Business Case for a BC Science Advisory Board (BC SAB)

April 2006

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A. Executive Summary

This Business Case outlines the value and purpose of the formation of a Science Advisory Board for British Columbia (a BC SAB). It provides an overview of the funding, structure, governance and implementation requirements for a British Columbia Science Advisory Board which will provide best science advice in support of informed decision making in BC for line Ministries and Crown Corporations. The business case identifies strategic opportunities for coordination in the dissemination of leading edge scientific expertise in BC to address critical issues in the natural, health and engineering sciences. The business case defines the complimentary role of a BC SAB in supporting (and not duplicating or replacing) the work of existing Boards and Councils with a mandate for providing science advice in BC. The ways in which a BC SAB will address current needs for better access to critical scientific analysis and reviews of issues, and the need for a highly practical and facilitating role to support the science resources of line Ministries and agencies in BC is described.

Working in concert with the BC Innovation Council (BCIC) and the Ministry of Advanced Education, the BC SAB will provide focused scientific information that will support the mandates of these organizations for the strategic development of science and innovation capacity in BC. A BC SAB will foster linkages across areas of scientific excellence in our province, nationally, and internationally, enabling BC to achieve its goal of being a leading province in the creation of jobs, the dissemination and communication of knowledge, the coordination of research and innovation, and for research and development related industry. Building on the world class expertise already available in Universities, University Colleges, colleges and the British Columbia Institute of Technology (BCIT), the BC SAB will support our province in becoming the leading jurisdiction in Canada for science based decision making. Expansion of the role of science in government and the strengthening and development of the science infrastructure within Ministries will aid BC in retaining our most talented individuals and attracting new talent and ideas to a province which has an international reputation for valuing and supporting the integration and expansion of science and technology.

The BC SAB will take the form of a minimal administrative structure (a three person full time Secretariat) administratively nested within the BCIC, professionally autonomous, and housed on a University campus. The Science Advisory Board for Contaminated Sites in British Columbia has found that working within the campus environment has proven to be administratively and logistically synergistic, enabling the SAB to maintain its professional autonomy while creating strong working

relationships with strategic partners and stakeholders across the province, nationally and internationally.

The BC SAB will establish a roster of leading scientific experts from academe, industry, the community and other jurisdictions in the natural sciences, health sciences and interdisciplinary areas of research representative of the information needs of users in BC, acting as a 'clearinghouse' for science-based expertise in the province. Line Ministries and Crown Corporations will be able to access individual advisors through the SAB, or the SAB will convene issue specific ad-hoc task forces and working groups on an as-needed basis. Formalized affiliations and linkages between the BCSAB and the existing advisory capacities of current Networks and Boards (such as those in the forests, oceans and contaminated sites areas) will further enhance the value of the BCSAB as a provincial resource.

This business case will be used as the foundation for further discussions with the line Ministries and Crown Corporations in BC in order to develop a detailed and specific implementation plan, including commitments from funding partners. In particular jointly funded studies with the federal government and other Western provinces will be explored. This budgeting process for the BC SAB will be finalized by September/October of 2006 so that the BC SAB could be included as a line item in the 2007/8 Provincial Budget, and could culminate in a launch for the BC SAB in April 2007 if the formation of a BC SAB is approved.

Leaders from Science Advisory Boards in other jurisdictions will be further engaged in order to build on their offers of guidance in the formation of a BC SAB and to learn from their experiences in implementing a vital and useful SAB. Dialogue and consultation with potential stakeholders in the BC SAB will also be an important step in launching a SAB which is well utilized, and to that end, it is proposed that a two day internal intra-governmental workshop should be held in October/November of 2006. The workshop would engage stakeholders in order to ensure a greater understanding of the benefits of a BCSAB to the line Ministries and how duplication can be avoided while strengthening science based decision making in government in British Columbia. High-level speakers from Science Advisory Boards such as the Alberta Science and Research Authority (ASRA) and the Council of Science and Technology Advisors (CSTA) could be invited to present their best-practices and lessons learned. The workshop would support a BC SAB which provides the best service to its users in BC, is well positioned and utilized to strengthen the science infrastructure within government, and which has strong reciprocal relationships with existing Science Advisory Boards in other jurisdictions.

B. Detailed Case Information

1. Value and Purpose:

Currently, the science-related capacity and excellence in British Columbia is robust, but fragmented. The fifth Great Goal of our province – to "create more jobs per capita than anywhere else in Canada" includes a commitment to "foster a coordinated approach to research, innovation and the dissemination of ideas".[1] In order to support the role of the British Columbia Innovation Council (BCIC) and to achieve the goal of being a leading edge Province in the development of science and innovation, there is a demonstrated need for the formation of a British Columbia Science Advisory Board (BC SAB). As British Columbians work to develop a nationally and internationally competitive knowledge-based economy of healthy, safe and sustainable communities, a BC SAB will be an efficient and cost-effective way to support and enhance the work of existing Boards and Councils in British Columbia. In concert with the BCIC a BC SAB will reinforce and strengthen existing capacities for science-based decision making in line Ministries, enhance existing mechanisms for accessing University and private research in the province, and provide for increased information sharing, coordination and synergies between and across line Ministries and agencies for science-based work.

In particular, a BC SAB will not duplicate or replace existing bodies but will support and compliment the work of the organizations which have proven to be effective, valuable resources for British Columbians in creating a province of innovation and growth. The Science Advisory Board for BC will seek formal affiliations with vital organizations such as:

- Genome BC
- Premiers Technology Council
- Leading Edge Solutions BC
- the University Industry Liaison Offices (UILOs),
- The University Presidents Council of British Columbia,

Affiliations between the BC SAB and these organizations will focus on providing high-quality strategic scientific information and science-based input in order to advance the activities and mandates of these organizations.

Formal affiliations with existing science-based Boards and Networks will also be implemented in order to maximize the value of the SAB and provide strategic scientific support to the mandates of:

[1] Province of British Columbia, *Strategic Plan 2006/7 – 2008/9.* (Feb 2006). Retrieved March 2006 from: http://www.bcbudget.gov.bc.ca/2006/stplan/StrategicPlan_06.pdf

- McKenzie River Basin Board
- Science Advisory Board for Contaminated Sites in British Columbia
- Collaborative Oceans Innovation Network
- Other standing Advisory Boards in Forests, Health and the Mining and Energy sectors

The BC SAB will play a highly practical and facilitating role with existing resources for scientific excellence in British Columbia such as the Universities, University Colleges, colleges and the British Columbia Institute of Technology (BCIT). The organizations listed here will be assisted in their work through association with a BC Science Advisory Board which provides a coordinated approach to science-based decision making in the province, and in particular a coordinated pool of talent which can supply a comprehensive understanding of scientific developments provincially, nationally and internationally.

Furthermore, counterpart Science Advisory Boards such as the Alberta Science and Research Authority (ASRA), the federal Council of Science and Technology Advisors (CSTA), and the Health Canada Science Advisory Board have expressed a desire to have access to a counterpart organization in BC which can provide comprehensive information and insight into ongoing work in our province and which can facilitate strong linkages and relationships between jurisdictions. A BC SAB will provide an important point of contact for Science Advisory Boards in other jurisdictions in Canada and the US to enquire about developments in BC, and to form collaborative relationships related to science based development. In its role as the Science Advisory Board for BC, the BC SAB will form reciprocal relationships with these and other agencies engaged in scientific work, making science developed internationally available to decision makers in BC, and in turn working to raise the profile of scientific excellence in BC internationally.

In a series of studies relating to excellence in science and technology management, the CSTA has demonstrated that the development of innovative knowledge-based economies is built on scientific excellence in government and the private sector, strengthened by strong linkages across and between departments, agencies, sectors, and disciplines. A BC SAB will create strong interdisciplinary and inter-organizational linkages in scientific endeavour, and will bring substantial gains for BC including the coordinated leveraging of resources, the increased generation, dissemination and commercialization of knowledge, and increased returns from the "science-policy interface" as well as the assurance that policy and regulatory decisions are informed by the best

available science. [2] In an environment where there is increasing competition for the best and brightest individuals, British Columbia must develop innovative strategies to recruit, rejuvenate and retain our scientific excellence in order to maintain and enhance our role as a leading knowledge-based economy.

The BC SAB will take the form of a minimal administrative structure (please see Governance below for a more detailed outline) supporting a roster of leading scientists from academe, industry, the community and other jurisdictions in the natural sciences, health sciences and interdisciplinary areas of research representative of the science-based information needs of decision makers in BC. Following its inaugural two year period the Board will examine the possibility of including a broad representation of the social sciences on the roster in order to buttress work being done in the province to benefit the well being and sustainability of our communities.

[2] *LINKS: Linkages in the National Knowledge System: Fostering a Linked Federal S&T Enterprise*. A Report to the Government of Canada. Council of Science and Technology Advisors. February 2005. ISBN 0-662-39079-2. The CSTA studies can be found at: http://www.csta-cest.ca/section.php?ID=1&Lang=En&Nav=Section .

2. Vision and Goals

Vision:

British Columbians work together to become a leading edge province for science and technology in the coming decade through coordinated communication, facilitated access to science-based resources, and comprehensive strategies for the advancement of science in British Columbia.

Mandate:

The Mandate of the British Columbia Science Advisory Board will be, in collaboration with existing Boards and Councils in BC, and without duplicating or replicating available services, to:

i. Provide issue specific assessments for line Ministries and agencies in collaboration with existing Boards or Councils in British Columbia and oversee expert panels or working groups for requested science-advisory services.

ii. In support of the BCIC, advance the development of scientific excellence and the integration of science in policy formation in British Columbia through strategic and educational outreach and improved interdisciplinary and inter-agency communication.

iii. Facilitate the communication of leading edge science in British Columbia inter-provincially, nationally and internationally.

Goals:

i. Strengthened science infrastructure within line Ministries in order to facilitate the benefits of a BCSAB and to support the work of government scientists.

ii. Make available high quality and relevant scientific and technical information to support informed decision making by the Provincial government.

iii. Greater awareness for decision makers of emerging trends and opportunities based on state-of-the-art scientific knowledge provincially, nationally and internationally.

iv. Established and practical government-wide mechanisms for the solicitation of science-advisory services in the province.

v. Access to highly-qualified issue specific task forces or working groups on an as-needed basis in a variety of fields representative of the science-based decision making needs of clients in British Columbia in collaboration with existing provincial Boards and Councils.

vi. Meaningful and valued exchanges of knowledge with other jurisdictions.

3. Strategic Opportunities:

A number of common challenges exist in the use and development of science in BC which a Science Advisory Board will be able to effectively and efficiently address:

- The need for consistent mechanisms to facilitate the process of engaging external advisors and to ensure that there is timely access to experts in the natural, engineering and health sciences;
- The need for more coherent and coordinated planning, research and information sharing across the Province, between BC and our neighbouring Provinces and the Federal government, and with the work that is being done internationally in science; and
- The need for advisors who communicate science and findings effectively and meaningfully and who are familiar with the 'science-policy interface'.

British Columbia agencies frequently require timely access to reliable, high-quality and practical assessments of the current science of a particular field in order to support informed decision making. For most of these agencies this often involves the engagement of external advisors or consultants. More specifically, agencies will routinely engage external advisors for providing assessments or background papers on the science of a particular point to supplement internal expertise and ensure science-based decision making is informed by the best available science. Access to leading experts to act as advisors and provide assessments of the science lends credibility and rigour to the decision making process.

A BC SAB will facilitate this process by acting as a 'clearinghouse' for Ministries to identify, contact and contract external advisors. The BC SAB will supplement the internal scientific skills of Ministries with a membership roster representative of the science-based information needs of decision makers in BC relating to the natural, engineering and health sciences. Through its role as a liaison with the scientific functions of a range of Ministries and agencies, the BC SAB will be able to foster cross-ministry linkages in science-based work.

Currently in British Columbia, coordination and communication across the province about on-going science-based work is fragmented, and the linkages across the range of disciplines, among departments and agencies, between the government and other science-related sectors (industry, academe and non-government organizations) are equally fragmentary. Current efforts to 'overcome silos' in research and in government will be strengthened by the existence of a BC SAB, reducing the potential for replication of work, but moreover increasing the possibilities to develop synergies and cross-fertilization between ideas.

A BC SAB will serve to provide a single point of access for those interested in engaging the scientific community in BC, and for BC decision makers who require information about work that is being done in the province and elsewhere. Both for provincial users and for governments and Science Advisory Boards from other jurisdictions (such as the Alberta Science and Research Authority), a BC SAB will facilitate the sharing of knowledge, expertise, and research. A provincial SAB which serves as a single point of access for science advisors in the province will facilitate cross-ministry and cross-sector communication around the use of science, and increase awareness about the work that is ongoing in other organizations.

4. Governance and Operations:

Operations

The BC Science Advisory Board will function as a companion body with the BC Innovation Council, providing focused scientific input to the work of the BCIC in setting strategic priorities for the use and development of science and technology provincially. Through its roster of skilled experts from academe, industry, the community and other jurisdictions, the BC SAB will identify solutions to emerging science problems and provide input into the work of complementary bodies in BC relating to science-based information needs. High level representatives from the BC Innovation Council, the Universities and Research Branch of the Ministry of Advanced Education, and the Intergovernmental Affairs Secretariat will serve as ex-officio members of the Board.

The BC SAB will function as an independent professionally autonomous arms-length resource, administratively nested within the British Columbia Innovation Council. This will ensure that potential synergies between their mandates are maximized, and will minimize the costs of establishing a SAB through building on the resources invested in developing and expanding the BCIC. It will be housed on campus in one of the British Columbia Universities, which will minimize the infrastructural costs for the BC SAB, and will also serve to reinforce the professional and intellectual autonomy of the SAB.

This autonomy is critical for a robust and functioning SAB – access to external advisors who will speak to the issues of science without being influenced by organizational loyalties is one of the key value-added inputs of a SAB. Working within the campus environment has proven to be administratively and logistically synergistic for the existing Science Advisory Board for Contaminated Sites in British Columbia, enabling the SAB to maintain its independence while creating strong working relationships with strategic partners and stakeholders across the province, nationally and internationally. Furthermore, locating the SAB

on a University campus will ensure the credibility of the SAB through the necessary commitment to University protocols governing research, privacy and confidentiality in the work of the SAB. Locating the SAB on a University campus will enable it to operate within the spirit of freedom of inquiry which the Universities represent, thus contributing to the credibility and autonomy of the BC SAB.

The BC SAB will have a small full-time core Secretariat supporting a Board of Directors appointed under the leadership of the Ministry of Advanced Education and the BC Innovation Council from the voluntary general members (i.e. general members are those scientist from industry, academe the community and other jurisdictions accepted as experts in their field who have agreed to be called upon to assist the BC SAB in its work). The SAB will provide an internet as well as phone based point of access for resources, and operate out of a core budget provided by the Provincial Government, supplemented by fee-for-service work and other fundraising activities.

Reporting and Accountabilities

The BC SAB will publish an Annual Report and Strategic Plan on its website. Individual projects will not be published on the website until approval has been granted by the client agency. Within the limits of confidentiality, the BC SAB will strive to make information about ongoing research publicly available in the interest of reinforcing both the autonomy of the SAB and its role as a single resource for information about work that is ongoing throughout the Province.

The BC SAB will liaise with the scientific functions of Ministries, in particular with the Ministry of Advanced Education to facilitate current work in progress to create strong cross-ministry linkages in the use and development of science. It will be accountable to the government of British Columbia through its companion position to the BCIC under the leadership of the Ministry of Advanced Education.

Administration

The Secretariat of the SAB will be a small full-time team of three skilled and knowledgeable individuals (a CEO, a Financial/Project Manager and a Science Research Officer) who will oversee the functioning of the SAB. They will receive proposals and questions, determine if the SAB membership contains individuals with the correct skills and/or contact the individuals with the needed expertise, and generally provide a 'project management and oversight' function.

The Secretariat and Board of Directors (of approximately 16 members) for the BC SAB will be appointed under the direction of the Ministry of Advanced Education and the BC Innovation Council. The Board of Directors will include, wherever possible, representation from industry,

academe, and other jurisdictions, as well as two representatives from each of the following Ministries:

- Advanced Education
- Agriculture and Lands
- Economic Development
- Health
- Energy, Mines and Petroleum Resources
- Environment
- Forests and Range
- Transportation

It is also hoped that among the individuals who sit on the Board of Directors, Crown Corporations and other BC Boards will be adequately represented. The Board of Directors will elect a Chair and a Secretary from its members to facilitate meetings.

The Secretariat will be responsible for overseeing the start-up of the BC SAB, and for assisting in the process identifying leading experts for the SAB. The Board of Directors will serve a three-year (voluntary) term, and can be reappointed for no more than two consecutive terms (six consecutive years in total). The term 'general membership' is used to denote the scientists who are on the roster of members for the science-based services needed by clients in the Province.

As mentioned briefly above, in its inaugural period (two years) the BC SAB will be limited in its mandate to the natural, engineering, and health sciences. This will enable the SAB to become a fully functioning entity and to establish itself as the central resource for science-based information and assessments in British Columbia. Following its initial start-up phase, the BC SAB will explore the possibility of expanding the mandate to include significant representation from the social sciences. Expansion to the social sciences will strengthen the mandate of the SAB to contribute to evidence based policy management as well as science based decision making, and will serve to meet the needs of a broader array of decision makers in BC.

Issue specific assessments provided through the BC SAB will be managed as projects. The Secretariat will receive questions and requests for services from provincial clients, and will respond on behalf of the Science Advisory Board in reasonable time with a proposed project team (working group), budget and time-frame. In consultation with the client a project contract will be developed with specific deliverables. Issue specific work will be funded on a project basis by the agency requesting the work. This funding would be supplemented by a core operational budget provided by the provincial government, as described in the provisional budget for the BC SAB outlined in Appendix One. The BC SAB will refer clients to other Boards or Networks where relevant, reflecting its focus on not duplicating the work of other organizations in BC and on providing cost-effective services to British Columbians. Ad-hoc

interdisciplinary working groups or task forces will be convened on request.

The budget projections developed for a BC SAB follows the model described in this business case, which is based on the assumptions that core funding will cover fixed annual costs, and that the SAB will generate an increasing amount of fee-for-service work over time. Given the one-time start-up costs for a functioning SAB, however, there will be a need for additional core funding in the first year of operation of approximately $77,000. Coupled with the increase over time for fee for service work, joint funding of studies with the federal government and other Western provinces may further reduce the relative core funding budget requirements in the future.

Functioning

The BC SAB will provide timely, credible and coordinated advice and assistance on the science underlying the many challenges, issues, initiatives and science informed decisions facing government, and will not provide unsolicited advice or comment on public or government policy unless requested to do so.

The BC SAB will liaise with the scientific functions of the following Ministries:	
o Advanced Education o Agriculture and Lands o Economic Development o Health	o Energy, Mines and Petroleum Resources o Environment o Forests and Range o Transportation
It will also liaise with the scientific functions of a variety of Crown Corporations:	
o BC Hydro and Power Authority o BC Transmission Corporation o Oil & Gas Commission	o Columbia Power Corporation o Forestry Innovation Investment
The BC SAB will form strategic partnerships with:	
o University Industry Liaison Offices (UILOs) o University of British Columbia o Simon Fraser University o University of Victoria	o Royal Roads University o Thompson Rivers University o British Columbia Institute of Technology (BCIT) o BC colleges and University

o University of Northern British Columbia	Colleges
Finally, the BC SAB will liaise with in complementary bodies in BC and its counterparts in other jurisdictions including (but not limited to):	
o Alberta Science and Research Authority (ASRA); o Advisory Council on Science and Technology (Canada, Federal) (ACST)	o Council of Science and Technology Advisors (Canada, Federal) (CSTA) o The Health Canada Science Advisory Board o The US Environmental Protection Agency Science Advisory Board (EPA SAB)

The Way Forward:

I. The next step in the formation of a British Columbia Science Advisory Board will be to initiate further discussions with line Ministries and Crown Corporations in BC based on the proposal described in this Business Case. Representatives from potential partner organizations, companion bodies and existing Science Advisory Boards in BC and Canada will be consulted to ensure the potential synergies of a BC SAB. Representatives from the Alberta Science and Research Authority (ASRA), the Health Canada SAB and the National Science Advisor to the Prime Minister (Dr. Arthur Carty) who have offered their guidance and input for the formation of a BC SAB will be engaged further to support a successful implementation, and to ensure that linkages and partnerships with counterpart Boards are central to the formation of a BC SAB.

II. Line Ministries and other potential partner organizations in BC will be engaged in the process of determining the sources of funding for a BC SAB. The projected budget (please see Appendix One) will be developed into a detailed budgeting plan for the BC SAB, to be finalized by September/October of 2006 so that the BC SAB could be included as a line item in the 2007/8 Provincial Budget.

III. It is proposed that a two day internal intra-governmental workshop would be held in October/November of 2006. The workshop would engage stakeholders in order to ensure a greater understanding of the benefits of a BC SAB to the line Ministries and how duplication can be avoided while strengthening science based decision making in government in British Columbia. High-level speakers from Science Advisory Boards such as the Alberta Science and Research Authority (ASRA) and the Council of Science and Technology Advisors (CSTA) could be invited to present their best-practices and lessons learned.

IV. Discussions and consultations described above will be the foundation of a detailed and specific implementation plan, leading up to a potential launch for a BC SAB in April 2007.

C. Appendices:

Appendix One: Projected Budget for a BC SAB

The following projected budgets for a BC SAB are based on the organizational structure and functioning outlined in the Business Case for a BC SAB above. Projections will alter if a modified Governance, Operations or Administrative structure is decided on.

British Columbia Science Advisory Board Budget Projections			
	2006/07	**2007/08**	**2008/09**
Revenue			
Core Funding	$413,912.00	$418,516.00	$424,066.00
Line transfers and fees	$100,000.00	$250,000.00	$300,000.00
Total Revenues	**$513,912.00**	**$668,516.00**	**$724,066.00**
Expenditures			
Fixed Annual Operating	$413,912.00	$418,516.00	$424,066.00
Variable Operating	$62,086.80	$62,777.40	$63,609.90
One-time Start-Up (No SST)	$115,315.00		
Total Expenses	**$591,313.80**	**$481,293.40**	**$487,675.90**
Surplus/Deficit	$77,401.80	$187,222.60	$236,390.10

Annual Operating Expenses	2006/07	2007/08	2008/09
Fixed Expenses			
Accounting	$3,000.00	$2,500.00	$2,500.00
Advertising	$2,842.00	$2,500.00	$2,500.00
Accounting and financial services (university based)	$660.00	$660.00	$660.00
Courier, freight, postage	$6,000.00	$6,000.00	$6,000.00
Data bases, software	$400.00	$400.00	$400.00
Directors' Board costs (1)	$76,800.00	$76,800.00	$76,800.00
Insurance - Professional Liability	$6,000.00	$6,000.00	$6,000.00
Internet/email monthly charges (university based)	$750.00	$750.00	$750.00
Office expenses	$10,000.00	$10,000.00	$10,000.00
Printing - office	$2,000.00	$2,000.00	$2,000.00
Publicity and PR	$2,400.00	$2,400.00	$2,400.00
Rent (based on $2000/month reduced if housed in University including some shared corporate services)	$24,000.00	$24,000.00	$24,000.00
Staff travel	$4,000.00	$4,000.00	$4,000.00
Telephone charges	$2,500.00	$2,500.00	$2,500.00
Telephone long distance charges including teleconferencing	$3,600.00	$3,800.00	$4,000.00
Cell phone charges	$6,000.00	$6,000.00	$6,000.00
Wages and benefits (2)	$262,300.00	$267,546.00	$272,896.00
Website monthly charges	$660.00	$660.00	$660.00
Total annual operating expenses (fixed expenses)	**$413,912.00**	**$418,516.00**	**$424,066.00**
Variable Expenses (expenses incurred through the conduct of BCSAB services) 15% of total gross revenue	$62,086.80	$62,777.40	$63,609.90
Total annual operating expenses (variable expenses)	**$475,998.80**	**$481,293.40**	**$487,675.90**

Assumptions:
- GST will either be non-applicable or entity will be eligible to claim full ITC's
- SST status is uncertain; presumably would be exempt if deemed to be a branch of Province
(1) 16 Directors, travel and honorarium of $100/hr for face-to-face meetings including 1 hour prep time paid per hour in meeting; estimated 4 face-to-face meetings per year. 8hrs per meeting
Travel per trip for Directors est. at $400per meeting.
Travel Costs: $25,600 Honorariums: $51, 200 Total: $76, 800
(2) Wages and benefits
CEO + 22% benefits $122, 000 = $100,000 salary +22% Benefits Financial/Project Manager + 22% benefits $67, 100 = $55,000 salary + 22% Benefits Scientific Research Officer + 22% benefits $73, 200 = $60,000 salary + 22% Benefits

One-Time Start-Up Expenses for a British Columbia Science Advisory Board				
			Total	**Total**
	Per Unit	**Per Unit**	**3 pers office**	**3 pers office**
	(No SST)	**(Incl SST)**	**(No SST)**	**(Incl SST)**
Computer and other hardware:				
Desktop computer, screen, keyboard, mouse & accessories (x 2*)	2,000.00	2,140.00	4,000.00	4,280.00

Laptop & accessories (x2*)	2,500.00	2,675.00	5,000.00	5,350.00
Other electronic (Blackberry, PDA's, etc.)	300.00	321.00	900.00	963.00
Wireless router (1 only)	120.00	128.40	120.00	128.40
Printer / Scanner (1 only)	200.00	214.00	200.00	214.00
Photocopier (1 only)	8,000.00	8,560.00	8,000.00	8,560.00
Computer Software:				
Microsoft Windows XP Pro Upgrade	250.00	267.50	750.00	802.50
Webroot SpySweeper	50.00	53.50	150.00	160.50
Norton Anti-Virus	100.00	107.00	300.00	321.00
Microsoft Office 2003 Pro (Excel, Powerpoint, Word, Access, Publisher and Outlook)	600.00	642.00	1,800.00	1,926.00
Quickbooks Pro	350.00	374.50	1,050.00	1,123.50
Internet and Network:				
Internet - connection to server - "Server 2.5"	100.00	107.00	300.00	321.00
Web-site development	8,000.00	8,560.00	24,000.00	25,680.00
Other IT set-up and implementation costs	see below			
Fax and Telephone:				
Fax (incl installation)	700.00	749.00	2,100.00	2,247.00
Office Telephone System (4 phones incl installation)	700.00	749.00	2,100.00	2,247.00
Office Supplies:				
Shredder - General Purpose Heavy Duty	700.00	749.00	2,100.00	2,247.00
Calculators - Printing Desktop	100.00	107.00	300.00	321.00
Toners/Ribbons for Printer & Calculator	300.00	321.00	900.00	963.00
Busness Cards	400.00	428.00	1,200.00	1,284.00
Office Start-up Supplies	see below			
Furniture: (specific costs)				
Chair of the BCSAB				

Desk	2,500.00	2,675.00	2,500.00	2,675.00
Office Chair	400.00	428.00	400.00	428.00
File Cabinet	600.00	642.00	600.00	642.00
Shelving & Storage	500.00	535.00	500.00	535.00
Furniture (table & 4 chairs)	1,200.00	1,284.00	1,200.00	1,284.00
Communication Specialist and Analyst				
Desk	2,045.00	2,188.15	2,045.00	2,188.15
Office Chair	400.00	428.00	400.00	428.00
Shelving & Storage	500.00	535.00	500.00	535.00
Furniture (table & 4 chairs)	1,200.00	1,284.00	1,200.00	1,284.00
Secretary and Treasurer				
Workstation	1,500.00	1,605.00	1,500.00	1,605.00
Office Chair	400.00	428.00	400.00	428.00
3 x 5 Drawer File Cabinets	3,300.00	3,531.00	3,300.00	3,531.00
Shelving & Storage	1,000.00	1,070.00	1,000.00	1,070.00
Reception Area:				
Furniture (table & 4 lounge-type chairs)	1,500.00	1,605.00	1,500.00	1,605.00
Décor	500.00	535.00	500.00	535.00
Conference Room:				
Furniture (table & 6 chairs)	4,200.00	4,494.00	4,200.00	4,494.00
Shelving & Décor	1,000.00	1,070.00	1,000.00	1,070.00
Coffee Room / Store Room:				
Furniture (table & 4 chairs)	800.00	856.00	800.00	856.00
Appliances	1,000.00	1,070.00	1,000.00	1,070.00
Sub-total	**$50,015.00**	**$53,516.05**	**$79,815.00**	**$85,402.05**

Add: contracted expenses (one-time costs)				
Job Descriptions			5,000.00	5,000.00
Job Ads Media Costs			5,000.00	5,000.00
Job Interview Travel			2,000.00	2,000.00
IT Set-up and Implementation Costs			16,000.00	16,000.00
Database Development			5,000.00	5,000.00
Office Supplies stock up			2,500.00	2,500.00
Total start up and capital costs			**$115,315.00**	**$120,902.05**

Appendix Two: Some leading examples of Science Advisory Boards in BC and other jurisdictions

The US Environmental Protection Agency Science Advisory Board (US EPA SAB).

http://www.epa.gov/science1/about.htm[3]

The SAB has played a unique role in environmental protection for more than twenty-five years. Congress authorized it to provide independent advice and peer review to EPA's Administrator and the Congress on the scientific and technical aspects of environmental problems and issues.

The SAB, in its present form, was established in 1978 by the Environmental Research, Development, and Demonstration Authorization Act (ERDDAA) (42 U.S.C. 4365). Predecessor bodies date back to the early 1970s. In carrying out the mandate of the ERDDAA, the SAB provides such scientific advice as may be requested by the Administrator, the Committee on Environment and Public Works of the United States Senate, or the Committees on Science and Technology, Interstate and Foreign Commerce, or Public Works and Transportation of the House of Representatives."

1. **Mandate**

Vision/Mission

The scope of the Board is potentially as wide as all of the scientific and technical issues associated with environmental problems. To guide the Board's activities and set priorities, the SAB's Executive Committee described the Board's mission as making "a positive difference in the production and use of science" at EPA. The Board is guided by this mission statement as it works with the Agency to set priorities.

Role/purpose

Generally, the Board functions as a technical peer review panel. The SAB benefits from public input during its deliberations. Through these proceedings Agency positions are subjected to critical examination by leading experts in the field in order to test the currency and technical merit of those positions. At the same time, the SAB recognizes that EPA is sometimes forced to take action to avert an emerging environmental

[3] Sources Used: The EPA website; Interviews with Members conducted by Elevate; U.S. EPA Science Advisory Board, Office of the Administrator, "Overview of the Panel Formation Process at the Environmental Protection Agency Science Advisory Board", Washington, DC, 2002. Retrieved 2005 from: http://www.epa.gov/sab/pdf/ec02010.pdf

risk before all of the rigors of scientific proof are met. In such cases, the Agency makes certain assumptions and extrapolations from what is known in order to reach a rational science policy position regarding the need (or lack thereof) for regulatory action. Here, the SAB serves as a council of peers to evaluate the soundness of the technical basis of the science policy position adopted by the Agency.

2. Activities

Research

The SAB does not do research itself but rather reviews research done by the EPA and its divisions

Reporting

Reporting is done only on peer reviews of research done by the EPA and its divisions

Advisory

The Board provides advice in a variety of ways. It issues written peer review "Reports" of Agency documents. It writes "Advisories," when it has reviewed Agency works-in-progress. It initiates "Commentaries" or more extensive original reports on topics that it believes are important to environmental protection. It provides the Agency an opportunity for "Consultations" at the earliest stages of development of a project to gain insights from independent Members and Consultants. Finally, it hosts "Workshops" on important scientific issues, in which the Board itself does not provide advice, but instead sponsors meetings where the Agency can be stimulated by the work of highly qualified technical people.

The Board focuses on technical issues; risk assessment and engineering issues; and, the adequacy of the scientific foundation on which an Agency position (e.g., a regulatory standard) is built. The SAB limits its advice to the scientific and technical underpinnings on which such decisions rest. Where the Board's advice does touch on policy issues, it takes special care to note and differentiate those instances. The Board strives to produce advice that is technically and scientifically sound, independent, balanced, and useful to the Agency. All the processes and procedures the SAB uses, from the choice of members for panels, to choice of projects, to involvement of the public, to development of reports aim to achieve these goals.

Advocacy

Ideally the Board provides advocacy as well, but given the constraints of time management for such a large SAB, experience has shown that this tends to be sidelined. However, the work of the Board is very public, and receives a high-profile, and therefore is disseminated to a wide audience of stakeholders.

3. Governance

The roots of the SAB can be traced back through various predecessor committees within EPA and--prior to the creation of EPA--into other agencies, such as the Department of Health, Education and Welfare. Since 1978, however, the SAB has operated as a Staff Office of the Environmental Protection Agency in the US, reporting directly to the Administrator.

Five Committees have historically conducted most Science Advisory Board reviews:

- Clean Air Scientific Advisory Committee (CASAC)
- Ecological Processes and Effects Committee (EPEC)
- Environmental Engineering Committee (EEC)
- Environmental Health Committee (EHC)
- Radiation Advisory Committee (RAC)

In recent years, five additional committees have been added:

- The Integrated Human Exposure Committee (IHEC) (formerly the Indoor Air Quality/Total Human Exposure Committee (IAQC)): Mandated in the Superfund Amendments and Reauthorization Act in FY86;
- Drinking Water Committee (DWC): Evolved from the EHC in FY90;
- The Advisory Council on Clean Air Compliance Analysis (COUNCIL) (formerly the Clean Air Act);
- Compliance Analysis Council (CAACAC)): Mandated in the 1990 Clean Air Act Amendments;
- Environmental Economics Advisory Committee (EEAC): Requested by the Administrator in response to the Board's Reducing Risk report in FY90.

Members of and consultants to the Board constitute a distinguished body of scientists, engineers, and economists who are recognized, non-governmental experts in their respective fields. These individuals are drawn from academia, industry, and environmental communities throughout the United States and, in some limited cases, other countries

Governance Framework
The Executive Committee (EC) serves as a "Board of Directors" for the SAB. The EC is composed of the Chairs of the Standing Committees noted above and several Members At-large. The EC meets quarterly to discuss relevant issues, SAB policies and procedures, and to provide final review and approval of all SAB reports (except those from the two separately chartered Committees -- COUNCIL and CASAC -- which report their findings directly to the Administrator).

Accountabilities (Reporting, Financial)
The SAB seeks to work cooperatively with the Agency to support its mission and goals, while maintaining the independence necessary to provide the Agency information, knowledge, and critical advice in a credible manner. This relationship has been described as "operating at arm's length from the Agency," and the SAB's being "*in* the Agency but not *of* the Agency."

Governance Processes (appointment; terms; representation)
The EPA SAB is a federal advisory committee, subject to the Federal Advisory Committee Act provisions that require membership of the advisory committee to:

1. Be fairly balanced in terms of the points of view represented and the functions to be performed by the advisory committee, and
2. Ensure contemporaneous public access and public input into the advisory process. The Members and Consultants of the Board serve as Special Government Employees, who are subject to the provisions of the Ethics in Government Act of 1978.

The SAB currently consists of 10 standing committees, whose activities are coordinated by an Executive Committee. Two of the committees, the Clean Air Scientific Advisory Committee (CASAC), and the Advisory Council on Clean Air Compliance Analysis, (the Council) are separately chartered and report directly to the EPA Administrator. All of the other Committees report to the EPA Administrator through the SAB's Executive Committee.

In addition to the 100-plus SAB Members who are appointed generally to two-year terms by the Administrator, the Board enlists *ad hoc* Consultants to bring focused expertise to bear on particular issues that come before the Board. There are currently more than 300 SAB

Consultants, who are appointed to one-year, renewable terms by the SAB Staff Director.

4. Funding

Funded through the Environmental Protection Agency as a staff office

5. Stakeholders/Clients

The only client of the EPA SAB is the EPA itself.

Partners

- The US Federal Government;
- The public;
- Environmental regulators;
- Non-government organizations (NGO's);
- Academic researchers.

BC Contaminated Sites Science Advisory Board
http://www.sabcs.chem.uvic.ca/

The Science Advisory Board for Contaminated Sites in British Columbia (SAB) is a non-profit foundation created to develop independent science-based tools and provide advice to assist professionals working on contaminated sites management in British Columbia.

In May 2002, an advisory panel was developed in order to assist the former Ministry of Water, Land and Air Protection in reviewing the existing contaminated sites regime that has been in use in British Columbia since 1997. This review was undertaken with the intent of identifying best practices and issues as they relate to "the creation of an administratively effective and efficient contaminated sites regime that is performance based, less time consuming and reduces direct government administration and oversight to only those sites that pose a high risk to the environment and human health".[4]

The final report was delivered to the Ministry in January 2003. One of the outcomes of the report was a broader recognition that a majority of the scientific issues identified resulted from a lack of resources in the Ministry, increasing complexities and an outstanding need for highly specialized expertise.

In order to aid the Ministry in the use of "best possible" scientific expertise to address these challenges with contaminated sites management, a group of interested scientists formed the Science Advisory Board for Contaminated Sites in British Columbia.

1. Mandate and Role

The mandate of the SAB is to provide scientific assessments, opinions and/or recommendations for specific issues identified by the Ministry of Environment and provide where requested, or where a need is identified, various scientific tools such as the framework for use by the private sector for the assessment of "non-high risk" sites.

2. Purpose

a) To advance science and fundamental knowledge in respect of contaminated sites in British Columbia.

[4] *Terms of Reference*, September 16th, 2003, Science Advisory Board for Contaminated Sites in British Columbia

b) To review and advise on emerging trends and opportunities in contaminated sites management provincially, nationally and internationally.

c) To provide broad strategic advice on the direction of science-based contaminated sites management in British Columbia.

d) To review the quality and relevance of the scientific and technical information being used or proposed for the management of contaminated sites.

e) To establish science based tools, procedures, and assessment protocols; including those applicable in risk assessment of contaminated sites.

f) To work jointly with the Contaminated Sites Roster Steering Committee and its successor to identify needed science-based tools, and to provide independent scientific review and advice related to contaminated sites issues of mutual interest.

g) To establish specific science based guidance including numerical values that will contribute to independent functioning of the Licensed Environmental Professional system in British Columbia.

h) To raise funds or solicit donations in any lawful way to achieve the objectives of the society including accepting donations and grants for the advancement of the scientific understanding of the remediation of contaminated sites.

i) To distribute grants to organizations and students in a manner that will promote the advancement of science and fundamental knowledge in respect of contaminated sites management in British Columbia.

j) To assist in the development and employment of programs, courses and other tools that would provide people with the capabilities to carry out the requirements of remediation of contaminated sites in British Columbia.

k) To facilitate training and opportunities for individuals interested in the remediation of contaminated sites in British Columbia through interim work placements, training courses, colloquia and conferences, assisting in the publication of technical papers and reports, and general information sessions.

3. Activities

The SAB and its Board of Directors co-ordinates the offering of specific science based guidance. Pursuant to its mandate of developing tools for the management of contaminated sites the SAB engages members

and research associates which maybe graduate students and/or coop. Throughout this process the SAB ensures expert independent review and input. Further to this the SAB may commission studies from selected scientists of recognized expertise.

The location and address of the SAB is the University of Victoria, Victoria, British Columbia. The University acts as trustee on behalf of the SAB for the purpose of receiving and distributing funds.

Activities completed in 2004 included the following:

- Review of Technical Guidance X18 (non specified toxic substances).
- Review of Canada Wide Standards for Petroleum Hydrocarbons.
- Review of Proposed Sediment Criteria.
- Assessment of reported uncertainties for analytical data.

Further to this the SAB has been working towards building capacity that will be necessary in addressing complex issues through a growing membership, convening expert panels with SAB membership and inviting comment on issues by known authorities in the field.

4. Structure

The SAB is a registered Non-Profit Society incorporated under the *Societies Act* of British Columbia consisting of members representing the diversity necessary to provide the range of expertise required to fulfill its responsibilities.

Board of Directors

The Board of Directors is comprised of representatives of the membership elected at the Annual General Meeting of the SAB. The Board at this time consists of:

- Marc Cameron, MSc (Vice-Chair)
- Jean Cho, PhD, P.Eng
- Will Gaherty, MS, P.Eng (Secretary Treasurer)
- Frank Gobas, PhD
- Glyn Fox, PhD (Ministry of Water, Land and Air Protection)
- Dennis Konasewich, PhD, P.Eng
- Francis C.P. Law, PhD
- Jim Malick, PhD, P.Ag
- Paul West, PhD, FCIC (Chair)

Membership

Members come from a number of disciplines and professions including but no limited to toxicology, agronomy, engineering and geo-science, environmental and analytical chemistry and the biological sciences. Acting as independent scientists, members may be drawn from any area of scientific endeavour, including but not limited to the environmental consulting industry, academic institutions, all levels of government, industry and non profit organizations. The appointment of members must be approved by the Board of Directors of the SAB.

The criteria for appointment of members are:

- independence,
- recognized scientific credentials,
- relevant experience in contaminated sites management or a related area of expertise,
- need for overall balance of expertise on the Board,
- potential to contribute in a committee environment, and
- diversity.

5. Governance

The Board of Directors maintains oversight of the progress of the science based work, including the commissioning of the independent expert review of the results and the tools developed. The Chair of the Board of Directors (President of the SAB) is charged with the day-to-day management of Secretariat functions, including any agreements with the University of Victoria, the Chair (President), Vice-Chair(Vice-President) and Treasurer have signing authority for the disbursement of funds, subject to agreements that may be in place with the University. The Board of Directors is primarily responsible for the administration, financial and self-regulatory functions of the SAB.

The Board may establish subcommittees as required for the commissioning, review, and execution of proposals, and assessment of the results. Any sub-committee so formed may include members of the Board, and other experts external to the SAB appointed by the Board of Directors.

The Board is subject to all of the policies developed by the Society and Parts 5, 6 and 7 of the constitutions which describe the roles and authorities, proceedings of, and duties of the directors.

The elections of members to the Board of Directors are for a maximum consecutive period not exceeding six years.

The President, Vice President, Secretary, Treasurer and one or more other persons are the directors of the Society.

The term of office of the President is for a period of two consecutive years. All of the other officers are elected annually with the election of members as directors for a maximum consecutive period of six years.

6. Funding

Currently the major source of funding comes from the Government of British Columbia in the form of a conditional grant.

7. Stakeholders

The principle stakeholders or "clients" of the SAB are representatives of the Ministry of Environment working on the mandate for the management of contaminated sites. Other stakeholders or partner organizations include the general public, regulatory agents, land related ministries (such as Forests and Range), and Environment Canada.

The Oregon Air Toxins Science Advisory Committee (ATSAC)

http://www.deq.state.or.us/aq/hap/atsac.htm[5]

1. **Mandate\Role**

   The purpose of the Oregon Air Toxins Science Advisory Committee (ATSAC) is to provide the Oregon Department of Environmental Quality (DEQ), and in its jurisdiction, the Lane Regional Air Pollution Authority, with advice on the state air toxics program that is scientifically and technically sound, independent, balanced, useful and timely. ATSAC addresses technical issues; risk assessment and engineering issues; the adequacy of the scientific foundation on which a DEQ position (e.g., ambient benchmark values) is based. ATSAC is intended solely as a technical advisory body, not as a committee designed to reflect stakeholder views.

2. **Activities**

   Research

   The ATSAC is responsible for reviewing ambient benchmarks for the state air toxics program , evaluating potential sources identified by DEQ to determine whether they qualify for the Safety Net Program; and evaluating overall progress in reducing emissions of, and exposure to, air toxics by considering trends in emissions and ambient concentrations of air toxics;

   Reporting

   The SAC publishes all documents (including meeting minutes and agendas) on their website.

   Advisory

   The ATSAC Provides advice on development of a risk assessment methodology for the Safety Net; Periodically advises DEQ on air toxics program effectiveness; Makes technical recommendations for program development with respect to adverse environmental effects of air toxics and risk from exposure to multiple air toxics; and provides, as requested by DEQ, advisory opinions on questions requiring scientific expertise.

3. **Governance**

   The ATSAC must have at least 5, but no more than 7, members with relevant air toxics experience in the following six disciplines: (1) Toxicology; (2) Environmental science or engineering; (3) Risk assessment; (4) Epidemiology & biostatistics; (5) Public health

[5] Sources: The ATSAC website; Interviews with SAC members conducted by Elevate.

medicine (physician); and (6) Air pollution modeling, monitoring, meteorology or engineering. One member could have more than one field of expertise (e.g., toxicology and risk assessment) or more than one member could be in the same general field, but possess different specialties (e.g., air pollution engineering and air pollution modeling). ATSAC members serve a three-year term, as volunteers without compensation. Initial terms are staggered for continuity and transfer of work so that members of the first ATSAC may serve more or less than three years. The committee meets monthly.

4. **Funding**
   Funded by the state of Oregon through the DEQ.

5. **Stakeholders**
   The State of Oregon, through the DEQ.

Health Canada Science Advisory Board

http://www.hc-sc.gc.ca/sr-sr/advice-avis/sab-ccs/index_e.html[6]

The Science Advisory Board (SAB) of Health Canada was established in 1997 to provide independent advice to the Minister of Health on how to foster the best science in health protection, and to secure and maintain public confidence in the work of Health Canada.

When Health Canada realigned in 2000, the scope of the Board's mandate broadened to encompass all of Health Canada's scientific programs and activities. The Board's responsibilities include providing strategic advice on the future direction of Health Canada's scientific programs, on emerging health science issues and trends, and on scientific partnerships and linkages. They make recommendations on Health Canada's priorities, and advise on the relevance and effectiveness of its research.

1. Mandate\Role

Vision/mission

The mission of the SAB is to support Health Canada's role to maintain and improve the health of Canadians by providing timely and useful scientific advice. Health Canada strives to help the people of Canada maintain and improve their health, and to put Canada among the countries with the healthiest people in the world. Health Canada increasingly depends on access to high quality scientific knowledge to support policy formulation, the development and implementation of regulations, and the delivery of its programs and services.

Role/purposes

The Science Advisory Board provides a valued source of expert, independent advice to the Minister of Health on the science performed and used by Health Canada. The Board is tasked by, and provides external science advice to, the Minister of Health. The Board respects the mandates of other departmental advisory committees and panels.

The responsibilities of the Board include:

- providing broad strategic advice on the scientific activities of the department;
- providing advice on the relevance and quality of the science performed and used by Health Canada;

[6] Sources: Health Canada Website; Health Canada SAB Terms of Reference; Health Canada SAB Annual Report to the Minister of Health, 2003-2004 (both documents retrieved from the website, December 2005).

- providing advice on the science underpinning a range of issues addressed by Health Canada;
- reviewing and advising on emerging health sciences, scientific trends, challenges and opportunities in national and global contexts;
- providing advice on the Department's knowledge translation activities;
- providing broad strategic advice on the communication of the science performed and used by Health Canada; and
- providing advice on scientific partnerships and linkages.

2. Activities

Research

The Board functions in part as a peer review agency for Health Canada policies, frameworks, and future research. They provide issue specific reviews of policy and make recommendations for further development, changes, and emerging research priorities for Health Canada.

Reporting

The Board is tasked by, and provides external science advice to, the Minister of Health. The Secretariat of the Board submits an annual report to the Minster, and the Board also produces issues papers and meeting reports (published on their website).

Advisory

In addition to internal advice from policy makers and scientists, the Minister and the department rely on expert, external science advice. Created in 1997, the Science Advisory Board provides a valued source of credible advice on the science performed and used by Health Canada. It also provides advice on a variety of departmental activities from a scientific perspective.

Advocacy

The Board advocates with Health Canada for policy development and identifies gaps in services or planning on behalf of Canadians. They also had a role in advocating for a Chief Scientist at Health Canada, and in making recommendations as to the mandate of that office.

3. Governance

Governance Framework

The SAB acts fundamentally as an advisory and review board. The SAB is intended to review Health Canada science as well as to provide external objective opinions to Minister of Health.

Accountabilities
The Board is supported by a Secretariat located within the Office of the Chief Scientist. The Secretariat provides strategic advice and support to the Board, and prepares the meeting agenda for approval by the Deputy Minister. It also coordinates the preparation of documents for the meetings, and prepares the meeting summaries and reports to the Minister for approval by the Board

The Secretariat acts as a liaison for the Board across the Department and with other federal advisory boards, as well with the Council of Science and Technology Advisors (CSTA).

Governance Processes
The Board consists of a Chair, a Vice-Chair, and up to 16 members allowing for a maximum of 18. The members of the Board are individuals external to the federal government who have scientific knowledge, experience and expertise relevant to the mandate of Health Canada.

The following criteria are used to identify potential board members:

- Expertise, knowledge, and experience
- Availability and willingness to serve
- Impartiality
- The ability to work in committees and advisory panels
- No real or perceived conflict of interest

In addition, the overall composition of the Board is intended to reflect geographic, gender and ethnic diversity and represents both official languages.

Board members, including the Chair and Vice Chair, are normally appointed for a three-year term by the Minister. Appointments can be extended at the discretion of the Minister. All members serve on the Board on a volunteer basis and receive no remuneration for their service. They are reimbursed according to Treasury Board guidelines at the government rate for travel and per diem expenses.

Members who are unable to attend three consecutive Board meetings will be requested by the Chair to reconsider their commitment.

Board members serve as individuals on the basis of their expertise. They should neither request nor receive instruction from any person or organization external to the Board. Members are required to file a confidential financial disclosure report and to declare to the Deputy Minister and the Chair if the Board's deliberations place them in a real or perceived conflict of interest situation.

Members are required to undergo a security clearance at the "enhanced reliability" level. Board members are required to protect and maintain as confidential any classified or otherwise privileged information divulged to them in the course of their work of the Board.

4. Funding

The Office of the Chief Scientist funds the operation of the Board. The budget is managed by the Secretariat of the SAB.

5. Stakeholders

- Health Canada;
- The federal Advisory Council on Science and Technology (ACST) and Council of Science and Technology Advisors (CSTA);
- The office of the Chief Scientist;
- The public.

Great Lakes Science Advisory Board to the International Joint Commission (IJC)

http://www.ijc.org/conseil_board/science_greatlakes/en/glsab_home_accueil.htm [7]

Under the *Great Lakes Water Quality Agreement*, the Great Lakes Science Advisory Board was established to provide scientific advice to the International Joint Commission (IJC) and the Great Lakes Water Quality Board (WQB). It is responsible for developing recommendations on all matters related to research and the development of scientific knowledge pertinent to Great Lakes water quality. Such a broad mandate requires a multi-disciplinary approach and accordingly, members are appointed from each country by the IJC with expertise in the natural, physical and social sciences.

1. Mandate\Role

Vision/Mission

The Great Lakes Science Advisory Board (SAB) was established pursuant to the provisions of the Great Lakes Water Quality Agreement of 1978 (Agreement). The primary role of the SAB is to assist the International Joint Commission (IJC) in the exercise of the powers and responsibilities assigned to the IJC under the Agreement.

Role/Purpose

The SAB, on behalf of the Commission, is responsible for developing recommendations on matters related to research and the development of scientific knowledge pertinent to the identification, evaluation and resolution of current and anticipated problems related to water quality in the Great Lakes Basin Ecosystem. The stated purpose of the Parties (The Governments of the United States and Canada) is to restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes Basin Ecosystem. In accordance with this general purpose, and the provisions of the Agreement and the Terms of Reference of the SAB appended to the Agreement, the SAB is the scientific advisor to the IJC and to the Water Quality Board (WQB).

2. Activities

Research

The SAB works to assess the impact and adequacy of research efforts; assess the reliability and potential applicability of research results;

[7] Sources: The Great Lakes Advisory Board Website.

identify research priorities and additional research requirements; and identify specific research programs for which international cooperation is desirable. The SAB is also responsible for consulting with jurisdictions regarding relevant research needs, solicit their involvement and promote coordination.

Reporting

The SAB assists the IJC, on request, in the preparation of the reports to governments. In addition, the IJC may amend existing instructions or issue new instructions to the Board at any time and it may call upon the SAB to assist it in any scientific matters related to the IJC's powers, responsibilities and functions as outlined in the Great Lakes Water Quality Agreement.

The SAB submits written reports to the IJC annually, at least one month prior to the annual meeting of the IJC's Great Lakes Water Quality Institutions, and at such other times as the IJC may request or the SAB may desire. Until released by the IJC, any such reports and any SAB documents, letters, memoranda and communications of any kind in the official record of the IJC, are privileged and become available for public information only after release by the IJC.

After obtaining the approval of the IJC, the SAB may make public the SAB's proceedings and undertakings. To the greatest extent possible, consistent with the policies of the IJC and the SAB, the SAB allows members of the public to attend meetings of the SAB and its committees, task forces and working groups. The public relations of the SAB are handled through the public information service of the IJC's Great Lakes Regional Office in accordance with directives issued by the IJC.

Advisory

The SAB, on behalf of the Commission, is responsible for developing recommendations on matters related to research and the development of scientific knowledge pertinent to the identification, evaluation and resolution of current and anticipated problems related to water quality in the Great Lakes Basin Ecosystem.

In carrying out this responsibility, the SAB keeps informed on scientific and research matters encompassed within the scope of the Great Lakes Water Quality Agreement and as it deems appropriate shall seek analyses, assessments and recommendations from other scientific, professional, academic, governmental or inter-

governmental groups relevant to Great Lakes Basin Ecosystem research and scientific knowledge.

3. Governance

The SAB is composed of United States and Canadian managers of Great Lakes research programs and recognized experts on Great Lakes water quality problems and related fields within the context of the Great Lakes Basin Ecosystem. Members of the SAB, as well as the members of its committees, working groups and task forces serve in a personal and professional capacity and not as representatives of their employers or organizations.

Governance Framework

The SAB establishes or modifies committees, task forces and working groups it deems necessary to discharge its responsibilities effectively, including joint working groups established with the WQB and other pertinent organizations. The SAB shall, to the extent possible, enlist the cooperation of federal, provincial or state departments or agencies in Canada and the United States. The IJC must be kept informed of the duties and composition of any such committees, task forces or working groups.

Accountabilities

The International Joint Commission works with the SAB to establish budgets, and programs and reports to the IJC and the WQB periodically as appropriate, or as required by the IJC, on all matters of a scientific or research nature relating to the operation and effectiveness of the Great Lakes Water Quality Agreement.

The SAB carries out a program of activities in accordance with general plans approved by the IJC. In this regard, the SAB provides the Regional Office and the IJC each year with its proposed programs and estimated resource requirements for the period covered by the budget under consideration. If the SAB later concludes that these programs require significant modifications, the concurrence of the IJC is required. The SAB may at any time advise the IJC whenever the SAB feels that IJC assistance would be beneficial in carrying out the activities of the SAB.

Governance Processes

The IJC appoints members of the SAB and appoints a member of each of the Canadian and United States sections of the SAB to serve as Co-chairmen. Appointments of all SAB members, including co-chairmen,

are for a term of three years although the length of any such term can be amended by decision of the IJC.

The duties of the Co-Chairmen are:

a. to be joint Chairmen of the SAB and to assume an active role in maintaining liaison between the SAB and the IJC and between the SAB and the WQB;
b. to ensure that all the members of the SAB are informed of all instructions, inquiries and authorizations received from the IJC concerning activities undertaken by or on behalf of the SAB, progress made in such activities and any development affecting such progress;
c. to consult with the IJC on the appointment of a Director to head the Great Lakes Regional Office;
d. to consult with the Director on the assignment of a member of the Regional Office staff to be the Secretary to the SAB;
e. to determine, in consultation with the Director of the Regional Office, the activities which they wish the Regional Office to carry out on behalf of, or in support of, the SAB, and to provide budgetary estimates for resources to carry out such activities; and
f. to report to the IJC in the event of any unresolved concerns related to administrative support or technical assistance provided by the Regional Office, including recommendations as to how such concerns can be effectively addressed. In such event, the joint Chairmen shall inform the Director of the Regional Office in advance of such communication and its content.

The SAB maintains liaison with the WQB, in accordance with arrangements made by the Co-Chairmen of both Boards. In addition to providing advice on research to the IJC and the WQB, the SAB provides advice on specific scientific matters referred to it by the IJC. The SAB may seek the advice of the WQB on matters of mutual interest or responsibility.

If the SAB is unable to reach agreement regarding substantive matters which it reports to the Commission, the IJC is informed of the significant varying points of view within the SAB.

The secretariat of the SAB are maintained at the IJC's Great Lakes Regional Office and all pertinent records and supporting documents are be maintained at that office.

4. Funding

The SAB is funded by the International Joint Commission.

5. Stakeholders

- The IJC and WQB.
- Canadian Federal Government;
- United States Federal Government;
- State, Provincial, and Federal Regulators.

Appendix Three: Stakeholder Consultations

Further information about the consultations with potential stakeholders in a BC SAB is summarized in Phase I Research Report. For more information please contact Dr. Paul West at the Science Advisory Board for Contaminated Sites in British Columbia.

Consultations with potential stakeholders and users of a BC Science Advisory Board

Individual telephone interviews were conducted between September and December of 2005 with representatives of:

- The Executive of **Professional Associations** in BC:
  - British Columbia Medical Association (BCMA),
  - Association of BC Forest Professionals (ABCFP), and
  - Association of Professional Engineers and Geoscientists of BC (APEG);
- A variety of **BC Government** offices (fourteen individuals working at the Assistant Deputy Minister or Director level in a broad cross-section of Ministries which engage in science-based decision making in the Province);
  - BC Ministry of Agriculture and Lands (Deputy Minister's Office);
  - BC Ministry of Environment (Environmental Stewardship Division; Water Stewardship Division; Science, Planning and Economics Section);
  - BC Environmental Assessment Office (Strategic Policy and Planning);
  - BC Ministry of Forests (Research Branch; Forest Analysis and Inventory Branch);
  - BC Ministry of Health (Environmental Health; Health Modernization);
  - BC Ministry of Energy Mines and Petroleum Resources (Alternative Energy Policy Branch; Oil and Gas Division; Regulatory Section);
  - Health Canada (Planning and Partnerships Office of the Chief Scientist).
- BC **Crown Corporations**:
  - BC Transmission Corporation (System Operations); and
  - BC Hydro (Office of the Chief Engineer; Sustainability Office).

Phase I Focus Group

A focus group was held in December 2005 to substantiate the findings of the initial telephone interviews. The focus group included five representatives from the:

- BC Ministry of Forests, Research Branch;
- BC Ministry of Environment: Science, Planning and Economics Section; Environmental Stewardship Division;
- Association of Professional Engineers and Geoscientists of BC (APEG);
- BC Ministry of Agriculture and Lands;

Interim Phase Interviews: BC Advisory Mandates Research

Telephone interviews were conducted with the President or CEO of the following institutions, with a focus on understanding any potential overlaps between a BC SAB and the mandates of these existing bodies, in order to identify gaps which a SAB could meet in the province, and in order to ensure that a BC SAB will compliment existing processes:

- the BC Innovation Council,
- the BC Premier's Technology Council,
- the University President's Council of BC,
- Leading Edge Solutions BC,
- GenomeBC,
- the Royal Society of Canada (former President interviewed)
- National Science Advisor to the Prime Minister (also President of the National Research Council).

Phase II Focus Groups

Focus groups were held in March 2006 to test the conceptual model for a BC SAB which had been developed based on the above consultations and interjurisdictional study. Previously engaged Ministries, Crown Corporations and Professional Associations were re-contacted, and many of the same participants were engaged in this second round of research. The second Phase was also an opportunity to involve and solicit the views of Ministries not previously consulted (principally those whose science-based needs are more in the social than natural sciences). Participants were delegated by Deputy Ministers and Presidents of the following Offices:

There were six participants in the morning session, some of whom represented Ministries not previously engaged:

- British Columbia Transmission Corporation (BCTC)
- BC Ministry of Transportation
- BC Attorney General(Immigration Policy & Intergovernmental Relations Division, Multiculturalism and Immigration Branch)
- Association of Professional Engineers and Geoscientists of BC (APEG
- BC Ministry of Health (2 Departments)
- Ministry of Health

There were six participants in the afternoon session involving offices which had previously participated in the research exploring the possibility of a BC SAB:

- BC Hydro
- BC Ministry of Agriculture (Trade and Intergovernmental Relations Branch; Strategic Initiatives)
- BC Ministry of Environment (2 Departments)
- BC Ministry of Forests and Range (Office of the Chief Forester)

Appendix Four: Interjurisdictional Research

Consultations with members of Science Advisory Boards in other jurisdictions

Interviews were held between September and December of 2005 with members of thirteen SABs from the jurisdictions listed below. Interviews focused on understanding best practices, the challenges and factors for success in building and a vital and functioning SAB, and understanding the range of roles and responsibilities of existing SABs.

- British Columbia
- Alberta
- Federal Government (Canada)
- US States
- US Federal Government
- Intergovernmental (Canada-US)

- Alberta Science and Research Authority (ASRA);
- Science Advisory Board for Contaminated Sites in British Columbia (SABCS);
- Environmental Protection Agency Science Advisory Board (EPA SAB);
- Great Lakes Science Advisory Board to the International Joint Commission (IJC);
- National Oceanic & Atmospheric Administration (NOAA);
- Southern Californian Wetland Recovery Project Science Advisory Panel;
- Nuclear Science Advisory Committee to U.S. the Department of Energy and the National Science Foundation;
- Air Toxins Science Advisory Committee to the Oregon Department of Environmental Quality (ATSAC);
- Southern California Wetland Recovery Science Advisory Panel;
- South Bay Salt Pond Restoration Project Science Team;
- Oregon Air Toxins Science Advisory Committee;
- Health Canada Science Advisory Board;
- Pharmaceutical Science Advisory Committee to the US FDA.