

Condition and Trends of Ecological and Economic Systems

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This Monitoring Science and Technology Symposium was designed to “*put it all together*” for the achievement of sustainability-related goals. It brought together senior policy makers, resource managers and scientists from many organizations and a wide range of disciplines to design a roadmap for addressing critical needs for unifying monitoring strategies, information and knowledge. Discussions during this first Closing Plenary Summary Session were arbitrarily limited itself to a primary focus on Ecological and Economic Systems; nonetheless, the Session did not neglect the import of Social Systems—dealt with in greater detail in subsequent summary sessions.

For this Summary Issue Area, panelists voiced agreement that the overriding focus of the Symposium, rather than being on defining and debating sustainability, was on highlighting monitoring-related tools necessary for—or capable of—meeting sustainability-based goals of differing stakeholders. Also, they voiced agreement that sustainability-based goals, of necessity, must integrate consideration and handling of environmental, social and economic influences or drivers.

The term ‘disconnect’ was employed by a number of the Symposium’s speakers and Closing Plenary panelists. Discussions evidenced two levels of ‘disconnect: *overarching* and *ancillary*. For one set of overarching ‘disconnect’, discussions focused on the split evidenced, overall, between stakeholders in developed versus developing contexts. In developed contexts sustainability-based goals were seen to have a primary emphasis on “environmental” drivers and outcomes, while in developing contexts much more interest has been concentrated on “social” drivers and outcomes. Not surprisingly, another disconnect between development contexts arises with a decided emphasis on newly-developed, technologically-based solutions versus solutions that derive from “simple”, existing tools and natural processes. Finally, another example of an overarching ‘disconnect’ centered on whether “short-term” versus “long-term” perspectives play a predominant role in the process.

Examples of the ancillary type of ‘disconnect’ identified and discussed by participants included:

- **Disciplinary.** This type of ‘disconnect’ is exemplified by the well-recognized tension that exists between and among scientific, technical guilds. In fact, this type of ‘disconnect’ was a major impetus for convening the Symposium.
- **Participatory.** Efforts to address such issues as sustainability goals typically erect artificial barriers between what are known as “decision makers” and “stakeholders”. Too often the fact that ultimately each of these interested parties will need answers about—and make decisions on—the sustainability goals is lost in the process and compromises the viability of outcomes. It is expected that this type of ‘disconnect’ can be overcome through highly-inclusive approaches to development of sustainability goals.
- **Information Integration, Synthesis, Interpretation and Analysis (Assessment).** There is a plethora of data and information sources that may find use in the achievement of sustainability-based goals. Since they have been collected for differing purposes and at varied spatial and temporal scales, and with varying degrees of quality management, the utility of these resources is easily compromised. The issue of how to assure the greatest interoperability among such resources proves a continuing challenge to achievement of sustainability-based goals.
- **Education, Technical Capacity.** Unevenness in the educational and technical capacity of sustainability partners creates a major ‘disconnect’—in particular, in an increasingly globalized context.
- **Performance and Result Evaluation.** Measuring the effectiveness and efficiency of efforts focused on sustainability-based goals is a prerequisite for acceptance and adoption of sustainability-related endeavors. These measures must be incorporated into clearly understandable communications to the varied interested parties.

Finally, during this Closing Plenary Summary Session on Condition and Trends of Ecological and Economic Systems participants noted a strong and continuing need for the varied disciplines represented to focus attention on how the data and information they generate can be

applied to decision support tools and models. Need for this capability has been voiced by the wide range of stakeholders (that are formulating or acting upon sustainability-based goals) of whom all are decision makers. That is, decision makers who are from international, domestic or local governments and organizations; or who are consumers, farmers or sustainability-attentive individuals)—so as to make their decisions to protect the environment and public health in the long-term on sound scientific bases.