services unable to train farmers in IPM or use of biocontrol. **CPSP response** = encourage FAO to work with countries to strengthen these aspects of national outreach, and use other partners to deliver advice and support to farmers, e.g. sustainability standards.
- Poor regulator capacity to evaluate and register alternatives – some regulators do not know how to evaluate biopesticides. Some simply want to avoid the additional work of registering new, unknown products. **CPSP response** = provide regional human resources to support national regulation (see first point above). Help them learn from each other.
- Farmer inhibitions – change is unpopular, new practices can be difficult to introduce and sustain. **CPSP response** = support national registrars to inform national farming organisations, promote farmer field schools, demonstration farms and other approaches done successfully elsewhere.
- Sustainability – Sometimes alternatives are introduced through projects that end after a period, leaving farmers without guidance and technical support, so they quickly revert to using pesticides because it's easier and advice from vendors is always available at no cost. **CPSP response** = work with SAICM and FAO to support their work on sustainability. The combination of measures above will also support sustainability of change.

5) In as much specificity as possible, what do you believe will be the most likely outcome of your work over the next 3 years? What would be a surprisingly good (80%) outcome? What would be a surprisingly bad (20%) outcome? If that depends on budget, please give a range of scenarios.

With a budget of \$9.8 million we would envisage expanding the experiences of SE Asia into four new regions: Southern Africa, Eastern Africa, Western Africa, Caribbean and a further expansion in Asia to include new work in China and additional work in India. In 3 years, our work would deliver targeted interventions in at least 5 countries all of which are members of regional groupings of pesticide regulators. In this way, our work would potentially reach 43 countries in Africa and the Caribbean who could then relatively easily replicate the work done in the pilot countries.

The 80% outcome in this case would be that by the end of 3 years work, the four regional groups of pesticide regulators are engaged in work on pesticide suicide and acute pesticide poisoning prevention. The groups have developed plans on identifying and removing replaceable HHPs. At least five countries have fully reviewed their pesticide registers, established working systems to monitor and report pesticide poisoning incidences, removed replaceable HHPs from the national register and introduced viable alternatives, and put in place effective risk mitigation measures for irreplaceable HHPs (e.g. formulation changes, severely restricted access). The Ministries of

Health and Agriculture work together to monitor and prevent pesticide poisoning incidences. Treatment of pesticide poisoning is effective. Other countries within their regional groupings have observed and learned from the experience of their neighbours and are ready to follow suit under the guidance of the pilot countries, with the support of FAO. The work in this scenario would be supported by a network of academic teams able to research questions arising during the work, and to publish results for wider dissemination and learning.

Removal of most toxic HHPs from at least five selected countries would mean a significant reduction in pesticide deaths and overall pesticide poisoning in the mid-term (5-7 years). The effect of the bans in these countries will need to be monitored to provide evidence for future action.

The 20% outcome might consist of zero or limited progress in regulator reviews of national registers, and even backtracking in some countries where loss of confidence among regulators, decision makers or farmers led to reversion to HHP use. This might result if evidence supporting HHPs bans was not forthcoming, if options for alternatives to HHPs were not available. We consider backtracking to be unlikely unless CPSP ceased to function.

A lower budget scenario (\$3.6 million) would effectively maintain the *status-quo* with work in India, Nepal, Taiwan, some engagement with the University of Cape Town and their outreach to African countries, and continued engagement with the UN Organizations to support global strategic developments. We would continue monitoring the effects of pesticide bans in Nepal, Sri Lanka, Taiwan and India, gathering evidence of implementation of the bans and reduction in poisoning. There would be no active expansion of work at national level into new regions or into important countries such as China in Asia.