



Air Quality Management in British Columbia

March 9, 2011



Why should we care about bad air?

- Poor air quality has health, environmental and economic effects – even in British Columbia where the air quality is considered relatively good.



Poor air quality can ...

- Affect human health and add to health care costs
- Reduce visibility and impact tourism revenues and quality of life
- Damage vegetation and lower productivity for affected crops, particularly in the Lower Fraser Valley (LFV)
- Limit opportunities for economic expansion in the affected communities

Health and Environmental Impacts

- Provincial Health Officer's 2003 report estimates annual impacts of outdoor air pollution in BC to be 25-250 deaths and \$85M health care burden (for comparison there are 399 deaths from motor vehicle accidents and 104 due to aids annually in BC)
- The yield loss of susceptible crops in the Lower Fraser Valley may be as high as 25% due to ground level ozone

Economic Impacts

- One study by Environment Canada estimated impacts on tourism related to extreme visibility events could be about \$7.45 million for Greater Vancouver and \$1.32 million in the Fraser Valley.
- Beehive burners burn over 1 million tonnes per year of wood waste that could be utilized for economic benefit while reducing particulate emissions.
- Businesses and individuals are seeking to relocate to clean, healthy places to live (*The Economist* magazine ranked Vancouver no.1 in its 2004 global livability survey of 130 cities)



The Challenge

- No thresholds for priority pollutants (fine particulate matter and ozone)
- Risk to human health increases directly with concentrations of pollutants in the air

1/ Priority Pollutants in BC

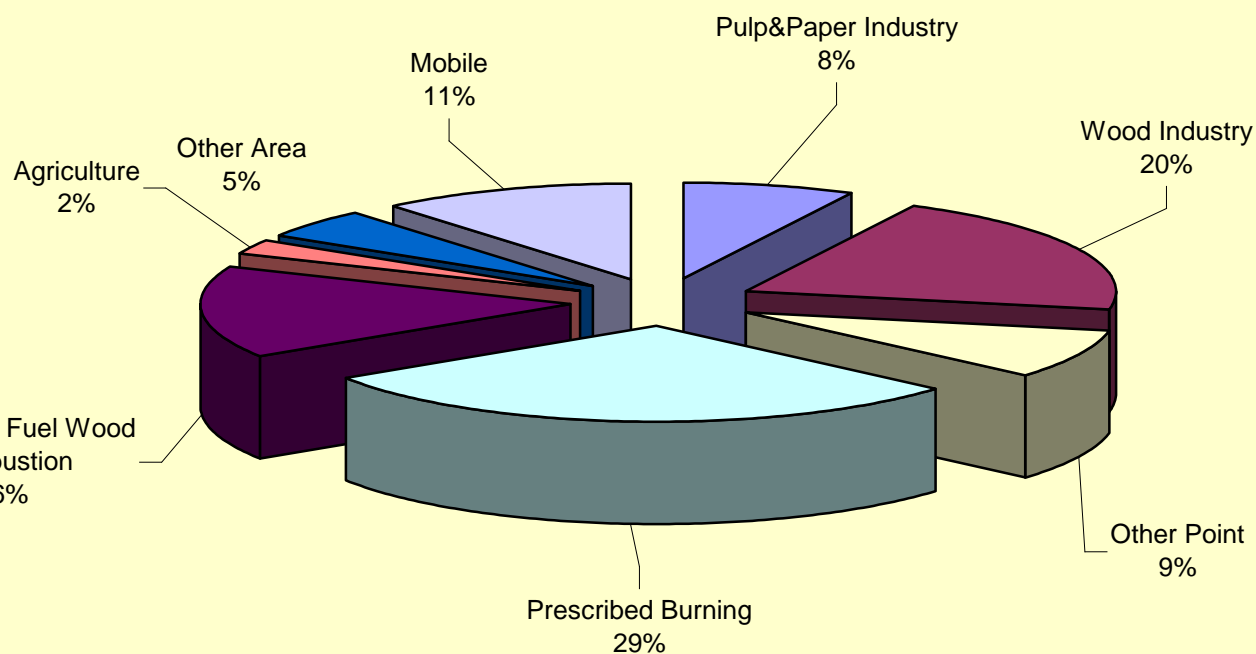
- Fine particulate matter (PM_{2.5})
- Ground level ozone (O₃)



Priority Pollutants in BC

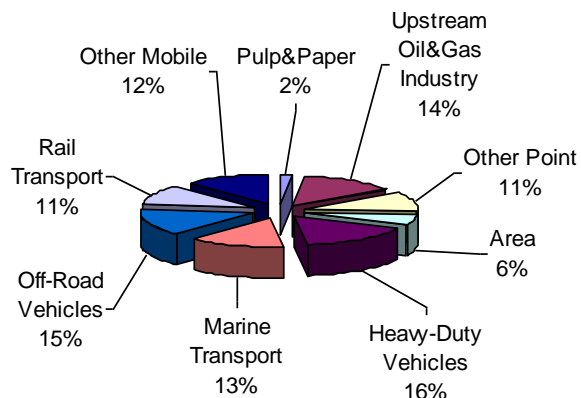
- From an outdoor air quality perspective, fine particulate matter (PM_{2.5}) and ground level ozone pose the greatest risk to human health
- PM_{2.5} is the primary pollutant of concern in most of interior BC due to the prevalence of wood combustion
- Ozone is the key pollutant in the LFV and, to a lesser extent, the Okanagan

2005 Emissions of PM_{2.5} in BC from Selected Source Sectors

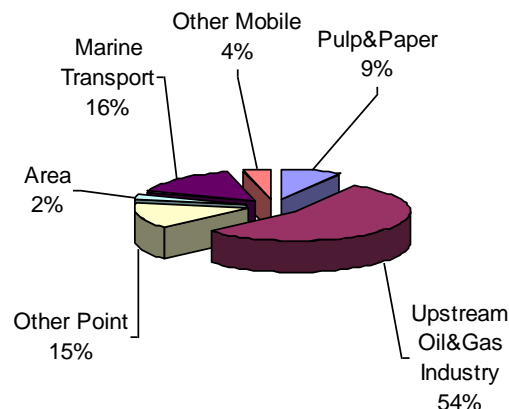


2005 Emissions of PM_{2.5} and Ozone Precursors

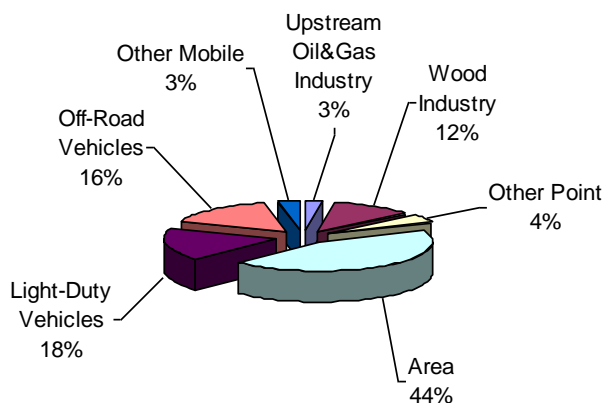
NOx



SOx



VOC



Portion of PM_{2.5} and ozone are secondary pollutants – formed in atmosphere from gaseous precursors
∴ need to consider precursor pollutants as well

2/ Air Quality Management in BC

- Short history of air management in BC
- Airshed Planning
- Roles and Responsibilities
- New National Initiative



Evolution of AQ Management in BC

- Early air management activities focused on industrial point sources
- In many BC communities, this was an appropriate approach at the time
- In early 1990's, area and mobile sources recognized as important sources in urban growth areas
- These sources have become increasingly important in smaller communities as point source contributions are reduced

AQ Management (cont'd)

- Waste Management Act was revised in 1992 and 1994 to enable regulation of
 - wood stoves - open burning
 - motor vehicles - fuel quality
 - and address growing concerns over PM and ozone
- A number of non-regulatory approaches were also introduced, including
 - Wood stove education - Clean Air Day
 - Go Green
- Environmental Management Act replaced the WMA in 2004
- These shifts in legislation and policy were accompanied by a growing awareness of taking an airshed approach to air quality management

Why focus on airsheds?

- An airshed is a geographical area where local topography and meteorology limit the dispersion of pollutants away from the area
- Mountain valleys are a common example, and home to many of BC's communities
- Such valleys experience periods of stagnant weather conditions (e.g. inversions) that result in a build-up of pollutants and a worsening of air quality

Airshed Planning

- Typically, mix of local sources contribute to local air quality.
- The management of these sources may involve different jurisdictions and the public.
- In some instances, common issues among neighbouring communities point to a regional approach to solutions.
- Airshed planning provides a mechanism for addressing such issues by providing a multi-source, multi-stakeholder process of coordinating activities in an airshed to ensure air quality goals are met.

Environmental Management Act

- MoE is the primary regulator of activities that affect air quality:
 - Authorizes discharges to the air
 - Sets emission guidelines or standards
 - May require preparation of airshed management plans
- Two primary tools for regulating emissions:
 - Facility specific permits setting allowable discharges to air, water and land, e.g. pulp mills, smelters
 - Codes of Practice that set out results based guidance to all operators in a sector, e.g. vehicle dismantling & recycling or poultry slaughter and processing sectors

Ambient Air Quality Objectives

- Ambient air quality objectives can be established under EMA
- AQOs:
 - support airshed planning
 - set benchmarks for reporting on air quality
 - support decision making in the permitting and environmental assessment processes



Environmental Assessment Act

- EA is a process for identifying and evaluating potential adverse effects on health, environmental, social, heritage, and economic values, and avoiding or mitigating these effects
- The Environmental Assessment Office oversees the review process and makes recommendations to government (<http://www.eao.gov.bc.ca/index.html>)
- Where there is a federal interest in a project, a joint review is conducted

Roles of Other Ministries

- Energy: Energy Plan, alternative energy strategy
- Transportation & Infrastructure: provincial transportation policy, cycling infrastructure
- Finance: tax policy supporting alternative fuels and transportation
- Community, Sport & Cultural Development: growth management strategies
- Natural Resource Operations: Wildland Fire Management Strategy, smoke management plans
- Agriculture: sustainable agricultural policies that include smoke management

Role of Metro Vancouver

- 1949 - City of Vancouver initiates an air pollution control program. By 1959 the City of Vancouver program provided contract services to Richmond and the North Shore.
- 1970 - amendment of the Pollution Control Act to establish a provincial regulatory program for air emissions.
- 1972 - the issuance of Letters Patent and a further amendment of the Pollution Control Act established the GVRD as the single agency under which provincial and municipal air pollution control activities in the Greater Vancouver urban area would be integrated.
- 1982/2004 – Waste Management Act/EMA sustain the delegation of authority for air pollution control to GVRD.

Role of Local Governments

- Have the authority to pass bylaws that may restrict certain emission-causing activities in their regions such as backyard burning and residential wood combustion .
- Indirectly, local authorities can influence the type and location of emission sources and their future growth through land-use zoning, transportation and land-use planning, regional growth strategies and sustainability plans.

Role of Private Sector

- Beyond compliance with existing regulations, permit conditions and local bylaws, industrial operations can:
 - Undertake voluntary measures;
 - Reduce air emissions when modernizing or expanding production processes;
 - Participate in and support airshed planning;
 - Implement sectoral initiatives such as Responsible Care; ISO standards

Air Quality Mgmt System

- The AQMS has evolved over the past several years through a multi-stakeholder process
- In October 2010 CCME Ministers directed staff to further develop the elements of AQMS during 2011 with a goal of launching implementation in 2013
- The AQMS has three key elements:
 - National emission standards for large industrial sectors including pulp & paper, smelting, wood products
 - National ambient air quality standards for PM_{2.5} and ozone
 - Implementation through air zone and regional airshed management plans



Thank You

Any Questions?

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Ministry of
Environment



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