

Dr. David Sauchyn, Professor University of Regina: Notes for National Council of Women of Canada AGM, June 2<sup>nd</sup>, 2007, Regina Inn, Regina

Climate changes projected for the mid 21<sup>st</sup> century are outside the range of recent experience with natural variability. These changes include higher temperatures in all months, higher precipitation in January to May, but less precipitation than present during June to August, when we need the water most.

Climate includes natural cycles, plus a recent rapid increase in global temperature that can be simulated and fully explained only by increases in the concentration of greenhouse gases.

The European history of the prairies is short and therefore non-aboriginal Canadians have limited experience with climate – at most 120 years. This is a small window on the variability of our climate system. Paleoclimate records indicate that just before Saskatchewan was settled by Europeans, there were droughts of longer duration than the 1930s, the longest dry period experienced by Canadians of European descent. Thus there is a good chance that future climate will include events, droughts and wet years, unlike any that we have experienced, simply because we have not seen the full extent of climate variation. In addition to this natural variability, we have virtually guaranteed a more variable future climate by modifying the earth's atmosphere and land cover; one of the more certain impacts of global warming to cause both more severe precipitation and drought.

Most impacts of climate change are adverse, largely because our economies and activities are adapted to a short history of climate variation that does not capture the full range of climate cycles and extremes. Prairie communities and economies are adapted to the climate of the twentieth century. From this short perspective, climate and water seem rather consistent and thus resource management practices and policies reflect a perception of relatively abundant water supplies and ecological resources, within a relatively stationary environment. Future

water and ecosystem management will have to abandon the assumption of a stationary environment.

The major impacts of climate change are changes in the distribution of water availability and ecosystems. One of the most certain projections is that winter and spring will be wetter and summer will be longer and warmer and, therefore, tend to be drier. The net result later in this century is on average less surface and soil water by the end of the summer. The only way of realizing these drier summers is to have more warm dry years than wet cool years.

A clear and major impact of global warming in Canada is a shorter and warmer winter. There are obvious advantages to our economy, health and safety. There are disadvantages, however. Pests, like the pine beetle, have begun to survive winter. The major advantage of a cold winter is snow, our most abundant, predictable and reliable source of water. Increasingly we will depend on episodic rain storms as the source of our renewable water supply.

Warming would continue for centuries, even if greenhouse gas concentrations were to be stabilized. The climate system has memory and momentum. Humans already have influenced the climate of the next several decades.

Therefore some adaptation is required to minimize the impacts of climate change and to take advantage of opportunities provided by a warmer climate. The degree of adaptation required will depend on the degree and effectiveness of mitigation, the policies, and technologies to reduce and capture greenhouse gases.

We have relatively high level of adaptive capacity but it is unevenly distributed and must be mobilized to reduce vulnerability. Government should develop policy and programs to enable individuals, industry, communities and government agencies to build resilience to climate change and variability.

The elderly, aboriginal and immigrant populations are the fastest growing and also among the most vulnerable to health impacts.

Economic vulnerability often precedes negative health outcomes associated with extreme weather.

Rural communities, especially isolated ones with limited economic diversity, are most at risk due to limited emergency response capacity and dependence on climate-sensitive economic sectors (agriculture, forestry). Rural aboriginal communities will experience these same stresses, in addition to threats to a subsistence-based livelihood.

We should take advantage of a warmer climate and the opportunity to improve our institutions, infrastructure and communities to build resilience and lower risk. Planned adaptation is a component of sustainable economic development. Relevant existing policy instruments include sustainable community initiatives, infrastructure renewal, environmental farm plans, watershed basin councils and principles of adaptive forest management and integrated water resource management. Strategies for sustainable urban growth and for sustaining rural economies need to include the evaluation of climate risks and opportunities. For example, rural economic development will be strongly influenced by the impacts of climate change on natural resources, especially water supplies.

Adaptation to climate change will involve not only the development of appropriate technologies and a more efficient use of existing resources, but also the need for new institutional arrangements. There is a gap in understanding the extent to which existing policy might discourage or even prevent adaptation. There is a need to incorporate climate change considerations into existing policy instruments. Current policies might be inappropriate and “harbour risk”.

To accommodate climate change and variability, we need to create a buffer by using energy and natural resources more effectively and efficiency; nature is governed by laws of the conservation of mass and energy; we have much to learn from natural systems; we should work towards decoupling rates of economic growth from water and energy consumption.

Potential climate change impacts need to inform public policy and decision-making processes; we should incorporate climate change considerations into existing policy instruments; apply adaptive strategies to policy review and renewal and to business plans that include performance measures, and auditable statements about adaptation targets (losses and damage avoided)

We should avoid creating fear about climate change; this tactic produces only short-term motivation; while learning, sound policy and building networks sustains long-term change