

Africa Fighting Malaria

Indoor Residual Spraying and DDT

On 16 September 2006, Dr Arata Kochi, head of the World Health Organization's Global Malaria Program announced WHO's new policy on indoor residual spraying (IRS), including the use of DDT. The new policies have been widely reported on in the media and many questions regarding IRS and specifically the issue of DDT were raised. AFM responds to some of the issues raised in the media and elsewhere below.

1. DDT is harmful to human health

DDT is one of the most, if not *the* most, studied chemical known to man. DDT has been used in public health programs since 1940s and for several decades was used very widely in agriculture. In all the years of use and after thousands of studies, no scientific study has been able to pinpoint actual human harm from DDT. The World Health Organization conducts regular assessments of chemical risks in a program known as the International Programme on Chemical Safety (IPCS). The IPCS conducts the most comprehensive review of the scientific literature on DDT. According to the IPCS

“A 2000 Joint WHO/FAO international assessment is the latest WHO risk assessment of DDT and its metabolites. This assessment documents the wide spectrum of toxicological findings which have been observed in animal studies, including reproductive, developmental and neurotoxicological effects and recommends a provisional tolerable daily intake for human exposure. While biologically plausible, this wide spectrum of toxicological effects have so far not been confirmed by human epidemiological studies. An updated WHO report of the scientific literature relevant to an assessment of human risks will be available for peer review at the end of 2006. In conclusion, and in the meantime there is no reason to change the current WHO position regarding use of DDT for vector control.”

Even if the many studies on DDT do eventually conclude that there is some proven human health harm from DDT, that risk would still have to be balanced against the risks from malaria. These risks are well known, are very considerable and are immediate. We would suggest that any rational balancing of these risks would inevitably conclude that DDT should be used in malaria control.

2. IRS is only applicable in areas of unstable transmission

IRS has traditionally been applied only in areas of epidemic malaria. It has long been considered that in areas of stable malaria transmission, the logistical requirements to conduct IRS are too onerous and the only sustainable intervention is ITNs. WHO now recognizes that the action of DDT and other insecticides used in IRS whether conducted in an area of stable transmission or in areas of seasonal malaria. WHO's position

therefore is that IRS can and should be used in areas of stable malaria as long as IRS coverage of 80% or higher is maintained.

3. Insecticide Resistance to DDT will preclude its use in IRS

The primary action of DDT is not as a toxic agent, but as a spatial repellent and as a contact irritant. Laboratory and field studies, as well as observations of malaria control personnel have found that when a dwelling is sprayed with DDT, around 90% of mosquitoes are repelled and do not even enter the dwelling. Should mosquitoes enter, they will be irritated and exit prematurely, before feeding. Should neither of these actions work, DDT will ultimately kill the mosquito after some time.

It is because of this complex mode of action that toxic resistance to DDT is not considered to be a limiting factor in malaria control. Evidence from India (Sharma et al.) shows that even where insecticide resistance to DDT is found, the insecticide is still effective in malaria control.

4. The Stockholm Convention calls for the elimination of DDT – therefore WHO policy conflicts with UNEP

The Stockholm Convention grants DDT an exemption for use in public health and that exemption will remain as long as there are no alternative insecticides that are as effective and as cheap as DDT. Given the lack of investment from both public and private sources for new public health insecticides, this situation is likely to persist for many years.

The Stockholm Convention does indeed call for the ultimate phase-out of DDT and there may be some contradiction in the WHO new policy of promoting DDT. AFM believes that given the fact that DDT is the only insecticide exclusively used in public health and the negligible environmental impact from using DDT in malaria control, UNEP should not have regulatory oversight over DDT but that such oversight should exclusively be given to WHO. Now would be a good opportunity to campaign for DDT to be removed from the Stockholm Convention entirely.

5. There are alternatives to DDT, why not just use them?

There are alternative insecticides that are used in malaria control. Some of these are less persistent and are perceived to be more environmentally friendly. The issue of environmental impact however is not significant given the way in which insecticides are used in IRS.

In malarial areas, there are numerous different types of dwellings and structures that are sprayed – some insecticides, such as DDT, are not suitable on all structures and so a range of insecticides is needed. Limiting the choice of insecticides is bad public health policy as this could easily lead to the development of insecticide resistance. Different insecticides should be used during any particular season and also alternated across different seasons. Removing DDT from the arsenal of anti-malaria weapons clearly

compromises the ability to control for insecticide resistance which is particularly important as the other insecticides do not have the same mode of action (repellency) as DDT.

6. Defenders of DDT are paid by the Chemicals Industry

Kristin Schaefer from Pesticide Action Network North America has alleged that the shift in policy on DDT has come from conservative think tanks and pressure groups in the United States and has alleged that the US chemicals industry is behind these groups. While it is true that in the US Congress, several prominent Conservative Senators have championed the fight against malaria, this is not a divisive political issue. In September 2005 a hearing before the Environment and Public Works Committee in the Senate examined DDT and there was support from Democrats, including Senator Clinton and Republicans on the DDT issue. The fact that Republican senators take an interest in malaria is to their credit. The fact that few Democrats have championed malaria is to their discredit. Malaria been not used to undermine the Democratic party and if anti-DDT activists feel that a policy should be opposed simply because it has been promoted by a Republican, regardless of the scientific evidence for such a policy, they should be dismissed as the ideologues that they are.

To suggest that chemical companies are paying for any pro-DDT advocacy is patently absurd. DDT is only produced by factories run by the governments of India and China. DDT is a commercial threat to US and European chemical producers, some of whom have been actively discouraging DDT use for that very reason. The suggestion that any defender of DDT is doing so only to advance corporate interests is not only insulting, but is a pathetic last grasp for some way of undermining the overwhelming scientific evidence in favour of DDT.

7. Should countries use DDT, they risk losing their export markets

This argument has been advanced widely in East Africa. Anti-DDT campaigners claim that should DDT be used in malaria control, it will inevitably be sold to farmers or stolen and used in agriculture. Should this happen, produce could be turned away from the European Union which has strict maximum residue limits for DDT on produce. Whatever insecticide is used in IRS, it is important that the health authorities retain strong control of that insecticide so that they ensure that it is used correctly. Several countries do just that and have put in place regulations that ensure that DDT and other insecticides are used appropriately and are not diverted. A recent example is Zambia which currently uses DDT and has strict control over their DDT stocks.

While the EU maximum residue limits may be excessive and not based on sound science (and therefore protectionist in nature) EU President Barroso wrote to Senator Tom Coburn to explaining:

"...the EU, together with the US and 149 other countries, has signed the global Stockholm Convention. **This agreement explicitly allows the use of DDT for disease**

control according to World Health Organization guidelines. The allegation that the European Union has threatened partner countries with import bans following the use of DDT for malaria control is entirely unfounded. **It is the policy of the European Commission to recognize the responsibility of each government in its choice of appropriate malaria control techniques.** All governments using DDT have agreed to do so according to the strict criteria of the 2001 Stockholm Convention of Persistent Organic Pollutants. Should food consignments exported to the EU by a partner country using DDT be found to be contaminated with DDT above accepted residue levels, **only the affected consignment would be withdrawn from the market.** It should be noted that there have been no findings of DDT contamination in food imports of Ugandan origin and consequently no disruption in trade. This mirrors the experience with other African exporters of food and food products to the EU."

Instead of relying on hearsay, business interests in East Africa should work with authorities, as has happened elsewhere, to ensure that DDT is used correctly and not diverted out of the public health system. In countries, such as Zambia, South Africa, Swaziland and Mozambique, businesses have found that supporting malaria control programs that use DDT reduces malaria effectively, increases productivity and is beneficial to their bottom line.