Citizen Persistence

Exploring air pollution along Highway 16

©BVLD Airshed Management Society

by Dave Stevens

For 16 years, the Bulkley Valley - Lakes District Airshed Management Society has been working to put reasonable solutions in place to reduce air pollution. We see this as a public health effort for which there is very little political appetite otherwise. OK, OK, we'll do it ourselves. (I know this somewhat overstates the case, but not by much..)

The first issue that arises in clean air advocacy is the factual basis for concerns: how much air pollution is ok (none), where does it come from (all over) and how much is there (lots), at what times of the year (all times), and what kind is it (mostly particulate). The Society held a long series of community meetings up and down Highway 16 from Endako to Kitwanga and listened to all community input. The result was a document, the "Community Action Plan for Clean Air," that has been our guide for nearly ten years.

Establishing the facts allows for modeling of where the pollution goes and in what concentrations, so that we know what to expect in terms of consequent ill health. We can then compare the main expected adverse effects to actual on-the-ground outcomes to establish the cause and effect. It won't be a substitute for political will but may provide incentive. It will certainly get rid of the "Well, I didn't know" response from policy makers.

Our micro-emissions inventory project was the needed first step. We were able to secure the services of Dr. Judi Krzyzanowski to compile the inventory. She has a solid publication record of related work and her work plan has now been completed. High quality professional work in such a specialized field has proven very worthwhile. There were many contributors to this effort – NGOs, government, industry, and a lot of members of the public. One contributor, the Dungate Community Forest in Houston, made a very nice cheque out to us with the proviso that we supply a plain language version of the final report. This was intended to be suitable for people who have an interest but no special background. This report has just come from the printers, making both the large specialized and expert report and the plain language report essentially complete.

With that in hand, what next? It has been 11 years since the completion of the first inventory in our plan area, much too long to wait for the next iteration. The main project fell naturally into three stages – identification of sources, characterization of the emissions, and the text report.

It makes sense, now that the work is complete, to not wait eleven more years for an update. If we do another update soon, it would make sense to cover the years 2017, 2018, and 2019. Some very interesting wildfire years there, in our area, in BC and in Canada. That would be pretty interesting reading.

And it just makes sense to build on the current output before the data sources go stale, permits lapse or are amended, and while the personal relationships that accompany such a large effort are still in place.

Now that we have in hand the emissions data, a straightforward but specialized modeling exercise called dispersion modeling can be performed to show what the expected concentrations are in what places. Health effects are about what people actually breathe, and without individual health data we must fall back on statistical methods. Given the relatively small populations involved in different parts of the airshed, that's probably the best that can be done.

The dispersion modeling can be compared with ambient measurements made throughout our airshed. The accuracy of the measurements is a big issue and so

is the geographical representativeness. One very accurate monitor in Burns Lake (which the Ministry of Environment operates) is nice – but what does it say about concentrations at the north end of Babine Lake? Or Takla Landing?

An increased geographic density of measurements of ambient levels is now much more feasible (i.e. affordable) because of the advent of low cost nephelometer-type instruments called PurpleAir monitors. They measure particulate pollution of various sizes, together with ambient temperatures, relative humidity and barometric pressure and report them on a public map. You can see real time results for your area in Canada on the map at *www2. purpleair.com.*

Various agencies – Statistics Canada, Northern Health, the BC Vital Statistics Agency – have information that can be brought to bear on an impact analysis. We already know group and individual risk factors for diseases caused by air pollution, so that's one piece of the puzzle. We can now close in on the causation issue by being more and more specific about sources, levels and adverse effects. Where will that take us?

Emission Source Location

Open Burning
Industrial Emissions
Residential Wood Heat
Unpaved Road Dust

Based on the 2015/2016 MEI. Some emissions are airborne for longer and travel further from their source.
The grey cloud is meant to give an idea of the drift and distance Open Burning smoke travels.
Background Map by Morgan Hite

GRAPHIC from "A Summery of Local Air Amissions," Bulkley Valley – the Lakes Airshed Management Society