



bulkley valley - lakes district  
airshed management society

**COMMUNITY ACTION PLAN *for***  
**CLEAN AIR**

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*A five-year strategy*

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**FINE PARTICULATE  
POLLUTION**

**LAST UPDATE: JUNE 1, 2006**

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## Fine Particulate Pollution

### ***2.1 Fine Particulates and Human Health***

**T**he driving force behind the control of air pollution has always been the protection of the public's health. In the **BVL D** area, local physicians have for over a decade, expressed concern over high rates of **fine particulate** related illnesses. These illnesses include both **circulatory** and **respiratory diseases**. While some of the burden of illness in these categories can be attributed to such things as poor eating habits, **diabetes (type II)**, and smoking, the public health science research strongly supports the statement that community air pollution from emissions of fine particulates increases the risk of dying from lung and cardiovascular disease (Appendix B).

An expert panel brought together by the BC Lung Association reported in 2003 on a number of air pollutants (Bates et al, 2003)<sup>1</sup>. In this report, studies of fine particulate health effects from all over the world were synthesized in a manner that is generally applicable to British Columbia. Both **PM10** and **PM2.5** were found to be associated with many adverse outcomes, some of which are follows:

Cardio-respiratory effects include:

- Risk of heart attacks
- Risk of pneumonia
- Aggravation of chronic lung disease
- Increased risk of lung cancer
- Reduced survival

Effects on **asthmatics** include:

- Increased visits to family physicians
- Increased visits to hospital emergency
- Increased hospital admissions
- Increased airway inflammation
- Decreased lung function

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<sup>1</sup> Dr. D. Bates, Dr. J. Koenig, Dr. M. Brauer, RWDI West Inc. May 2003. Health and Air Quality 2002-Phase 1: Methods for Estimating and Applying Relationships between Air Pollution and Health Effects. Prepared for BC Lung Association.

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- Increased incidence of **asthma** can happen

Other effects on vulnerable segments of the population, such as the aged, and those with existing health conditions were also summarized in the Bates study.

For more information on Health Effects of fine particulates, see Appendix B and the following resources:

- Environment Canada's briefing on fine particulates at [http://www.ec.gc.ca/air/p-matter\\_e.html](http://www.ec.gc.ca/air/p-matter_e.html)
- BC Lung Association's Clean Air Now campaign at <http://www.lung.ca/cando/whatis.html>
- The province of BC's report on Health Effects of Inhalable Particles: Implications for British Columbians - Overview and Conclusions at <http://wlapwww.gov.bc.ca/air/particulates/heoipifb.html>

## ***2.2 Economic Opportunities***

### 2.2.1 Building in Efficiencies and Incentives

A balance of public health and economic values in this Clean Air Plan was put forward as an absolute need at the beginning of the Community Working Group (CWG) formation process. It is with this in mind that the Plan has focused on the resolution of issues through cooperative means.

***We do not have to choose between creating jobs and reducing air pollution. By focusing on value-added industry, both goals can be met.***

Each "emission source reduction" goal and strategy can be accomplished without major disruption to the associated industry, individual homes, business owners, or governments. The approach to forest harvest debris burning and residential and commercial space heating outlined below provide two examples of how this is possible.

We know that forest harvest debris burning must take place on a seasonal basis to abate wildfire and insect hazards. By co-operative means among burn operators to make better use of existing atmospheric **venting** conditions, reduced emissions are possible at little or no additional cost. Also, by making better use of existing venting through custom **venting index forecasts**, it is possible to provide more certainty on when and under what conditions burning may take place without causing air quality episodes. Hopefully, this will lead to more efficient and therefore less costly open burning operations while reducing the number, duration and severity of air quality episodes.

As for the wood stove question, a financial incentive and targeted education approach has been adopted, and will be applied for a period of five years. It is recognized that many families and businesses rely on older wood heating appliances for most or all of their heating requirements and can ill afford to upgrade to a newer technology (higher efficiency) appliance. Financial assistance through rebates and low interest loans will be used to rid the BVL D area of polluting "old technology" wood stoves. Additional

approaches such as municipal bylaws restricting or prohibiting inefficient stoves have been explored in terms of what bylaws have been used in other jurisdictions, should incentive and public education approaches fall short of the goal.

#### 2.2.2 Taking a Value Added Approach

While deliberating on how to assist the **tier 1** beehive burner operators in moving to lower emission alternatives for wood waste management, the CWGs settled on an approach that would support efforts to move forward with "**value added**" methods, such as electrical co-generation or bio-fuel production. The BVL D Airshed Management Society is prepared to provide continued support for value added alternatives research and development for this and other emissions reduction issues, until they are resolved satisfactorily

#### 2.2.3 Looking for Economic Opportunities

The most valuable approach to making economic gains through airshed planning is to improve the quality of life for all residents. Looking for and exploiting ways to reduce emissions of fine particulates that may cause health effects in BVL D communities will have a direct benefit by making the area more liveable, thus attracting new economic growth and diversification opportunities. Reducing emissions may also allow the airshed to accommodate additional sources, making room for new industries.

Being proactive in identifying locations for new development that would minimize pollution of populated areas would assist in promoting economic growth. This can be accomplished by analyzing weather patterns and geography so that new sources of fine particulate emissions can be accommodated in areas where there is little or no opportunity for impact of emissions on people. This type of analysis uses dispersion modeling scenarios to identify suitable areas for development. Once identified, this information can be relayed to local governments and suitable areas for development can be designated through the use of official community plans. This will help to reduce approvals needed to develop in those designated areas, promoting new industry.

The BVL D Airshed Management Society can also work with local government in an advisory or referral role for the review of official community plans and the siting of developments with airborne emissions. Developments may include industries such as manufactured wood products including fiberboard or wood stove pellet manufacturing.

For information on Official Community Plans (OCPs), see:  
[http://www.pytela.bc.ca/scf/guide/c\\_ocp.htm](http://www.pytela.bc.ca/scf/guide/c_ocp.htm).

#### 2.3 Think Globally, Act Locally

Integration of social, economic and environmental objectives at a range of scales is desirable in community planning. Airshed management planning objectives and strategies are very compatible with energy management planning, climate change and greenhouse gas emission reduction strategies, land use planning, waste management planning, and growth management strategies. Coordination between planning processes can lead to impressive results in a shorter period of time, and at a lower cost.

Reducing fine particulates, greenhouse gases, waste production and energy consumption can be achieved in numerous ways in all sectors and by every individual. Climate change and energy planning are two emerging issues, and examples of how air quality improvement crosses over into these areas are provided below.

### 2.3.1 Climate Change

The largest influences on climate result from choices made to meet transportation and energy needs. Reducing vehicle emissions is possible by reducing total kilometers driven and by reducing the amount of emissions per kilometer. For example, walking or biking shorter distances instead of driving, and carpooling or taking public transit for longer distances are among these choices. Such actions will reduce emissions of greenhouse gases from the tailpipe of your vehicle, as well as lower emissions of fine particulates due to tailpipe emissions, tire wear and road dust.

Ensuring that homes and businesses are well-insulated will mean less energy is needed for heat. Depending on these buildings are heated, this can mean reduced greenhouse gas and fine particulate emissions, as well as reduced drain on pocketbooks

There are many other ways to reduce emissions of fine particulates that also result in lower greenhouse gas emissions and lowered energy use and less waste production. For more information refer to the BC Climate Exchange website at <http://www.bcclimateexchange.ca/index.php?p=home>.

### 2.3.2 Energy Planning and Efficiency

Understanding the energy needs of a community and the many ways of meeting these needs will ensure a healthy, sustainable future. **Cogeneration** is one example of a value added process. The wood currently being burned in beehive burners could be used to provide a renewable source of energy in the form of electricity and could reduce the need for other non-renewable sources of electricity.

Alternative sources of energy can also be used to power industries, businesses, and homes in remote locations. Examples include wind and solar energy, both of which have no emissions of greenhouse gases or fine particulates, and both of which are available in as great a supply as Mother Nature can produce. Other possibilities include **biomass** and biogas fuels, micro-hydro and geothermal energy.

No matter how a home or business is heated, be it with wood, gas, pellets or other fuel, operating the heating appliance efficiently will reduce the amount of fuel needed, thus reducing emissions of fine particulates and potentially greenhouse gases. If heating with wood, using a newer emissions certified appliance whenever possible will further reduce emissions of fine particulates.

AMS is committed to working with local groups to promote energy efficiency and improved air quality. For more information on alternative energy and applications for the BVL D, see:

- Nadina Community Futures Development Corporation at [www.cfdcnadina.ca/environment/energycentre/](http://www.cfdcnadina.ca/environment/energycentre/).
- BC Community Energy Association at [www.energyaware.bc.ca](http://www.energyaware.bc.ca)
- Natural Resources Canada - RETScreen International [www.retscreen.net](http://www.retscreen.net)
- BC Sustainable Energy Association [www.bcsea.org](http://www.bcsea.org)
- Advanced Buildings Technologies and Practices [www.advancedbuildings.org](http://www.advancedbuildings.org)

AMS will continue to look for opportunities to integrate with other airshed planning and compatible planning processes through the ongoing development of this plan. We have already participated in a province-wide study on the Integration of Air Quality-Related Planning Initiatives. The intent of this study

is to evaluate the performance of various planning processes available to local governments that address air quality-related objectives, namely greenhouse gas and community energy plans. BVL DAMS is profiled in this report, which is available for download at <http://wlapwww.gov.bc.ca/air/whatsnew.html>.

As well, other airshed planning processes are happening around the province and MOE staff and BVL DAMS members continue to exchange ideas with these groups. Links to websites and reports resulting from plans being developed in Prince George, Williams Lake and Quesnel are located at [www.cleanairplan.ca](http://www.cleanairplan.ca).