

*Our claims to sustainability rest on our ability to predict the future forest.*



## Provincial G&Y Strategic Framework

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## 1. INTRODUCTION

Since incorporating in 1999, the Southern Interior Growth and Yield (SIGY) Co-operative has focused on strategic and educational projects to support the growth and yield (G&Y) investments of its individual member organizations, both licensees and government. SIGY strategies have included a long-term data strategy in 2003-04 and a monitoring strategy in 2004-05.

This report is intended to encourage and aid the reestablishment of provincial-scale strategic oversight for G&Y in BC. A provincial-scale venue for multi-stakeholder G&Y collaboration has been absent in BC since 2002 when the Forest Productivity Council (FPC) was decommissioned. This followed a series of destabilizing events including the transfer of most G&Y funding decisions from the MoF to FRBC (& FIA), the expatriation of the inventory G&Y program to MSRM, downsizing of ministry G&Y staff, and the realignment of the BC forestry sector driven by government policy and international markets.

SIGY now believes the time is right for establishing a provincial-scale multi-stakeholder G&Y governance model of some type, based on recent trends. These include the infusion of MPB-related funding, the repatriation of the inventory program back into MoFR, and the anticipated mothballing of SIGY after 2005-06. SIGY has identified several factors that favour a single provincial-scale governance model over a system of regional co-ops. These include economies of scale, the centralized and cyclical nature of government funding programs and the small core of active players, which industry consolidation continues to reduce. This report reviews existing G&Y programs and strategies, describes relationships among principle components and stakeholders, highlights strategic gaps and barriers, and identifies key success factors for a strategic provincial-scale multi-stakeholder G&Y governance model for BC.

## 2. STAKEHOLDERS

Stakeholders in a G&Y strategy include:

### Primary G&Y Users:

- MoFR-FAIB (TSR)
- MOFR-FPB (FRPA, FFT)
- Tenure Holders (licensees; BCTS)
- Licensee organizations (e.g., IFPAs, SIGY, COFI, DFAMs, etc)
- Consulting community (G&Y applications)

### G&Y developers, experts, educators:

- MoFR-FAIB (inventory)
- MoFR-RB (research)
- Academia; FORREX

- Consulting community (G&Y development)

Funding agencies:

- FIA Landbase; FIA Research (Forest Science Board)
- FFT
- CFS-MPBI

### 3. G&Y BUSINESS CASE

#### 3.1 G&Y key to SFM

Public and private sector G&Y investments support the broad vision established by the Forest Productivity Council (FPC) of BC <updated by SIGY>:

***“To be able to consistently and accurately predict the quality, quantity and dynamics of British Columbia's forests under any management <or natural disturbance> regime.”***

Predictions from G&Y tools, such as those used in timber supply analyses for AAC determinations, support many types of SFM decisions. G&Y information is also used extensively in SFM planning (FRPA-FSPs, etc), silviculture investment analysis, and inventory projection. As decision support tools, G&Y tools provide forest managers with a functional synthesis of current knowledge regarding forest dynamics and silvicultural treatment response.

***“Our claims to sustainability rest on our ability to predict the future forest.” (SIGY)***

G&Y's traditional focus on timber has been expanded to include other forest values such as wildlife habitat, biodiversity, visual quality and watershed protection. Predictive models for these and many other non-timber values rely heavily on future forest structure predictions produced by G&Y models.

Current BC forest management issues relying on G&Y model predictions include:

1. Maintaining or enhancing timber supply under increasing pressures, including large-scale natural disturbances (e.g., beetles, fire)
2. Improving future yield expectations through G&Y investments and silviculture
3. Ensuring SFM with science-based forecasting tools and monitoring
4. Supporting information systems for a results-based policy environment
5. Managing for increasingly complex stand structures to address non-timber values
6. Predicting the future supply of non-timber values
7. Generating mill supply forecasts, including log profiles and wood quality
8. Improving market access by addressing public trust (e.g., Kyoto, certification)
9. Assessing carbon sequestration opportunities
10. Anticipating and managing for climate change

From a business perspective, G&Y predictions support the regulatory license-to-cut through their central role in AAC determinations. They also support social license-to-cut and world market access through land-use planning and sustainability initiatives including certification

and global environmental accords. Government and licensees both benefit from maximized harvest levels supported by defensible, scientifically sound models and data.

Past G&Y investments often resulted in higher yield expectations replacing previous, more conservative, estimates. Even when model refinements have a negative effect (e.g., forest health), the net result is a more balanced, realistic prediction for business planning purposes. In addition, investments in better G&Y information tend to be cheaper and present a lower risk profile than silviculture investments, which are exposed to natural disturbance losses, etc. Making intensive silviculture investments based on unrealistic G&Y expectations further compounds the risk.

The increasing complexity of forest management continues to put greater demands on model predictions. To keep pace with advances in science and growing SFM demands, G&Y requires a commitment to continuous improvement.

### **3.2 Economies of scale and cooperation**

Competitive advantage in the forest sector is largely realized at the mill, not in the woods (Reid Carter). There are many examples worldwide of SFM stakeholders working together through co-operative agreements and organizations to share data, develop tools and advance knowledge of sustainable forest management practices. G&Y tools are commonly developed for species and stand conditions that span multiple ownerships and administrative regions. Similar to tree improvement and silviculture research, the long-term nature of G&Y investments and the inherent economies of scale have made G&Y the focus of many multi-stakeholder co-operatives worldwide.

## **4. GOVERNANCE STRUCTURES**

### **4.1 Outside BC**

Because so many aspects of forestry lend themselves to co-operative approaches, there are many examples world-wide. Marketing co-ops are popular with small non-industrial private landowners, but R&D co-ops dominate among governments and industrial land and tenure holders. R&D types in western North America include G&Y, tree improvement and various aspects of intensive silviculture. All have a strong quantitative emphasis with silviculture co-ops focusing on G&Y of specific treatment responses (fertilization, veg mgmt, etc).

In addition to SIGY, there are at least 4 other G&Y co-ops in western North America – Western Boreal G&Y Co-op (WESBOGY, Univ of Alberta); Foothills Pine G&Y Association (Hinton, AB); Inland Northwest G&Y Co-op (INGY, Univ of Montana); and Stand Management Co-op (SMC, Univ of Washington).

The US Pacific Northwest has a long history of forestry R&D co-ops housed within universities and involving both government and industrial forest management agencies. In 2001, representatives from 16 such co-ops meet in Portland to discuss common issues. The group identified traditional co-op segregation into discipline “silos” is a barrier to integration of new information into common decision support systems, principally in the form of G&Y models. In January 2006, 120 Alberta stakeholders meet in Edmonton to discuss joint solutions to similar issues. Communication and co-operation continue to be the foundation of future solutions.

## 4.2 FPC vs. FGC

The Forest Productivity Council of BC (FPC) was established in the mid 1980's as a multi-stakeholder body charged with providing "recommendations on strategic, technical and budgetary direction to the Chief Forester for the development and implementation of a provincial forest productivity strategy." FPC was strictly an advisory body to the Chief Forester; it had no legal structure and no direct influence on allocation of G&Y funding. During its tenure, FPC was a strong champion of G&Y and strengthened the strategic foundation for many aspects of the provincial G&Y program. The Provincial PSP Program was unified and standardized under FPC's direction. However, licensee participation was difficult to sustain given emphasis on the government G&Y program at the time. In the late 1990's, new government funding models (FRBC, FIA) began to emerge to support the decentralization of forest management delivery, including much of the G&Y and inventory programs. In response, FPC championed the creation of regional G&Y co-ops. However, the new funding models (unintentionally) finished the job of decoupling funding decisions from provincial G&Y strategies. FPC no longer served a meaningful purpose and was decommissioned in 2002.

In contrast, the Tree Improvement Council's purpose and experience roughly paralleled that of FPC until it reformed in 1998 as the Forest Genetics Council (FGC). At that time, FGC also adopted a new governance model with direct influence over funding decisions. This new model was initially developed in conjunction with FRBC and continues to operate under FIA. Each year, FGC develops an annual business plan, which is funded through the FIA Tree Improvement Program. A similar model was eventually adopted by FIA for its Research Program, as well. Funding for the FIA Tree Improvement Program is administered by the MoFR Tree Improvement Branch, while FIA-Research funding is administered by Pricewaterhouse Coopers. Unlike the FPC model, this type of governance model ensures investment decisions remain firmly linked to strategies developed through multi-stakeholder co-operation at the provincial scale.

## 4.3 SIGY

SIGY was created in 1999 largely in response to government actions that realigned the way forest management activities on crown land are funded and delivered. Up until the late 1990's, G&Y and inventory on TSAs were largely funded and delivered by government through ministry base budgets. Creation of FRBC enabled funding responsibility for many of these activities to be transferred to a crown corporation. Components of the G&Y program delivered by Research Branch were administered by the centralized FRBC Research Program and components delivered by Inventory Branch were administered by the decentralized FRBC Landbase Program. The latter was initially a regional model, but later devolved into a local model delivered by individual licensees within each management unit. These basic Research and Landbase Program models were retained by FIA and persist today.

SIGY's was created and initially funded by FRBC's regional delivery model. The primary objective for creating the Co-op was to provide a legal framework for receiving FRBC funds in order to undertake large-scale G&Y projects on behalf of Co-op members. However, shortly after SIGY was established, FRBC abandoned the regional delivery model in favour of the local delivery model. Instead of receiving one annual regional FRBC allocation, SIGY funding then depended on 40+ independent investment decisions by licensees at the management unit level. The resulting consensus process never supported budget levels necessary for conducting regionally-strategic operational G&Y projects. Consequently, SIGY's original objective was never realized. Instead, SIGY re-focused on strategy

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development and education to support the individual local G&Y investment decisions of its members.

Local priorities increasing overshadowed Co-op support as licensee allocations declined annually. It became increasingly difficult to justify Co-op funding based solely on “soft” returns from strategic and educational projects. After unsuccessful attempts to obtain a more direct FIA funding model, SIGY’s Board of Directors concluded Co-op funding was no longer viable and decided to stop soliciting FIA funding through member licensees after 2005-06 and mothball the Co-op. Underlying this decision was continued disappointment that government was not upholding what licensees perceived to be government’s share of G&Y stewardship responsibilities.

During SIGY’s active tenure, the Co-op produced a number of G&Y strategies which are publicly accessible on SIGY’s website. These are listed in Appendix I, an annotated listing of G&Y strategic documents. SIGY strategies reconfirm the economies of scale possible with cooperative regional and provincial investments. While SIGY confirmed the value of continued investment in the traditional components of the G&Y program (models, PSPs, and research), SIGY strategies repeatedly highlight the need for a greater commitment to G&Y monitoring to more fully address emerging SFM needs.

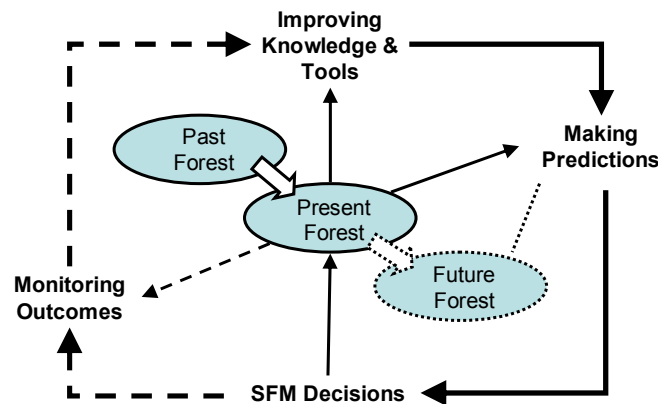
#### **4.4 Lessons Learned**

- 1) The realization of SFM on any given landbase requires the active co-operation of all stakeholders involved. This is especially true under Canadian crown-land joint-stewardship (forest tenure) models, and to a still greater extent within results-based policy environments.
- 2) Co-operative approaches among stakeholders produce economies of scale and facilitate the communication and acceptance of jointly-sponsored products and innovations.
- 3) Maintaining active stakeholder participation requires that each perceive a positive return on their investment (time and money); those criteria differ among individuals and organizations.
- 4) For strategic governance to be effective and viable, it must have a direct linkage to fiscal decisions. There are several ways to accomplish this.
- 5) “Virtual” fiscal control of a program can be granted by a funding agency to (unincorporated) advisory bodies (e.g., Forest Genetics Council and Forest Science Board with respect to FIA).
- 6) In other cases, a co-operative association may adopt some form of legal structure depending on unique fiscal, ownership and liability issues.
- 7) G&Y, inventory, and monitoring must readily share information and applications to enable effective SFM. Management of these individual components in isolated “silos” is increasingly counter-productive and inefficient. Joint governance raises the profile of all components and enables an integrated approach to business planning and funding that will be more persuasive, long-lived and effective.

## 5. TECHNICAL COMPONENTS

### 5.1 Program overview

Strategic G&Y investments work together to produce the science-based knowledge and tools required to support SFM. The following diagram depicts the generalized G&Y development and application cycle within the SFM context. Dashed lines on the left indicate the G&Y monitoring process is currently incomplete in BC, which weakens the feedback (adaptive mgmt) portion of the cycle. The diagram also highlights the critical importance of information about present forest conditions, as it provides our only link to both past and future forest conditions.



The technical components of a G&Y program work together to help support and improve SFM decisions. Decision support tools in the form of G&Y and site productivity models form the core of a G&Y program. On-going supporting investments in data, R&D, and extension ensure continuous improvement of knowledge and tools, and their application to meet the increasing demands of SFM.

### 5.2 G&Y Program Scope

The traditional scope of G&Y continues to expand with an increasing emphasis on ecosystem processes, genetics, wood quality, forest health, non-timber values (etc.) in response to demand from forest managers for more integrated decision support tools. G&Y is increasingly a multi-disciplinary exercise, but the core focus remains trees, individually and in stands. G&Y models make a logical integrative framework because the trees define so many other forest values, as well as timber.

A G&Y Program strategy normally addresses the following technical components:

1. G&Y models
2. Site productivity tools (site index)
3. On-going data collection (modelling and validation)
4. Silvicultural field experiments (treatment response)
5. Basic research (stand dynamics)

6. Monitoring (continuous inventory)
7. Communication, extension and training