

The role of science in results-based planning and management

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I would like to compliment the Southern Interior Forest Extension and Research Partnership for taking the initiative to put on a forum with a “science to management and back” theme. To the best of my knowledge, this is a first in British Columbia. And, it is a very timely initiative considering the ever-increasing interest in a scientifically credible foundation for sustainable forestry from a wide variety of client groups, including:

- policy developers;
- statutory decision makers;
- certification proponents and adjudicators;
- innovators across the forest sector;
- educators and trainers;
- professionals and skilled workforces; and
- First Nations, communities, interest groups, and the general public.

Results-based planning and management, as a strategy, will attract the interest of all of these client groups. Each will have views and expectations about the role of science, what science is needed, how it is best communicated, by whom and in what form.

So, I’m pleased to see some members of these client groups have made the effort to attend and contribute to this forum. Together, the providers and users of information have an opportunity to develop insights and a common perspective to move the “science to management” agenda forward.

Before getting into a discussion of my topic, I would like to take a moment to define what I mean by “results-based.” This term has become a buzzword which is used in various contexts, and probably with many different meanings. The forest industry has recommended revisions to the Forest Practices Code to make it more “results-based”; and public submissions to the Forest Policy Review seek empowerment of local communities to undertake “results-based” management. At one end of the spectrum, are individuals who are simply saying “just get out of my way and let me get on with doing what I think is best.” However, to me a results-based approach to forestry is a lot more rigorous than that.

Our management concepts can be categorized in numerous ways. I’ve divided them into three broad groups: administrative, results-based, and a range of hybrids between the two. Although I have heard arguments to the contrary, I continue to think that today we operate primarily under an administrative model.

The key feature of this model is that the measure of success is full compliance with the rules or a set procedure. The rules or procedures themselves may be based on an anticipated result, but once they are developed, it is the detailed rules and procedures that become the focus of implementation and

CITATION —

Benskin, H.J. 2000. The role of science in results-based planning and management [Keynote address]. *In* Proceedings, From science to management and back: a science forum for southern interior ecosystems of British Columbia. C. Hollstedt, K. Sutherland, and T. Innes (editors). Southern Interior Forest Extension and Research Partnership, Kamloops, B.C., pp. 3–6.

monitoring. I am sure that we all have our own views on what is the appropriate level at which to define the rules, whether it be at:

- the level of specific actions (e.g., stream crossing);
- the activity level (e.g., prescribed burning);
- the block level (e.g., free-growing specifications);
- the landscape unit level (e.g., percent old seral targets); or
- the management unit level (e.g., cut control).

The point I want to make is that although we have streamlined some aspects of operational planning, current processes still have a strong administrative orientation, where statutory decision makers must approve block-specific plans containing specifications for regeneration delay, for free-growing, and for procedural detail around the management of soils, riparian areas, and watersheds. The consequence of approaching it in this way is that less attention tends to go into defining what should be achieved overall; for instance, what future forest landscape characteristics should be created, and what water quantity and quality attributes from the watershed and what forest structure and composition are needed over time and space within a given area? More attention tends to be focused on achieving the rules and procedures.

Now, I am not here to judge the appropriateness of administrative- versus results-oriented approaches. If you examine other jurisdictions you will likely not encounter an objectives or results-based Code only, but a spectrum of plans, rules, results, and objectives with the emphasis weighted in one direction or the other. For example, more planning may be needed if results cannot be clearly defined. Some rules will remain if risks and uncertainties exist which the landowner is not prepared to carry.

In contrast to the administrative model, a results-based approach entails a very different philosophy. Here, attention shifts to defining, in advance, what the outcomes of management are supposed to achieve. And, unfortunately, this is a more difficult task than it might appear. Just think for a moment about green-up, block-size, and adjacency rules—

- what forest-level outcomes are we trying to achieve?
- under what circumstances should something else be considered? and
- how would we measure the efficacy of the alternative action?

The results-based approach to green-up will have to clarify outcomes for the full range of related values including hydrology, habitat, soil stability, visual impacts, and more.

We can ask similar tough questions about other rules, but the challenge will be to establish confidence in their replacement with—

- a set of clearly specified outcomes,
- innovative management approaches that will achieve these outcomes better or more efficiently; and
- ways of measuring success and managing risks along the way.

... a tough challenge, but one where science must play a crucial role in supporting all three areas.

Being a member of the science-providing community, it is probably not surprising that I see a great deal of future significance attached to our work.

Right now we see increasing demands to manage differently in order to achieve more social and economic benefits from our resources, and to address the increasing complexity of decision making. Both the public and the marketplace are calling for scientific validation of forest practices and for confirmation of sustainability.

I think it is inevitable that meeting these demands will invoke a new vision of forest management, with an opportunity for a more prominent role for science. It should not be taken for granted: we have to work hard to maintain the social trust in science.

Social considerations are definitely increasing in importance, but in a global context our future must surely lie in a knowledge-centred, innovation-based approach to all aspects of the forestry business—from growing and managing the forest for various uses, to harvesting, manufacturing, and marketing of timber products. Only in this way can we make best use of our resources, compete successfully in the marketplace, and achieve community objectives across the province. Decisions will be needed that make the best use of the available information with a heavy reliance on informed judgement. And, perhaps most importantly, decisions must be viewed as experiments, subject to constant testing as part of adaptive learning.

In the context of this vision, I'd expect that further shifts in the direction of results-based forestry are likely to occur. A results-based approach implies more latitude for licensees to select the most cost-effective method of implementation, while still achieving the desired outcome. So, inherently, we would expect this to increase the demand for knowledge. We would expect licensees to ask science providers for help in defining the range of possible outcomes, the alternative pathways to achieve them, and the risks associated with data uncertainties. I also expect that the public, and government regulators, will also be asking for help in defining outcomes in a scientifically rigorous manner. How, otherwise, can their achievements be measured in a way that ensures credible performance?

How far or fast we move to results-based management, and for what specific aspects of forestry, remains to be seen. Successful outcomes will depend upon a number of factors.

Moving to a results-based model requires clarity and acceptance regarding the results to be achieved, as well as a degree of comfort around the risks to be managed. We tend to be closest to achieving this where land-use planning processes are furthest advanced. It also will help to have a good sense of community support, First Nations consultation, stakeholder involvement, demonstrated licensee performance, and solid interministry working relationships. Also, confidence will be higher about choosing the means by which to achieve results, if those choices are made scientifically and are professionally accountable.

A more results-based approach is one of several key issues coming forward under the current Forest Policy Review and is linked to a number of factors, especially land-use planning, tenure reform, stumpage, and the Forest Practices Code. Within this array, decisions are required on which specific aspects will become results-based, and how these changes will be scheduled.

Implementing a results-based model could be facilitated through a commitment to real adaptive management (not just the short-term “garden variety” kind).

This approach to applied science can build confidence in areas where we do not have conclusive knowledge and experience, and can help to manage the risks associated with a results-based approach. Scientists have an important role here, in working closely with field clients to come up with appropriate designs for monitoring, analysis, and reporting. I hasten to add that while adaptive management is an important tool for achieving a science-to-management transition, it is not a panacea. We need those well-designed and monitored long-term installations in the background as well, to provide regular insight into how our complex ecosystems function over time.

I have given you some of my perspectives on the factors that could play a significant role in driving the demand for forest science, including a more result-based approach to forest management. I would now like to outline some of the very sobering challenges in responding to those demands.

At a time when science is needed as a foundation for the future of forest management and the forest products sector, science investment is in decline. British Columbia and Canada lag far behind other major wood-producing nations in the level of science and technology investment relative to forest sector GDP. Can we out-compete others on this basis? Can we demonstrate to others that sustainable forest management is being practiced if the commitment to understanding our complex ecosystems is unstable and declining?

Competitiveness also depends on being able to supply what the market wants at the right price. Being able to shift from commodity to customized forest products, and harvesting in a land base with physiographic challenges and resource protection requirements, all requires information, knowledge application, and creativity—and, of course, science.

What we have been discussing today is a results-based approach to management that will drive the demands for science to new levels, seriously stressing our ability to meet those demands. Being the consummate optimist that I am, however, I believe that British Columbia's forest sector is starting to take greater interest once again in the importance of science and technology as a key ingredient for future success. The consequences of maintaining the status quo are simply too disastrous to contemplate. The Committee of Forest Research Agencies of British Columbia, working in partnership with forest-sector client representatives, is taking the initiative of developing a workable science strategy and securing long-term commitments and funding.

Assuming that our capability to undertake good science is restored, some major challenges still exist in moving this science into management applications. Researchers and land managers work in different cultures and often have different training and experience. Characteristics of the research culture include: longer time horizons, freedom of inquiry, and findings heavily qualified and expressed with confidence limits. Characteristics of the management culture include: tight time frames, a desire for closure not probabilities, science as one of several factors which influence a decision, risk management, contentious decision-making environment, and public involvement. Understanding these cultural characteristics is central to building bridges that will enable effective communications and working relationships.

I am sure that the various workshops during the forum will provoke a lot of discussion on this topic. I really hope that we can make progress because some dysfunction is evident that may impede both management and the science community. In my view, the key is a close working relationship and friendship to facilitate mutual understanding. This brings out the best ideas and trust in implementing them.

In the real world of competing priorities and human nature, a results-based approach to forest management may progress slowly. Our old ways of doing business can seem deeply entrenched and difficult to displace, regardless of how outmoded they may be. We may also feel deeply challenged by the occasional frustrations of transferring scientific findings into the management arena or trying to pin those wily scientists down when decisions have to be made “yesterday.” This forum provides a really critical step in the journey of science to management and I would like to congratulate the Partnership in taking the initiative.

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