

Using Information and Knowledge Required In Assessment and Management Applications for Sustainability

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A broader concept of sustainability was introduced. Ted Heintz introduced the concept of sustainability as a life sustaining property of earth's biosphere. Ted observed that Life in a wide variety of forms, interacting in networks of evolving relationships, has been sustained for nearly 4 billion years. Sustainability is a property of the system as a whole, a result of the structure of the relationships among its elements and processes, hence an emergent property that is different from the characteristics of the system's elements. Clearly this awesome and miraculous achievement must be our primary model of sustainability. While in recent times global discourse on sustainability as a societal goal is emerging, sustainability needs to arise as an emergent property of human cultures just as it arose as an emergent property of the biosphere.

Democratic processes of governance, market-based economic systems, and science-based information systems provide the institutional processes through which indicator based feedbacks can promote the social learning needed to achieve and sustain sustainability. Information that is most influential is information that is socially constructed in the community it influences. Information influences by becoming embedded in understandings, practices, and institutions rather than being used as evidence.

Societies will always have needed measures that require interpretation to generate information. At the symposium different approaches and strategies for formulating measurement systems were presented. A key ingredient for success is whether or not the information generated from associated measures has any systematic role to play in the realm of management decision-making (forest resources, other managerial context, including a political context). Effective collection and management of sustainability criteria and indicators focused on three issues: First is common agreement on what country level data are relevant to decisions that might assure the respective sector's contribution to sustainable development. Second is relevancy of country level data to regional and local level management. Third is country capacity to collect data and respond to assessment information.

Sustainability is about a diverse set of values. A presupposition of many presentations is that the aspiring

social goals of sustainability—social equity, economic prosperity, and environmental health, embody values about the kind of world in which we want to live and maintain for future generations. Participants talked about employment, commodities to support life functions, and the desire for a healthy and secure environment that provides for non tangible human needs and which is inclusive of their national heritage of plant and animal species. Thus, sustainability is about choices regarding what to sustain, how, when, where, and for whom. Because human values are not fixed and depend on social, economic, and ecological context, multiple perspectives on what sustainability means and how it should be achieved and assessed were presented.

Sustainability, however defined, requires judgment about the state of our communities, country, and world. Inherent therein is valuation of those tangibles we believe should persist in space and over time, and the need to identify and agree upon key performance measures, 'vital signs' of sustainability that serve as a barometer of the state of our values. Many participants are burdened with information gathering - much which is redundant, underutilized, or are not value added to decision making. Several speakers reported on the use of the Montreal Process Criteria and Indicators. They demonstrated that organizing around the seven criteria of sustainability enables alignment of activities between scales; focuses scarce resources on highest priorities; and provides a consistent framework that allows continuous improvement processes. Speakers also demonstrated that organizing assessment, planning, implementation, monitoring, and evaluation processes in a unifying framework has the advantage of aligning programs of work together and allows managers to learn and adjust their strategies more rapidly.

Different approaches to generation information were presented. While the 'purest' of systems approaches are important in teasing out inter-relationships, they should not be considered the end all for dialog and decision making. Body temperature is a great global indicator – but it tells us little of why we have a fever. The link between specific environmental changes, the effect on human health, social & economic systems, and ecological condition is complex, often difficult to describe, and remains

a significant challenge. Determining causal relationships between specific management actions and changes in environmental conditions will remain problematic because such relationships cannot be fully understood. This does not diminish the need to strive to understand such relationships through system approaches. However, as several speakers demonstrated, (Jim Brown, Paul Brouha, Jeff Horan, etc) C&I measurement frameworks such as the MP C&I are invaluable tools to inform dialog and decision making processes.

The challenge of writing to sustainability is to talk about it in a different way. The global community lives and works in an administratively fragmented landscape. There are multiple ownership patterns and political and/or administrative boundaries with each entity having unique roles, responsibilities, mission goals, and objectives. Yet, there are common, broad, social, economic, and environmental challenges that affect all and that defy remedy alone along administrative lines. No one entity has all the information or control. We need to work together. The importance of having capacity to share data was punctuated. Similarly, the importance of having unifying, agreed upon, 'dash boards' of 'vital sign' measures that cross administrative boundaries, to gauge aggregated outcomes, and inform dialog and collaborative decision making processes, was demonstrated. At this symposium we saw major progress in this area. For example, Dr Hall reported that at the provincial level, indicators have been developed criteria have been enshrined into their forest management legislation.