

Natural Resource Accounting in the FMF

The natural features of the Foothills Model Forest offer significant environmental and economic benefits to the region and the province. Current and future generations rely on the benefits generated from the landscape. For example, the forested landscape provides benefits through commercially viable timber, non-timber benefits such as recreation, and various ecosystem services. Access to subsoil resources and mineral deposits also generates significant wealth. Typically, economic activity is measured in terms of the gross domestic product (GDP) generated in the market. GDP is the amount of money exchanged for final goods and services in an economic market in one year. The principles of sustainable development require that we maintain a sustainable level of GDP over time. However, several perceived deficiencies exist with respect to using conventional measures such as GDP. As an indicator of well-being the conventional measures sometimes behave perversely and give an incomplete picture of the full scope of economic activity. For example, extracting timber without planting new trees reduces the value of natural capital. This concept is parallel to machines and buildings depreciating over time unless they are maintained. As a result, it may not adequately address the objectives of sustainability and send incorrect signals to policy/decision makers. Natural resource accounts have been proposed as a tool for assessing the socio-economic sustainability of natural resource use.

What is a Natural Resource Account?

A natural resource account can be expressed in terms of physical quantities and economic values associated with the *stock* (the current existing level) and *flow* (the amount extracted or added) of natural resources and environmental services on a landscape. The details of resource stocks and flows are organized in a natural resource account and can be tracked over time. This information can be used to examine individual resource uses or can be aggregated to adjust conventional measures such as GDP in order to account for environmental linkages. As such, natural resource accounts provide an indication of whether natural resource use is sustainable. It is possible that commercial market activities may only represent a portion of the total net income derived from regional natural resources. Non-commercial and non-market uses of the forest such as recreation, carbon sequestration, etc. that are not currently accounted for would represent the remaining portion of income. In other words, conventional accounting may undervalue the contribution of natural resources to regional income.

Methodology

The FMF natural resource account will consist of the following components:

- Commercial and non-commercial activities (forestry, mining, agriculture, recreation)
- Non-market components (recreation, subsistence use, environmental control services)

As a measure of sustainability, the FMF natural resource account will examine net regional income that includes the value of flows and that accounts for changes in capital stocks. The first step is to quantify, in physical terms, the changes in flows and stocks. Some of this data will be drawn from the FMF local level indicators database. The remaining data will be collected from the Alberta Government and industry. The second step is to apply appropriate "shadow" or accounting prices (i.e., the marginal value) in order to determine the component's value. Valuing the resource components is not always straightforward and varying methods will be employed. Research and development of the FMF natural resource account is currently in progress.