

# Breakout session 1 Summary

## Water Treatment

# General observations - 1

1. There is already a body of work on water treatment with e-beams – not a new idea – but there is a case for a thorough literature review to look at what systems/processes/contaminants have been studied, bearing in mind that state-of-the-art accelerator science will bring new possibilities for technology solutions.
2. Cryptosporidium treatment was a significant topic of discussion – there is a gap in the market for a technology that can effectively treat this protozoa. There is a case for some lab work to be undertaken, focussed on this specific contaminant, to determine the appropriate beam parameters for treatment. It was noted that a mobile solution might be well suited, with a handful of machines potentially being required per region.

# General observations - 2

3. There are new pesticides now being used which are challenging to treat. Also, heavy metals and endocrine-disrupting compounds are a significant challenge. There is a case for some lab studies to investigate options for treating these contaminants with e-beams. The studies should also look at the economics of any proposed accelerator technology solution.
4. The meeting has identified many interesting routes for exploration, all of which require input from a variety of scientific disciplines. Therefore the group saw a strong case for continued and coordinated networking activities so that conversations started today can be continued.

# General observations - 3

5. The discussions focussed mainly on municipal water/waste water treatment, but there are many opportunities in treating industrial effluents which should be looked at in more detail.