TECHNICAL INFORMATION

A. BACKGROUND

The discovery of the refrigerant properties of CFCs in 1928 was followed in the 1940s by their application as a blowing agent in rigid insulating foam; as a propellant in aerosol cans (originally in those containing pesticides to control malaria) during the Second World War; and as flexible polyurethane foams for furniture in the 1950s. More recently, CFCs have been used as a cleaning solvent, particularly for electronic equipment. A breakdown of global and Canadian use of the five CFCs controlled by the Montreal Protocol is given in Figure 3. This illustration does not include the three halons (fire extinguisher agents) that are also controlled by the Protocol.

Canada's contribution to global ozone depletion is less than 2%, an amount comparable to our contribution to global warming. However, Canada's per capita contribution to CFC emissions, at approximately 0.8 kilogram per year, is the second highest in the world after the United States. The use of CFCs in Canada is substantially different from the global pattern, chiefly because of their virtual elimination from aerosol cans used in the homes of Canadian consumers.

Even if all use of CFCs was halted immediately, the atmospheric concentration of ozone would not return to normal for more than a century. This is due to the long life span of CFCs in the atmosphere—in some cases estimated to be longer than 100 years—and because products made from CFCs, such as foams, continue to release CFCs as they slowly decompose.

There are dozens of end uses for the different CFCs, each of which must be evaluated to ensure that restricting their use is not too disruptive. Using less harmful substitutes and modifying the way some products are made or applied should result in reduced environmental degradation with little disruption to society. More limited use of CFCs alone could displace 29% of their present global use by the year 2000 (UNEP, 1989, p. 11).

The chemicals of concern are not only the fully halogenated[1] chlorofluorocarbons (CFCs), but also:

- hydrochlorofluorocarbons (HCFCs) that are not fully halogenated;
- halons, which are fully halogenated hydrocarbons generally containing bromine;
- carbon tetrachloride and
- methyl chloroform.

[1] A carbon-based molecule is "fully halogenated" when all the other atoms attached to it are halogens. Halogens are a group of elements including fluorine, chlorine, bromine and iodine.