Professional Reliance for the Natural Resource Sectors – Jurisdictional Scan

Prepared for:

Ministry of Environment and Climate Change Strategy
PO Box 9337 STN PROV GOVT
Location: 4th floor, 2975 Jutland Rd
Victoria, BC V8W 9M1

Attention: Leon Gaber

March 6, 2018

Prepared by:

Ecofish Research Ltd.

Published by Ecofish Research Ltd., Suite F, 450 8th St., Courtenay, B.C., V9N 1N5

For inquiries contact: Technical Lead documentcontrol@ecofishresearch.com 250-334-3042

Citation:

Regehr, H., S. Cullen, A. Cousins, I. Girard, and S. Johnson. 2018. Professional Reliance for the Natural Resource Sectors – Jurisdictional Scan. Consultant's report prepared for Ministry of Environment and Climate Change Strategy by Ecofish Research Ltd, March 6, 2018.

Certification: *Certified stamped version on file*

Senior Reviewer:

Deborah Lacroix, M.Sc., R.P.Bio. No. 2089

Wildlife Biologist / Project Manager

Technical Lead:

Autumn Cousins, B.Sc.

Lead, Regulatory Strategy and Environmental Compliance/ Client Contact, Project Lead

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EXECUTIVE SUMMARY

On October 3, 2017, the Government of British Columbia (BC), specifically the Ministry of Environment and Climate Change (MOECCS), initiated a review of the province's professional reliance model to ensure the highest professional, technical, and ethical standards are being applied to resource management in BC. A component of the review is to conduct a jurisdictional and sectoral scan of a variety of existing professional reliance models that could provide useful examples for consideration for BC. This report presents the findings of this review.

Two high level objectives were identified for this jurisdictional/sectoral review. The first (Objective 1) was to *identify alternative models of professional reliance in other jurisdictions and sectors and assess their effectiveness in achieving public trust*. The second (Objective 2) was to *identify alterative models for government oversight of the professional associations that govern lettered professionals and assess their effectiveness in protecting public trust*.

The approach taken was to first identify key factors important in creating public trust in professional reliance models and then to identify and assess approaches taken by various systems with regard to these factors. Ten "effectiveness criteria" identified in a recent (2015) review of BC's professional reliance model by Mark Haddock (of the Environmental Law Centre at the University of Victoria) were used to guide the investigation of the protection of public trust in professional reliance models for our review in relation to Objective 1. The ten effectiveness criteria are: 1) clarity on who is qualified; 2) clarity on functions, responsibilities and objectives; 3) role reserved for government; 4) formal procedures and clear rules for certification; 5) conflict of interest, self-interest and independence; 6) record keeping, disclosure and transparency; 7) civil liability, insurance, and bonding; 8) duty to report; 9) auditing and reviews of professional work product; and 10 monitoring, compliance, and enforcement. In addition, the role of government oversight of professional associations in the protection of public trust was investigated to address Objective 2, as were general strengths and weaknesses of each system.

The review was conducted in two phases: 1) a broad scale review investigated a range of professional reliance models provincially, nationally, and internationally ("long list") at an overview level; and 2) focused research and interviews investigated key aspects of interest for a "short list" of jurisdictions/sectors identified as having greatest value to project objectives during the broad scale review. For both phases, desktop research was conducted using information available online. Interviews with key personnel were used to provide additional information and to investigate strengths and weaknesses for jurisdictions/sectors on the short list. For each jurisdiction/sector, effectiveness criteria that had greatest value to our objectives were identified and greatest research effort was expended on those.

In total, 30 jurisdictions/sectors were investigated on the long list. Of these, the following ten were selected for focused research and interviews (the short list):

- USA - Environmental Protection Agency (EPA) (and National Environmental Policy Act (NEPA));
- USA - Federal Energy Regulation Commission (FERC);
- South Australia - mining sector;
- Africa - Gambia - Ministry of Environment Climate Change & Natural Resources;
- Canada - Government of Canada, Government of BC, Lax-Kw'alaams, Metlakatla (in relation to the Environmental Monitoring Agreement for the Pacific NorthWest LNG Project (PNW Project));
- Ontario – Ministry of Environment and Climate Change (MOECC);
- Canada - Department of Fisheries and Oceans Canada (DFO);
- BC - Ministry of Health;
- United Kingdom - National Health Service (NHS); and
- Quebec - Ministère de la justice.

This report presents highlights of all of the jurisdictions/sectors investigated during broad scale review and a summary of the information gained during focused research and interviews for the 10 jurisdictions/sectors on the short list. For jurisdictions/sectors on the short list, high level summaries are provided for each effectiveness criteria and additional elaboration is provided for those criteria identified to be of particular interest (notable features). An overview of each jurisdiction/sector on the short list is also provided, as is a summary of key strengths and weaknesses as identified by interview respondents.

Several key elements important in the effective implementation of professional reliance systems were identified during this review:

- Prioritization of review/auditing/monitoring approaches based on risk was identified as an important mechanism for focusing effort. Examples included risk-based auditing components in both the BC health and UK health sectors, risk-based auditing triggers used by DFO, prioritization of monitoring, compliance, and enforcement by risk severity in the Department of the Environment and Energy in Australia, and categorization of projects based on environmental and social risk in International Finance Corporation (IFC) performance standards.
- Third party reviews were identified as important for review of qualified professional (QP) work products, the use/triggering of which may also be risk-based. In both Ontario (MOECC) and Western Cape (Africa; Department of Environmental Affairs and Development Planning), third party review can be triggered if deemed necessary.

- Expert panels and boards of consultants are used as a means of gaining third party review in the South Australia mining sector and by FERC, respectively, and their use can also be triggered by risk. The use of expert panels and boards of consultants allows government the support of high calibre professionals for matters/projects that are highly technical, potentially risky or contentious, or unique.
- The use of legally binding agreements and contracts (e.g., contracts and disclosure statements of the EPA, Environmental Monitoring Agreement for the PNW Project) was reported to have multiple advantages. Such documents provide a legally binding format for presenting clear definitions, specifying QP qualifications, functions, responsibilities, accountability, and objectives, addressing conflict of interest, and specifying the roles of all parties.
- The value of having a nested approach to legislation (overarching regulation that applies broadly with bylaws and rules nested under it), and reducing the number of regulators, was highlighted within BC health and UK health sectors. This approach was found to reduce complication and expense and to benefit shared scopes of practice.
- The means by which the bodies that regulate professionals (e.g., college boards) are created and their composition was identified as an issue of importance within the two health sectors investigated. Key points included a balanced member composition (including professionals and members of the public) and having member selection based on merit rather than election by the professional body or appointment by the government.
- The means by which government gains oversight over the associations (or registers) that govern QPs (Objective 2 of this review) was investigated in four jurisdictions/sectors and was addressed differently in each. Approaches included providing mechanisms for government intervention if needed, creating an independent branch of the government for oversight, and establishing an independent body accountable to Parliament whose primary function is to protect the public.

Many other important aspects of professional reliance systems were additionally identified during this review. These included mechanisms that provide transparency, allow easy access to information, clearly specify definitions, specify professional qualification requirements and responsibility, address conflict of interest, and specify requirements of certification/accountability. Identified weaknesses included the cost of good solutions, regulatory complexity, the potential for inter-personal biases to affect aspects of professional reliance, and general inadequacies related to definitions, requirements for certification, and availability of information.

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1. INTRODUCTION

Over the past 20 years there has been a shift in the regulatory role undertaken by the government in British Columbia (BC) to decrease the regulatory burden on industry by reducing the role of the civil service in resource management governance and shifting this role to professionals employed by industry. This regulatory shift increased the need for professional reliance, which is defined by the BC Government's Qualified Persons Cross-Ministry Working Group[1] as "the practice of accepting and relying upon the decisions and advice of professionals who accept responsibility and can be held accountable for the decisions they make and the advice they give." The system requires that Qualified Professionals (QPs), which can be either be self-regulating professionals or accredited practitioners, are clearly defined and that the accreditation they receive is bestowed by government, a professional association constituted under an act, or another organization satisfactory to government.

A recent review of BC's professional reliance model, completed by the Environmental Law Centre at the University of Victoria by Haddock (2015)[2], identified notable concerns over the way in which professional reliance approaches are being implemented across some regulatory regimes in BC. Concerns identified by this review, which had the objective of evaluating its ability to meet government and social objectives for sustainable resource management and environmental protection, included the lack of checks and balances in the system, problems with independent monitoring, conflicts of interest, and a lack of confidence in professional disciplinary processes. Haddock (2015)[2] determined that, although some regimes and sectors in BC have a well-structured approach to the role of independent professionals through detailed regulations and agreements between the BC government and professional oversight bodies, many regulations have an "unduly loose, unstructured approach that fails to address known concerns".

Since 2013, the Environmental Appeal Board, Forest Practices Board, Office of the Auditor General, the Office of the Ombudsperson, and other organizations have investigated how well the professional reliance model in BC performs the requirement to provide independent, objective advice to government regulators. The results of these investigations highlighted the need for adequate oversight of QPs. In addition, Haddock's (2015)[2] review concluded that the extent of BC's deregulation "goes too far" in delegating matters of public interest to professionals employed by industry and that, due to irresolvable conflict of interest, proponents should not be decision makers for matters involving the weighing and balancing of multiple, often competing, environmental and societal values. Haddock (2015)[2] developed ten criteria important to the credibility and robustness of a professional reliance regime and provided an evaluation of the BC model for each of these criteria.

[1] BC Government. 2014. A Preliminary Guide to the Use of Qualified Persons in the Natural Resource Sector. Report prepared by the Qualified Persons Cross-Ministry Working Group, December 2014.

[2] Haddock, M. 2015. Professional Reliance and Environmental Regulation in British Columbia. Report prepared by Mark Haddock, Environmental Law Centre at the University of Victoria Faculty of Law, February 2015.

Given concerns over BC's professional reliance model, on October 3, 2017, the BC government initiated a review of the province's professional reliance model to ensure the highest professional, technical, and ethical standards are being applied to resource management in BC. The mandate letter[3] from the Premier to the Honourable George Heyman, BC's Minister of Environment and Climate Change Strategy, specifies as a priority the need to "revitalize the Environmental Assessment process and review the professional reliance model to ensure the legal rights of First Nations are respected, and the public's expectation of a strong, transparent process is met". This mandate necessitates that BC's professional reliance model is reviewed in relation to issues of public trust.

A component of the professional reliance review undertaken by the BC government (Ministry of Environment and Climate Change Strategy (MOECCS)) is to conduct a jurisdictional and sectoral scan of a variety of professional reliance models that could provide useful examples for consideration for revisions of the BC system. Two high level objectives were identified for this jurisdictional/sectoral review (hereafter "the Project"). The first (hereafter "Objective 1") was to *identify alterative models of professional reliance in other jurisdictions and sectors and assess their effectiveness in achieving public trust.* Thus, Objective 1 is focused on the professional reliance models themselves and therefore considers multiple factors that may affect public trust. The second objective (hereafter "Objective 2") was to *identify alterative models for government oversight of the professional associations that govern lettered professionals and assess their effectiveness in protecting public trust.* Objective 2 is specifically focused on the oversight of professional associations, which, in the current BC system, is a critical component of achieving public trust.

This report presents the findings of a cross-jurisdictional and cross-sectoral review of professional reliance and government oversight models that will contribute to the work conducted to address the Minister's mandate. Below we present the approach and methods, results, and conclusions from our review. The results of this project will contribute to the Government's professional reliance review through the identification of a variety of different models and components that are effective in other jurisdictions or sectors with the goal of achieving a robust and effective professional reliance approach.

2. APPROACH AND METHODS

The approach taken for this Project was to first identify key factors important in creating public trust in professional reliance models and then to identify and assess approaches taken by various professional reliance systems with regard to these factors. This was conducted for Objective 1 (factors that may generally affect public trust in professional reliance models) and Objective 2 (government oversight of professional associations) separately. Given that Haddock (2015)[2]

[3] Letter to Honourable George Heyman, Minister of Environment and Climate Change Strategy, from John Horgan, Premier. July 18, 2017. Available online at: https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/premier-cabinet-mlas/minister-letter/heyman-mandate.pdf.

identified ten "effectiveness criteria" as those elements most important to the credibility and robustness of a professional reliance regime, we used these effectiveness criteria to guide the investigation of the protection of public trust in professional reliance models for our review in relation to Objective 1. The ten effectiveness criteria identified by Haddock (2015)[2] are (italicized qualifiers are ours):

1. Clarity on who is qualified *(for a role or responsibility in the professional reliance system);*
2. Clarity on functions, responsibilities and objectives *(of qualified professionals);*
3. Role reserved for government *(in relation to oversight of QP work products);*
4. Formal procedures and clear rules for certification *(of QP products);*
5. Conflict of interest, self-interest and independence;
6. Record keeping, disclosure and transparency;
7. Civil liability, insurance, and bonding;
8. Duty to report *(by QPs of incidents, non-compliance, or unprofessional conduct of other QPs);*
9. Auditing and reviews of professional work product; and
10. Monitoring, compliance and enforcement.

In addition to issues related to these ten criteria, we also assessed the role of government oversight of professional associations in the protection of public trust to address Objective 2.

The Project was implemented in two phases, both of which addressed both Project objectives: 1) a broad scale review investigated a range of professional reliance models internationally ("long list") at an overview level which allowed selection of a subset of jurisdictions/sectors ("short list") as most valuable to our objectives; and 2) focused research and interviews investigated key aspects of interest for the short list of jurisdictions/sectors identified during the broad scale review. These two phases are described in the sections below.

For both phases, desktop research was conducted using information available online. Documents reviewed included those addressing legislation, regulations, policies, or guidance, and also included general information found on websites. Information collected during research was recorded within an internal database structured by jurisdiction/sector and effectiveness criteria. This database was later used to generate the tables and text summaries presented herein. Interviews were conducted with key personnel identified during research or discussion during Project meetings. All sources for information used are listed in tables or text.

2.1. Broad Scale Review

The objective of the broad scale review was to identify through high level research, those jurisdictions/sectors for which additional research was anticipated to have the greatest potential value (i.e., select a subset for focused research and interviews), and to compile high level information

that would provide examples of diversity in professional reliance approaches and identify potentially novel concepts. Generation of a list of jurisdictions/sectors to be investigated for the broad scale review ("long list") began with a list initially provided in the Invitation to Quote (ITQ) for the Project. This list had been compiled by MOECCS and Mark Haddock (author of Haddock (2015)). We added to this list any jurisdictions/sectors that we thought might have value from past experiences or personal knowledge, or that were raised in meetings/discussion during this phase of the Project.

Investigation of professional reliance systems for the jurisdictions/sectors on the long list was focused by Haddock's (2015) ten effectiveness criteria (see above) that identify key elements important for protection of public trust in professional reliance systems to inform Objective 1. We also compiled any information more specifically related to Objective 2. We compiled as much information for each jurisdiction/sector on our long list for these effectiveness criteria as feasible with information readily available online and within time constraints. Because our objective at this stage was to gain an oversight of the different approaches and thereby to inform a selection of a subset of jurisdictions/sectors for focused research, we did not attempt to acquire information on each effectiveness criteria for each jurisdiction/sector on the long list. However, we did record all information we acquired that could prove valuable to our objectives within our database. The highlights of the information compiled on jurisdictions/sectors that did not make the short list along with any other information of value encountered during general research are presented in Section 3.2.

2.2. Focused Research and Interviews

Focused research and interviews were conducted for jurisdictions/sectors identified as most valuable during the broad scale review. The objective of this phase of the review was to focus in more detail on specific aspects of these jurisdictions/sectors that offered greatest value to Project objectives. Thus, during finalization of the short list we considered the following:

- if there were particular aspects of the jurisdiction/sector that are novel or interesting with regard to our two high level objectives and, if so, which of the ten effectiveness criteria this pertains to;
- whether the jurisdiction/sector is relevant to Objective 2 (government oversight of professional associations); and
- input from the Project team (MOECCS, including Mark Haddock (hereafter "MOECCS team")).

During finalization of the short list based on these considerations, we identified and prioritized effectiveness criteria for each jurisdiction/sector for detailed research that provided interesting and informative examples that could be used to inform the BC professional reliance system.

Three sets of questions were developed to guide the focused research and interviews: 1) the ten effectiveness criteria relevant to Objective 1 (Table 1); 2) government oversight of associations (Objective 2) (Table 2); and 3) general questions on strengths, weaknesses, and recommendations related to the professional reliance system (Table 2). Questions related to the ten effectiveness criteria were developed in collaboration with Mark Haddock. Information relevant to all questions was compiled through the combined efforts of focused desktop research and interviews.

Interviews with knowledge holders in the jurisdictions/sectors were a key component of this Project because verbal communication provides additional information and often a different perspective than can be attained through the limited information available online. Desktop research and recommendations from the MOECCS team were used to identify potential key personnel for interviews. The objectives of interviews were to:

- confirm our overview characterization of the professional reliance system based on our high level questions;
- obtain information (answers to questions) we were unable to attain during desktop research; and
- determine strengths and weaknesses of the professional reliance approach.

The approach for conducting interviews was to firstly, establish contact with key personnel ("respondent") to confirm availability and approachability for assistance with our Project. After a meeting had been scheduled, questions, sometimes along with draft responses for confirmation, were sent to the respondent. In general, we scheduled one hour for each interview and if possible we confirmed the potential for future contact to ask follow-up question or confirm information, if need be. Although we attempted to attain as much information as possible during interviews, time was limited and not all questions could be addressed during each interview. In some cases respondents were not able to conduct verbal interviews but agreed to respond to our questions in writing. In such cases a file with questions was sent to the respondent.

Following focused research and interviews, information was compiled and results were summarized at a high level for each of the ten effectiveness criteria relevant to Objective 1 in a separate table for each jurisdiction/sector. In addition, elaboration was provided (summarized as "Notable Features" for each jurisdiction/sector) for those criteria for which the information obtained had greatest relevance and interest. For those jurisdictions/sectors for which questions related to Objective 2 were relevant, this information was also summarized as a "Notable Feature". An overview of the professional reliance system was also presented at the beginning of each section, and any information obtained during interviews on strengths and weaknesses was summarized. Sources for the information obtained during focused research and interviews provided for high level summaries include all sources consulted during focused research as well as during the broad scale review. Information provided in the Notable Features sections was obtained during interviews augmented with information obtained during desktop research.

Table 1. Questions posed on the effectiveness criteria for each of the ten jurisdictions/sectors on the short list.

Effectiveness Criteria	Questions
(1) Who is qualified	How does the government ensure that the QP is qualified to do the work? Is there clarity on QP qualifications and how is this specified/ required?
(2) Functions, responsibilities, and objectives	Is there clarity on QP functions, responsibility and objectives? Are the resource management or environmental objectives clear to the professionals? If so, how is this specified/required?
(3) Role reserved for government	What is the role of government in relation to oversight, review, and acceptance of QP work products? Is government bound to accepting a product or are they free to address and correct inadequacies?
(4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? What mechanisms exist to ensure accountability for what the QPs are saying/presenting? If so, how/where are these specified?
(5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed? What measures are in place that professional's reports/opinion are unbiased/independent?
(6) Record keeping, disclosure, and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?
(7) Civil liability, insurance, and bonding	How is risk managed in relation to civil liability, insurance, and bonding? How are independent environmental professionals accountable for what they provide to government?
(8) Duty to report non-compliance	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies? If so, what is reported and what are the triggers for reporting?
(9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?
(10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring given data generated and limited staff time/budget?

Table 2. Questions related to Objective 2 (where relevant) and overall strengths and weaknesses of the professional reliance system.

Topic	Questions
Objective 2: Government oversight of professional associations/regulatory bodies[1]	Does government provide oversight of the professional association(s) or regulatory bodies? If yes, what abilities does government have to determine the activities/roles of these to enforce the requirements of the professional association(s)/regulatory bodies? How many pieces of legislation govern associations/regulatory bodies? If no, is there another body/entity that has oversight of association(s)/regulatory bodies on behalf of government? What is government's role in this body? Is there a single "umbrella" body or multiple bodies?
Strengths, weaknesses, recommendations	Do you have any general comments on the strengths and weaknesses of your approach to the use of qualified professionals? Please also consider the specific points below: • Are you able to provide any information regarding the transition (if relevant) and/or implementation to the current professional reliance approach from the previous system? Was new/revised legislation or government structures required? Any lessons learned relating to this transition? • Are you able to provide any lessons learned regarding the implementation of the professional reliance approach? What works well and where are there challenges for government? • What resourcing was required to transition (if relevant) and implement the professional reliance approach? For example, the budget and staff required? • Is there a role for indigenous groups in this professional reliance approach? If yes, please describe their role. • Do you have any ideas about what would make this professional reliance approach more effective?

[1] Questions only posed for jurisdictions/sectors where relevant.

3. BROAD SCALE REVIEW

3.1. Jurisdictions/sectors considered

The jurisdictions/sectors considered during our broad scale review are listed in Table 3. In total, 30 jurisdictions/sectors were investigated at a high level, of which ten were selected for focused research and interviews (see Section 3.3).

Table 3. Jurisdictions/sectors investigated during broad scale review. The ten selected for focused research (Section 4) are shown in bold font.

Location		Department/Sector/Ministry/Agency
Africa	**Gambia**	**Ministry of Environment Climate Change & Natural Resources**
Africa	Western Cape	Department of Environmental Affairs and Development Planning
Australia		NSW Environment Protection Authority (EPA)
		Department of the Environment and Energy
		Mining Sector
Canada	Alberta	Alberta Agriculture and Forestry
		Alberta Energy
		Alberta Environment and Parks
Canada	BC	BC Consumer Protection Authority
		Government of Canada, Government of BC- Lax-Kw'alaams, Metlakatla
		Ministry of Health
		Real Estate Governance
Canada	Newfoundland	Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)
Canada	**Ontario**	**Ministry and Environment and Climate Change (MOECC)**
		MOECC - ground water drilling regulations
Canada	Quebec	Ministère de l'Agriculture, des Pêcheries et de l'Alimentation
		Ministère de l'Énergie et des Ressources naturelles
		Ministère des Forêts, de la Faune et des Parcs
		Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques
		Ministère de la justice
		Canadian Environmental Assessment Office
		Department of Fisheries and Oceans Canada (DFO)
China		Ministry of Environmental Protection (MEP) and Ministry of Human Resources and Social Securiety
India		Ministry of Environment, Forest and Climate Change
Pakistan		Environmental Protection Agency
Spain		Ministry of Environment
United Kingdom		Department of Environment, Food and Rural Affairs (DEFRA)
		National Health Service (NHS)
USA		**Environmental Protection Agency (and National Environmental Policy Act (NEPA) under the EPA)**
		Federal Energy Regulation Commission (FERC)

3.2. Highlights from broad scale review

Highlights of each jurisdiction/sector not selected for focused research/interviews are presented in Table 4. Information is organized by effectiveness criteria and includes the sources that were consulted.

Table 4. Highlights from jurisdictions/sectors investigated during broad scale review. Topics include the effectiveness criteria (related to Objective 1) as well as government oversight of professional associations (related Objective 2). (Part 1 of 7)

Topic	Entity	Relevant Information	Source
Who is qualified	Alberta Environment and Parks	Alberta legislation provides either exclusive right to practice (e.g., professional engineers) or exclusive right to title (e.g., biologists, agrologists) for specific professions. There are specific classes of Qualified Environmental Specialists (QES) that have specific qualification requirements (e.g., Qualified Wetland Science Practitioner (QWSP), aquatic environmental specialist (QAE)).	https://www.apega.ca/ http://aep.alberta.ca/about-us/environmental-tools-guide/for-tool-developers/the-range-of-environmental-tools/use-of-qualified-environmental-specialists.aspx http://www.wetlandpolicy.ca/qwsp-qualified-wetland-science-practitioner/
	Australia: Department of the Environment and Energy	The Environmental Institute of Australia and New Zealand (EIANZ) initiated the Certified Environmental Practitioner Scheme 11 years ago to increase credibility of the profession, with specialties in ecology, impact assessment, climate change, and now contaminated land. It has an arms length, impartial assessment process conducted by the Certification Board. It has a formal disciplinary process, exercised by the Disciplinary Committee, to deal with internal and external complaints of breaches of the Code of Ethics and Professional Conduct or the criminal law. The Scheme includes a mechanism for third party complaints against a Certified Environmental Practitioner (CEnvP).	http://www.cenvp.org/ https://www.eianz.org/
	BC Consumer Protection Authority	The Authority licenses a variety of professionals (e.g., home inspection, crematorium operation, provider of travel services, motion picture distributor, bailiffs, debt collectors) the qualifications of which are clearly specified in regulation (e.g., Home Inspector Licensing Regulation, Business Practices and *Consumer Protection Act*). Qualification requirements and responsibilities/obligations of professionals are linked to specific licenses, for which policy exists.	https://www.consumerprotectionbc.ca
	BC Real Estate Governance	Government has delegated decision making powers to an appointed council. Real Estate Council of BC (RECBC) ensures that real estate licensees in BC are competent, and that licensees comply with the *Real Estate Services Act*. The RECBC Rules and Bylaws cover important matters, such as qualifications for a person to obtain or renew a licence and requirements for licensees to undertake continuing professional education.	https://www.recbc.ca/about/governance.html https://www.recbc.ca/licensee/psm-all-content.html https://www.recbc.ca/wp-content/uploads/IAGReport_June2016.pdf
	Canadian Environmental Assessment Agency (CEAA)	If a project is approved, there are legally binding conditions which typically require that the proponent hire 'qualified individuals' and in some cases, an independent environmental monitor. Qualified persons are defined in EA decision statements and indigenous knowledge is incorporated into the definition.	https://www.canada.ca/en/environmental-assessment-agency.html http://www.ceaa.gc.ca/default.asp?lang=En&n=9ec7cad2-0 http://www.cecab.org/public/default.aspx
	China: Ministry of Environmental Protection (MEP) and Ministry of Human Resources and Social Security (MOHRSS)	The MEP and MOHRSS jointly setup the office for managing the exam, registration, regulation, and responsibilities of the Environmental Impact Assessment Engineer (Qualified Registered Professional). As such, there are no professional association(s) that govern lettered professionals; this is the role of government.	http://www.zhb.gov.cn/gkml/zj/wj/200910/t20091022_172332.htm http://www.examw.com/hj/guangxi/469177/

Table 4. Continued (Part 2 of 7).

Topic	Entity	Relevant Information	Source
Who is qualified	Ontario - Ministry of Environment and Climate Change (MOECC) - ground water drilling regulations	The government is directly responsible for licencing professionals, with license classes differing based on types of activities (provides the licences for the well contractor and for the well technician; some of this responsibility may be delegated). Government requires a specific education (legislated). Thus, government takes the role of the professional associations.	discussion with Craig Stainton – Executive Director of OGWA http://www.ogwa.ca/
	Ontario -MOECC - Professional Foresters Association (OPFA)	As specified in the Professional Foresters Act 2000, the Ontario Professional Foresters Association (OPFA) is responsible for regulating the practice of professional forestry in Ontario and anyone legally practicing professional forestry in Ontario must be a member. There are requirements for full membership in OPFA including: 1. a four year science based degree or the equivalent, 2. demonstration of meeting core competency, 3. successful completion of 18 months of progressive, relevant, post-graduation experience, 4. adequate sponsorship reports from two members, 5. adequate character witness reports from two members, 6. demonstration of a commitment to professionalism and ethics, and 7. successful completing of the Local Knowledge Assessment.	https://secure.opfa.ca/registration/membership-standards
	United Kingdom: Department of Environment, Food and Rural Affairs (DEFRA)	Chartered environmentalists (registered environmental professionals) are accredited by the Society for the Environment (accredited by the Board - governing body of the Society for the Environment; licenses 24 professional bodies), which is the body established by Royal Charter in 2004 to promote the advancement of, the dissemination of, knowledge of and education in good environmental practice for the public benefit, and which licenses bodies to assess and register Chartered Environmentalists. There are different classes of chartered accreditation (Chartered Environmentalist (CEnv), Registered Environmental Technician (REnvTech)).	http://socenv.org.uk/
Functions, responsibilities, and objectives	BC Consumer Protection Authority	Obligations are clearly set out and linked to specific licenses that license professionals for particular responsibility (e.g., travel agent, home inspector).	https://www.consumerprotectionbc.ca
	BC Real Estate Governance	The RECBC Rules and Bylaws establish many of the legal duties and responsibilities of real estate licensees to their clients.	https://www.recbc.ca/wp-content/uploads/IAGReport_June2016.pdf

Table 4. Continued (Part 3 of 7).

Topic	Entity	Relevant Information	Source
Role reserved for government	Africa, Western Cape: Department of Environmental Affairs and Development Planning	The final Environmental Impact Report (EIR) is submitted to the competent authority (Western Cape Department of Environmental Affairs and Development Planning), who will review it to firstly determine whether its information is sufficient for making an informed decision. Once it has been decided that sufficient information is available for informed decision-making, the authority will either grant or refuse environmental authorization.	https://www.westerncape.gov.za/eadp/files/eia-process-how-to-guide.pdf
	Alberta Environment and Parks; Alberta Energy	Part of the government review of the assessment includes the following question: "Did qualified and experienced personnel undertake the assessment? ", which suggests that the proponent may be questioned about their choice of QES.	http://aep.alberta.ca/land/land-industrial/programs-and-services/environmental-assessment/documents/GuideReviewingEIAReportsAlberta-2010A.pdf
	BC Consumer Protection Authority	In the public interest and through the authority delegated by the Province of British Columbia, Consumer Protection BC is responsible for administering three Acts and a variety of regulations.	https://www.consumerprotectionbc.ca
	Canadian Environmental Assessment Agency (CEAA)	Agency drafts the environmental assessment report, based on information provided by proponent, that includes the Agency's conclusions regarding the potential environmental effects of the project, the mitigation measures that were taken into account and the significance of the remaining adverse environmental effects as well as follow-up program requirements. Minister makes final decision about significance and if justified.	https://www.canada.ca/en/environmental-assessment-agency.html http://www.ceaa.gc.ca/default.asp?lang=En&n=9ec7cad2-0 http://www.cecab.org/public/default.aspx
	United Kingdom: Department of Environment, Food and Rural Affairs (DEFRA)	When an environmental impact assessment (EIA) is conducted, under certain conditions, an assessment of the conservation implications must also be carried out by the Secretary of State (a Cabinet minister in charge of a government department) in addition to being conducted by environmental consultants hired by the proponent.	https://uk.practicallaw.thomsonreuters.com/6-503-1654?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1 https://publications.parliament.uk/pa/cm201516/cmselect/cmenvaud/537/537.pdf

Table 4. Continued (Part 4 of 7).

Topic	Entity	Relevant Information	Source
Formal procedures and clear rules for certification	Alberta Environment and Parks	A Qualified Wetland Science Practitioner (QWSP) practitioner must meet specific competency and professional experience requirements in order to authenticate regulatory documents. Practitioners who do not meet these requirements may continue to work in the wetland science field as long as documents submitted are authenticated by a qualified practitioner.	http://www.wetlandpolicy.ca/qwsp-qualified-wetland-science-practitioner/
Conflict of interest, self-interest and independence	Africa, Western Cape: Department of Environmental Affairs and Development Planning	During an independent peer review of specialist studies (see criteria #9), the reviewer will ensure that the specialist study has been done in an objective, impartial, and independent manner (e.g., the specialists have the necessary expertise and experience to assess competently the significant issues; has been unethical behaviour in the way issues have been treated, or whether an unethical relationship exists between the specialist and the proponent or funding agency; there is bias or inappropriate emphasis, unwarranted assumptions, and/or emotive, irrational or unsubstantiated statements in the specialist's work).	https://www.westerncape.gov.za/text/2005/4/deadp_specialist_review_guideline_draft_15april05.pdf
	BC Consumer Protection Authority	Conflict of interest potential is explicitly addressed, where relevant, and is specified within legislation (e.g., for home inspections, law states that you cannot have a conflict of interest in relation to an inspection that results in you receiving a material gain).	https://www.consumerprotectionbc.ca
	Ontario -MOECC Environmental Assessment on Ontario Crown Lands	Environmental Assessment Requirements for Forestry on Ontario Crown Lands requires Forest Management Plans be written by a Registered Professional Forester (the Plan Author). It is required that the Plan Author is assisted by an interdisciplinary planning team including a Ministry of Natural Resources (MNR) Registered Professional Forester appointed by the Ministry of Natural Resources and Forestry (MNRF) District manager, a representative from the Local Citizens Committees (LCC) if they elect to participate on the planning team, a representative from Aboriginal Communities in or adjacent to the management unit, a person appointed by the MNRF District manager who collectively represents overlapping licensees and beneficiaries of MNRF wood supply commitments who do not have ownership in the company holding the sustainable forest license on the management Unit. This multi-disciplinary team reduces the possibility for conflict of interest and self-interest.	https://www.ontario.ca/page/declaration-order-mnr-75-environmental-assessment-requirements-forest-management-crown-lands-ontario
	NHL	NHL concussion protocol: calls for outside "spotters" (instead of/in addition to team doctors) to identify when a player should be removed from games.	https://www.nhl.com/news/nhl-updates-concussion-protocol/c-282571624

Table 4. Continued (Part 5 of 7).

Topic	Entity	Relevant Information	Source
Record keeping, disclosure, and transparency	Alberta Environment and Parks; Alberta Energy	Everyone can have instant access to routinely available scientific/technical information at no cost from the Environmental Site Assessment Repository (ESAR). Alberta Environment and Parks records are available under the *Freedom of Information and Protection of Privacy Act* (FOIP). A FOIP request can be used to request information in the custody or control of a public body when the information is not routinely available through another process. The FOIP request process does not replace existing procedures for obtaining access to information and should be used as a last resort.	https://foip.aep.alberta.ca/ http://www.energy.alberta.ca/About_Us/1793.asp
	Australia: Department of the Environment and Energy	There are independent bodies which provide information and advice on access to information laws. The Office of the Australian Information Commissioner (OAIC) (led by the Australian Information Commissioner) at the national level, and the Information and Privacy Commission (IPC) (led by the Information Commissioner) at the State level are independent of other government agencies responsible for ensuring the objectives information access and privacy laws are achieved. These agencies are able to provide advice directly to the community about accessing information. The role of the Information Commissioners is to promote public awareness and understanding of the Government Information Public Access (GIPA) laws, and provide information, support, advice, assistance and training to agencies and the general public. The OAIC and IPC also have the power to review decisions made by government agencies and to deal with complaints.	https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1614/attachments/original/1430792704/Access_to_information.pdf?1430792704 http://www.edonsw.org.au/hys_fact_sheets
	BC Consumer Protection Authority	There are explicit requirements regarding obligations to collect and maintain records.	https://www.consumerprotectionbc.ca
	Pakistan: Environmental Protection Agency	The EIA process is made transparent, accessible, and accountable to the public by requiring the proponent to: 1) register all consultants' names and their terms of reference with the Responsible Authority; 2) list all consultants, their expertise and responsibilities in the Environmental Report; 3) publish the TOR in the Environmental report; 4) make all Environmental Reports available to the public; and 5) publish lists of decisions-including the requirements and the final outcome of environmental approval, along with the public availability of any recommendations for mitigation and impact management plans. A register is kept of decisions which is made available to the public. Any decision taken by the Responsible Authority during the environmental assessment are subject to appeal in the Environmental Tribunal.	http://environment.gov.pk/eia_pdf/D_rev_enReprt.pdf
	Quebec: Ministère des Forêts, de la Faune et des Parcs; Ministère de l'Énergie et des Ressources naturelles; Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques	All documents submitted to the ministry can be obtained using the "accès aux documents des organismes publics et sur la protection des renseignements personnels" law.	http://mffp.gouv.qc.ca/le-ministere/acces-information/
	United Kingdom: Department of Environment, Food and Rural Affairs (DEFRA)	The Environment Agency (EA)/Natural Resources Wales (NRW) and local authorities (LAs) must keep public registers of environmental information. These registers are available for inspection by any member of the public.	https://uk.practicallaw.thomsonreuters.com/6-503-1654?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1 https://publications.parliament.uk/pa/cm201516/cmselect/cmenvaud/537/537.pdf

Table 4. Continued (Part 6 of 7).

Topic	Entity	Relevant Information	Source
Civil liability, insurance, and bonding	BC Consumer Protection Authority	There are explicit profession-specific requirements for liability insurance (where relevant) as required for licencing.	http://www.edonsw.org.au/hys_fact_sheets
	BC Real Estate Governance	The Real Estate Errors and Omissions Insurance Corporation is responsible for the administration of the Real Estate Errors and Omissions Insurance Fund (the Fund), a pooled fund that is used to pay the costs of defending and indemnifying licensees against professional liability claims (i.e., negligent errors or omissions). The *Real Estate Services Act* requires that all real estate licensees participate in the program and pay assessments into the Fund at the time of initial licence issue and each subsequent re-licensing, which occurs every two years.	https://www.recbc.ca/wp-content/uploads/IAGReport_June2016.pdf
	Quebec: Ministère des Forêts, de la Faune et des Parcs; Ministère de l'Énergie et des Ressources naturelles; Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques	Some insurance companies offer professional liability insurance. For example, the Association des Biologistes du Quebec" offer special insurance rates to their members through Lussier Dale Parizeau. Furthermore by adhering to the association's code of ethics the members obtain additional protection from professional responsibility issues.	https://abq.membogo.com/fr/assurances
Auditing and reviews of professional work product	Africa, Western Cape: Department of Environmental Affairs and Development Planning	There are government-requested independent peer reviews which may lead to rejection of the consultant studies followed by the appointment of a new specialist. In certain circumstances the need for independent peer review of specialist studies may be identified during the course of the EIA process. For example, this may be required if the project is complex and controversial or if there are high levels of uncertainty and risk associated with the information provided (other triggers for independent peer review are provided in the Guideline for the review of EIA specialist studies). Where specialists are commissioned to provide an independent peer review, the purpose of their involvement is to check whether the specialist report meets minimum requirements, is reasonable, objective and scientifically sound and that the specialist study has been done in an objective, impartial, and independent manner (see also criterion #5).	https://www.westerncape.gov.za/text/2005/4/deadp_specialist_review_guideline_draft_15april05.pdf
Monitoring, compliance and enforcement	Alberta Energy	The Alberta Energy Regulator (AER) annually inspects a portion of Alberta's operating wells, production and processing facilities, and pipelines. Field staff enforces standards and conditions set out in licences, approvals, and AER rules, regulations, and requirements.	https://www.aer.ca/compliance-and-enforcement/inspections-and-audits
	Australia: Department of the Environment and Energy	Conducted by government prioritized by risk severity. Commonwealth regulators that administer, monitor or enforce regulation are required to implement the Australian Government Regulator Performance Framework (RPF).	https://www.environment.gov.au/system/files/resources/f992a66c-ff2f-4698-b816-c578f4511954/files/dept-environment-energy-regulatory-framework.pdf https://www.pmc.gov.au/regulation/commonwealth-regulators/regulation-performance-framework https://www.cuttingredtape.gov.au/handbook/australian-government-guide-regulation
	Canadian Environmental Assessment Agency (CEAA)	In CEAA's compliance oversight and enforcement, they may include requirements that the enforcement measures be conducted under the supervision of a qualified individual.	https://www.canada.ca/en/environmental-assessment-agency.html http://www.ceaa.gc.ca/default.asp?lang=En&n=9ec7cad2-0 http://www.cecab.org/public/default.aspx

Table 4. Continued (Part 7 of 7).

Topic	Entity	Relevant Information	Source
Monitoring, compliance and enforcement	Pakistan: Environmental Protection Agency	The environmental assessment audit can provide an evaluation of the conditions of approval along with an assessment of the effectiveness of a particular Environmental Report at predicting impacts. The environmental assessment audit would usually be undertaken my (or on behalf of) the Responsible Authority who would be responsible to pay for the audit. These assessments would ideally be done every 2 to 3 years on a representative sample of projects which have been subject to Environmental Report and approval and have been operating for several years.	http://environment.gov.pk/eia_pdf/D_rev_enReprt.pdf
	United Kingdom: Department of Environment, Food and Rural Affairs (DEFRA)	Since 2014, the Independent Sentencing Council issued guidelines for sentencing those found guilty of environmental crimes that introduce a 12 step sentencing process and distinguish consequences by company size (in particular, "starting points" for fines).	https://uk.practicallaw.thomsonreuters.com/6-503-1654?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1 EU and UK environmental policy document https://publications.parliament.uk/pa/cm201516/cmselect/cmenvaud/537/537.pdf
Government oversight of professional associations	BC Real Estate Governance	The *Real Estate Services Act* (the Act) creates the RECBC (the Council) as the self-regulating body and grants it broad powers to develop and enforce its own rules and bylaws. However, Section 130 of the Act gives Government the power to make regulations that take precedence over any rules or bylaws created by Council; thus Government retains ultimate authority over the regulation of real estate. This power enabled the Government to recently introduce a new regulation, on contract assignment terms, in a real estate contract of purchase and sale.	https://www.recbc.ca/wp-content/uploads/IAGReport_June2016.pdf

3.3. Selection of Jurisdictions/Sectors for Focused Research and Interviews

Ten jurisdictions/sectors were identified as being most useful for more detailed investigation. These ten, along with the rationale used for their selection, are listed in Table 5. Check marks indicate the effectiveness criteria (relevant to Objective 1) considered most valuable for further investigation based on information obtained during the broad scale review. Potential relevance to Objective 2 was also evaluated and affected selection.

Table 5. Jurisdictions/sectors selected for focused research and interviews and the rationale for their selection. Check marks for effectiveness criteria (related to Objective 1) or government oversight of associations (related to Objective 2) indicate where the greatest value for further investigation was identified. (Part 1 of 2)

		Effectiveness Criteria Focused On (Objective 1)										Government Oversight of Associations (Objective 2)
Department/Sector/Ministry/Agency	Rationale	(1) Who is qualified	(2) Functions, responsibilities and objectives	(3) Role reserved for government	(4) Formal procedures and clear rules for certification	(5) Conflict of interest, self-interest and independence	(6) Record keeping, disclosure and transparency	(7) Civil liability, insurance and bonding	(8) Duty to report	(9) Auditing and reviews of professional work product	(10) Monitoring, compliance and enforcement	
USA - Environmental Protection Agency (EPA) (and National Environmental Policy Act (NEPA) under the EPA)	• The role which government has in regards to QP selection and oversight of their products • There are contractor disclosure statements to address conflict of interest • Legislation requires information to be made available to the public on a website; a memorandum was issued on transparency with specific areas of improvement identified	✓		✓		✓	✓				✓	
USA - Federal Energy Regulation Commission (FERC)	• FERC maintains a list of previously approved independent consultants however, previous approval are not sufficient for future Part 12 D inspections. Each Part 12 D independent consultant inspection requires a specific approval. • The FERC website keeps a monthly collection of Delegated Orders, Notices, and Commission Decisions from Commission Meetings or Notational Voting arranged by date • FERC has an Enforcement Hotline where potential violations can be reported; clear complaint/response protocols exist.	✓					✓		✓			
South Australia - mining sector	• The government, which has limited internal expertise, has on retainer a panel of international experts that can be called upon to work under contract for reviews of work or other needs; there are a variety of arrangements in terms of how this expertise is acquired and used (e.g., how expert is identified/specified, who pays for service)	✓		✓								
Africa - Gambia - Ministry of Environment Climate Change & Natural Resources	• The government approves the proponent's consultants and reviews the draft environmental impact statement (implications for conflict of interest). • The government carries out periodic audits of approved projects. • Methodology of risk-based third party review process link to World Bank (IFC) standards.	✓		✓		✓				✓	✓	
Canada - Government of Canada, Government of BC- Lax-Kw'alaams, Metlakatla	• The role of government in establishing an agreement that provides oversight, in particular of work done by QPs hired by the proponent • An agreement is developed in which monitors (Indigenous and IEM) and two committees with federal, provincial, and indigenous representation, review QP products	✓		✓						✓	✓	
Ontario - Ministry of Environment and Climate Change (MOECC)	• Qualifications of the consultant are defined and accuracy of the information must be indicated (via stamping or otherwise approving, i.e., signing off) • Accountability, environmental registry, and independence are required by and defined in Independent Forest Audits Regulation	✓			✓	✓	✓					

Table 5. Continued (Part 2 of 2).

Department/Sector/Ministry/Agency	Rationale	Effectiveness Criteria Focused On (Objective 1)										Government Oversight of Associations (Objective 2)
		(1) Who is qualified	(2) Functions, responsibilities and objectives	(3) Role reserved for government	(4) Formal procedures and clear rules for certification	(5) Conflict of interest, self-interest and independence	(6) Record keeping, disclosure and transparency	(7) Civil liability, insurance and bonding	(8) Duty to report	(9) Auditing and reviews of professional work product	(10) Monitoring, compliance and enforcement	
Canada - Department of Fisheries and Oceans Canada (DFO)	• DFO periodically hires an independent QP to conduct an audit of the monitoring of a project conducted by another QP and/or to conduct audit of compliance									✓	✓	
BC - Ministry of Health	• The structure and government role in regulation of professionals: the 'umbrella' legislative framework; amendments provide government with additional powers to increase accountability to the public; the colleges are the governing bodies that regulate its members in the public on behalf of the government • The Health Care Costs Recovery Act provides the Province of BC with the authority to collect health care costs, as defined in the act and Regulations, from third party insurers or wrongdoers.	✓	✓					✓				✓
United Kingdom - National Health Service (NHS)	• The structure and government role in regulation of professionals: The Professional Standards Authority (PSA) for health and social care works with organizations that register and regulate Accredited Registers. It is an independent body that is accountable to Parliament and Parliament oversees the work of the PSA. The Privy Council consults on the budget and sets the fees that the regulators must pay. The PSA is an arms length organization that oversees professional associations. • The Health Committee can require the professional standards committee to appear and give account of their work.						✓					✓
Quebec - Ministère de la justice	• The Government oversees the professional orders and conducts audits • Non-compliances can be brought to court and are out of the control of independent ministries, which may be in conflict of interest. • The government created professional orders with the mandate to protect the public by creating rules and regulations • Duty to report non-compliance is expected but the wording varies depending on the professional order.	✓	✓			✓			✓	✓		✓

4. FOCUSED RESEARCH AND INTERVIEWS

Information obtained during broad scale review, additional desktop research conducted following selection of the jurisdictions/sectors for the short list, and interviews with identified knowledge holders, is summarized at an overview level for all effectiveness criteria for each jurisdiction/sector below. Following this, the most interesting aspects of each system is presented in separate Notable Features sub-sections. It should be noted that the aspects of the systems selected for elaboration as Notable Features were evaluated following the completion of all research, and therefore did not necessarily match exactly those identified as most valuable following broad scale review (i.e., those identified with check marks in Table 5). Further, we developed the summaries presented in the tables and text based on (and paraphrasing) our understanding of the responses of the interview respondents and generally did not have time to review them for accuracy. It should also be understood that the responses to questions reflected in part the specific knowledge, experiences, and perspective of the persons who agreed to participate in the interviews. In addition, given that questions were developed by Mark Haddock specifically for the natural resources sectors, in some cases questions were modified slightly for jurisdictions/sectors outside of the natural resources sector while maintaining the concepts that the questions were intended to address (e.g., a "QP product", which might be a report in the natural resources sector, may be considered to be a "service" for the health sectors, such as a doctor's evaluation/chart).

The information sources used for each jurisdiction/sector on the short list, including the identities and positions of the interview respondents, are shown in Table 6. Interviews were conducted for eight of the ten jurisdiction/sectors. For Quebec (Ministère de la justice) and for Africa, Gambia (Ministry of Environment Climate Change & Natural Resources), interviews could not be conducted within the time constraints of this study.

Table 6. Interview details and other sources consulted for jurisdictions/sectors on the short list. (Part 1 of 2)

Department/Sector/ Ministry/Agency	Interview Type	Interview Date	Additional Information Sources
USA - Environmental Protection Agency (EPA) (and NEPA under the EPA) Washington State Department of Ecology	written	9-Feb-18	https://ceq.doe.gov/laws-regulations/agency_implementing_procedures.html https://www.ecfr.gov https://www.epa.gov https://www.epa.gov/home/web-publishing-schedule https://ceq.doe.gov/get-involved/citizens_guide_to_nepa.html https://wdfw.wa.gov/licensing/sepa/ https://cdxnodengn.epa.gov/cdx-enepa-public/action/eis/search
USA - Federal Energy Regulation Commission (FERC)	verbal	1-Feb-18	https://www.ferc.gov/industries/hydropower/safety/guidelines/part12-regs.pdf https://www.ferc.gov/EventCalendar/EventsList.aspx?View=listview https://www.ferc.gov/docs-filing https://www.ferc.gov/resources/guides/hydropower/hydro-guide.pdf https://www.ferc.gov/industries/hydropower/safety/guidelines http://www.water.ca.gov/oroville-spillway/ferc_report.cfm https://www.ferc.gov/enforcement/alleged-violation.asp https://www.ferc.gov/legal/complaints.asp http://www.mwhglobal.com/news-room/featured-stories/people/mwh-engineer-is-third-woman-approved-by-ferc-as-dam-safety-indep/ https://books.google.ca/books?id=UuXfK9WBOfwC&pg=PA224&lpg=PA224&dq=ferc+independent+consultants&source=bl&ots=tEgeGwNsmj&sig=tHCmYKdP7ejQZsZQjWwvjP8WZFg&hl=en&sa=X&ved=0ahUKEwiFxMinlajYAhUP0WMKHaNXB7UQ6AEIYDAI#v=onepage&q=ferc%20independent%20consultants&f=false
South Australia - mining sector	verbal verbal	30 Jan 2018 2 Feb 2018 6 Feb 2018	https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1614/attachments/original/1430792704/Access_to_information.pdf?1430792704 http://www.edonsw.org.au/hys_fact_sheets https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1618/attachments/original/1481770573/ICAC_Ombudsman_and_Auditor_General.pdf?1481770573 https://www.environment.gov.au/system/files/resources/f992a66c-ff2f-4698-b816-c578f4511954/files/dept-environment-energy-regulatory-framework.pdf https://www.pmc.gov.au/regulation/commonwealth-regulators/regulation-performance-framework https://www.cuttingredtape.gov.au/handbook/australian-government-guide-regulation
Africa - Gambia - Ministry of Environment Climate Change & Natural Resources and International Finance Corporation (IFC)			http://www.moeccww.gov.gm/sites/default/files/ENVIRONMENTAL-IMPACT-ASSESSMENT-REGULATION-2014_0.pdf https://freedomnewspaper.com/2017/08/13/gambia-gambia-pushes-for-open-access-to-information https://www.aig.co.za/business/products-services/financial-lines/professional-indemnity http://www.ifc.org/wps/wcm/connect/b58ead804942ee5da7a5ff4f5ddda76e/IFC+Process.pdf?MOD=AJPERES http://www.ifc.org/wps/wcm/connect/a1048880436475789303 93d3e9bda932/ESRP%2BManual.pdf?MOD=AJPERES http://www.ifc.org/wps/wcm/connect/18993fe1-0c0f-4b83-9959-8e021f313e6f/Interpretation+Note+on+E+and+S+Categorization.pdf?MOD=AJPERES
Canada - Government of Canada, Government of BC- Lax-Kw'alaams, Metlakatla			https://www.ceaa-acee.gc.ca/050/documents/p80032/117025E.pdf https://projects.eao.gov.bc.ca/api/document/58869047e036fb0105768a37/fetch http://www.eao.gov.bc.ca/files/EAO-EM-and-IEM-Bulletin.pdf http://www.ceaa.gc.ca/050/document-eng.cfm?document=115669
Ontario - MOECC	verbal written	31 Jan 2018 30 Jan 2018	https://www.ontario.ca/laws/regulation/170001 https://www.ontario.ca/laws/regulation/040153 https://www.ontario.ca/laws/statute/90e19 https://www.ontario.ca/laws/statute/02s32 https://www.ontario.ca/laws/statute/90o40 https://www.ontario.ca/laws/statute/00p13 https://www.ontario.ca/page/brownfields-redevelopment https://www.ontario.ca/page/operational-guidance-obtaining-environmental-protection-act-section-46-approval https://www.apgo.net http://www.peo.on.ca

Table 6. Continued (Part 2 of 2).

Department/Sector/ Ministry/Agency	Interview Type	Interview Date	Additional Information Sources
Canada - Department of Fisheries and Oceans Canada	verbal	6-Feb-18	http://www.dfo-mpo.gc.ca/ae-ve/audits-verifications-eng.htm http://www.dfo-mpo.gc.ca/fm-gp/enf-loi/index-eng.htm http://www.dfo-mpo.gc.ca/rpp/2017-18/dp-eng.html http://www.dfo-mpo.gc.ca/pnw-ppe/env-pro-eng.html http://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/qa2-eng.html http://www.dfo-mpo.gc.ca/pnw-ppe/fpp-ppp/review-revue-eng.html http://www.inter.dfo-mpo.gc.ca/atip/home-e http://www.canadianlawyermag.com/author/jennifer-brown/new-fines-policy-in-place-for-fisheries-act-2275/ https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/riparian-areas-regulation/qep-resources https://www.hubinternational.com/en-CA/programs-associations/association-of-professional-biology/
BC - Ministry of Health	verbal	2-Feb-18	https://www2.gov.bc.ca/gov/content/health https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/ministries/health/safe-choices-a-new-model-for-regulating-health-professions-in-british-columbia.pdf https://www.cpsbc.ca/about-us/laws-legislation/about-HPA http://www.bchealthregulators.ca/ https://www.bcombudsperson.ca/sites/default/files/Special%20Report%20No%20-%2024%20Self%20Governance%20in%20the%20Health%20Professions-%20The%20Ombudsman%27s%20Perspective.pdf https://www.crnbc.ca/crnbc/Announcements/2017/Pages/HPA_amendment.aspx https://crnbc.ca/Standards/Lists/StandardResources/128ProfessionalStandards.pdf http://www.hprb.gov.bc.ca/ http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96183_01 http://www.bclaws.ca/civix/document/id/complete/statreg/96183_01#section32.2 http://www.bclaws.ca/civix/document/id/complete/statreg/96183_01#section50.51 http://www.bclaws.ca/civix/document/id/lc/statreg/96183_01
United Kingdom - National Health Service (NHS)	verbal	12-Feb-18	https://www.professionalstandards.org.uk/docs/default-source/publications/thought-paper/rethinking-regulation-2015.pdf https://www.ncbi.nlm.nih.gov/pubmed/25305399 http://www.hpc-uk.org/registrants/cpd/audit/ https://www.professionalstandards.org.uk/publications/detail/an-approach-to-assuring-continuing-fitness-to-practise-based-on-right-touch-regulation-principles https://www.professionalstandards.org.uk/docs/default-source/publications/policy-advice/continuing-fitness-to-practise-based-on-right-touch-regulation-2012.pdf?sfvrsn=68c67f20_6 https://www.professionalstandards.org.uk/docs/default-source/publications/thought-paper/right-touch-reform-2017.pdf?sfvrsn=2e517320_5 http://www.aomrc.org.uk/ written response received from Dr John Moyle, MB, BS, MSc, PhD, CEng, MInstMC, FRCA, Chartered Engineer, Physician & Anaesthetist (Retired)
Quebec - Ministère de la justice			https://www.opq.gouv.qc.ca/systeme-professionnel/ https://www.opq.gouv.qc.ca/droits-et-recours/recours-disciplinaires/ https://www.opq.gouv.qc.ca/fileadmin/documents/Publications/Rapport_etude/Rapport-ass-respons.pdf https://www.opq.gouv.qc.ca/droits-et-recours/decisionsdisplinaires/ http://www.ogq.qc.ca/membres/assurance-responsabilite-professionnelle http://www.cmq.org/publications-pdf/p-6-2012-01-01-en-reglement-permis-de-psychotherapeute.pdf?t=1518641646479 http://www.cai.gouv.qc.ca/a-propos/ https://www.ordrepsy.qc.ca/qu-est-ce-que-le-conseil-de-discipline- http://www.ledevoir.com/societe/actualites-en-societe/66187/il-y-a-30-ans-la-naissance-du-systeme-professionnel-quebecois

4.1. USA - Environmental Protection Agency (and National Environmental Policy Act)

4.1.1. Overview of professional reliance model

In general, the federal Environmental Protection Agency (EPA) and state Departments of Ecology have oversight of the work product of QPs. QPs are chosen based on their qualifications to perform the required work by the government. The government (Responsible Official) reviews the work and when deemed acceptable the QP product is accepted as a government document. Expectations of QP work are laid out in a contract at the outset of a project.

A strength of the EPA QP reliance model is that the work must be carefully overseen and reviewed by the government Responsible Official because the work ultimately becomes their responsibility. Conflict of interest is also addressed through disclosure statements by the QP. There are also audits of QP work through contract performance audits to ensure that public funds are being appropriately used.

One of the weaknesses of the model identified by the interview respondent is that although the process is intended to foster a choice of QP based on the most qualified individual/firm for the work, there is potential for past experience and/or personal bias to result in the work going to an individual who may not be the most qualified.

Table 7 provides an overview of the means by which the ten effectiveness criteria are addressed for the EPA.

Table 7. Focused research and interview responses to effectiveness criteria questions for the EPA. Shading identifies those criteria for which elaboration is provided in the sections below. (Part 1 of 2)

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	The government (EPA Responsible Official) and the applicant may enter into an agreement (third party agreement) when QPs are hired by a proponent: the government (Responsible Official) approves the contractor (QP). Specialty fields (architecture, engineering) specify a licencing/ credentialing requirement. When the government needs to procure private sector expertise, it has a set protocol for the solicitation of statements of qualifications (bids) and consultant selection.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	The EPA publishes a guide to filing EIS on its website. The QP works along with the Responsible Official to produce the EA or draft EIS. The solicitation for a contractor will identify the administrative codes (regulations) that must be followed as well general and specific project requirements, objectives, and outcomes and what the roles and responsibilities of the person/firm will be.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	The government (EPA Responsible Official) oversees and works with the contractor on data analysis and document preparation, evaluates the draft document, and takes responsibility for products (documents).
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	Accountability for a deliverable or work product is addressed in the initial contract to conduct the work. The contract specifies the deliverable/work product, the review and approval process, and the basis for acceptance of the deliverable/work product. Expectations are defined at the start of a contract and signature on the final work product is affirmation.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	Potential third-party conflict of interest is addressed by required disclosure statements and by involvement/evaluation of QP work by the government (Responsible Official). This applies at both the federal and state level.
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	Section 207(f)(2) of the E-Government Act of 2002 requires federal agencies to develop an inventory of information to be published on their web sites, establish a schedule for publishing information, make those schedules available for public comment, and post the schedules and priorities on the web site. Because the government takes responsibility for QP products once they are reviewed and accepted, QP documents become government documents that are posted online.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	Risk is managed through insurance. Consultants who contract with the state are required to provide professional liability insurance including errors and omissions, as well as general liability for personal and property damage.

Table 7. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	EPA provides compliance incentives and auditing to encourage facilities themselves to find and disclose violations to the Agency. Enforcement goals are published and there is a website where violators can be reported by anyone (not specifically a QP).
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	QP work is reviewed by the Responsible Official. The Responsible Official will ensure that the EA or EIS and any associated documents prepared by a third party contractor contain analyses and conclusions that adequately assess the relevant environmental issues. Additionally, contract performance audits are performed on select contracts to determine if public funds are being used appropriately. These address QP performance, agency management and enforcement of the terms of the contract, and review that the deliverables received met the requirements of the contract.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	EPA and its regulatory partners (government) perform compliance monitoring activities for 44 programs including conducting inspections and investigations, overseeing imports and exports of environmental substances, and providing training to federal, state, and tribal personnel. At the state level, a government project manager evaluates the QP work plan and determines what activities require on-site monitoring and when. The agency retains responsibility for enforcement of the terms of the contract with the QP.

4.1.2.Notable Features

4.1.2.1. Who is qualified

The state (Washington state; note that the interview respondent was an employee of the Department of Ecology of Washington State) and federal governments have similar approaches in that the government encourages collaboration in the selection of contractors (QPs) when these are hired by the proponent (applicant). Given that the government has the power to approve the choice of QPs, it is advantageous to all parties to collaborate on QP selection early in the process. The EPA Responsible Official (government) and the applicant may enter into an agreement (third party agreement) with regard to the hiring of QPs. This is not mandatory at the state level (the applicant can choose to select and contract with their own consultant), but may be encouraged. Specialty fields (architecture, engineering) specify a licensing/credentialing requirement for QPs. This is not the case for "other" consultants in natural resources.

At the state level, as a public agency, the Department of Ecology (a state level agent for the EPA for the federal EPA) is required to solicit for statements of qualification (bids) from a consultant for projects that cannot be performed "in house" and need to procure private sector expertise to perform. Necessary performance requirements are set forth in the solicitation. In a response to the solicitation, an individual or firm identifies qualifications and capabilities to demonstrate that they

satisfy the requirements of the solicitation. Their responses are scored against a set of criteria established in the solicitation by a group of agency staff knowledgeable in the work to be performed. The resulting scores determine the individual or firm that appear most qualified for the project. Subsequent interviews of the individual or firm confirm the choice of the most qualified individual or firm. The government would rely on resumes (education, experience, references) to choose a qualified person/firm for a project bid. The consultants are scored according to their qualifications then interviews are conducted to make a final choice.

4.1.2.2. Role reserved for government

The role of the government at federal and state levels in the use of QPs and their work products in relation to Environmental Assessment (EA) or Environmental Impact Statement (EIS) work is one of oversight and responsibility. The government helps to choose the contractor based on their qualifications[4] (see Section 23). There are clear guidelines laid out in the *National Environmental Policy Act* (NEPA) (1970)[5] and *State Environmental Policy Act* (SEPA)[6] process for the criteria to complete EA and EIS documents[7]. The government (EPA Responsible Official) oversees and works with the contractor on data analysis and document preparation, reviews and evaluates the draft document, and can require edits or additional information/data collection. Once satisfied with a draft document, the EPA takes responsibility for the product and it becomes a government document, which then is made available to the public[8].

4.1.2.3. Conflict of interest, self-interest and independence

Potential conflict of interest, self-interest, and independence for QPs is addressed at the contract phase of a project. The QP is required to sign a disclosure statement prior to beginning work (this applies at both the federal and state level). The disclosure statement specifies that the contractor has no financial or other interest in the outcome of the project.

Oversight of QP work by a government Responsible Official reduces the potential for conflict of interest. The Responsible Official independently evaluates information submitted in an EA or EIS and associated documents and has the responsibility to issue an EA or draft and final EIS. The Responsible Official accepts the documents as an EPA document and is then responsible for its scope, accuracy, and content. A third party (QP) contract may not be initiated unless both the applicant and Responsible Official agree to its creation and terms. The terms of the contract

[4] https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=6e61ef562a566bbadaf796974133037a&rgn=div5&view=text&node=40:1.0.1.1.6&idno=40#se40.1.6_1301

[5] https://www.epa.gov/nepa

[6] https://wdfw.wa.gov/licensing/sepa/

[7] https://www.epa.gov/laws-regulations

[8] https://cdxnodengn.epa.gov/cdx-enepa-public/action/eis/search

between the applicant and the QP must ensure that the contractor does not have recourse to EPA for financial or other claims arising under the contract, and that the government may give technical advice to the contractor[9].

4.1.2.4. Record keeping, disclosure and transparency

Section 207(f)(2) of the *E-Government Act* of 2002 requires federal agencies to develop an inventory of information to be published on their web sites, establish a schedule for publishing information, make those schedules available for public comment, and post the schedules and priorities on the web site. Information posted includes financial information, scientific research, compliance and enforcement, environmental data, and regulatory programs[10]. Because the government takes responsibility for QP products once they are reviewed and accepted, QP documents become government documents that are posted online. Some information is not posted online if it is proprietary, confidential, or can be the basis of a legal action.

4.1.2.5. Monitoring, compliance and enforcement

EPA and its regulatory partners (government) perform compliance monitoring activities for 44 programs including conducting inspections and investigations, overseeing imports and exports of environmental substances, and providing training to federal, state, and tribal personnel[11]. At the state level, a government project manager evaluates the QP work plan and determines what activities require on-site monitoring and when. The project manager also determines which activities a proponent can self-monitor and submits follow up reports. The project manager enforces the terms of the contract and scope of work. This may require monthly, weekly or daily interaction with the QP. If the agency does not have the required staff to conduct monitoring it may contract for this support with other public agencies, or with other QPs. The agency would retain responsibility for enforcement of the terms of the contract with the QP.

4.2. USA - Federal Energy Regulation Commission (FERC)

4.2.1.Overview of professional reliance model

Under the Federal Energy Regulation Commission (FERC), independent consultants are hired by proponents and their duty is therefore to the proponent. However, FERC has specific requirements for the independent consultants (QPs) retained, has the authority to accept or reject the consultant chosen based on qualifications, and reviews QP work products.

[9] https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=6e61ef562a566bbadaf796974133037a&rgn=div5&view=text&node=40:1.0.1.1.6&idno=40#se40.1.6_1301

[10] https://www.epa.gov/home/web-publishing-schedule

[11] https://www.epa.gov/compliance/compliance-monitoring-programs

The interview respondent indicated that the approach of the use of QPs has generally worked well, although no specific strengths were identified. Two weaknesses were identified. First, requirements for the use of QPs are limited (experience and licensing based) and the system could be improved if the requirements for QPs were more strict. However, it was recognized that this would have a trade-off in reducing the number of consultants qualified to do the work and would therefore drive up the cost. The second potential weakness identified was that approvals are being based on resumes, and it would therefore be possible that a fraudulent resume was submitted. However, it was also indicated that this was unlikely to be a serious problem because lack of qualifications would become apparent during review of the report.

Table 8 provides an overview of the means by which the ten effectiveness criteria are addressed for FERC.

Table 8. Focused research and interview responses to effectiveness criteria questions for FERC. Shading identifies those criteria for which elaboration is provided in the sections below. (Part 1 of 2)

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	FERC regulations (18-CFR-12) specify the required qualifications for independent consultants including licencing (as a professional engineer), years of experience, and previous employment (as it may relate to potential conflict of interest). In addition, FERC can require the licensee to convene a Board of Consultants for challenging, large or unique projects and will specify the number of members and expertise required of the board members. Resumes of the board members are reviewed by FERC and the member is either approved or not subjectively based on qualifications.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	The regulation 19-CFR-12 specifies what an independent consultant report must include. Guidelines for professional functions and responsibilities are published on the FERC website.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	FERC does not have oversight in how QPs prepare the report but does have a review function of the final product and can reject reports, although they are usually accepted with comments. The report goes from the QP to the licensee who reviews the report first then sends to FERC for a review. FERC sends comment to licensee and it is up to them to resolve report issues with the consultant.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	There are formal report requirements that are spelled out in the FERC regulations for Part 12 reports. However, the proponent is the party responsible for report content. If there was an issue with a report, FERC would hold the proponent responsible not the consultant.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	Conflict of interest is addressed in part through qualifications required for independent consultants conducting Part 12 inspections in FERC regulations. There are requirements for the amount of time that must have passed since being previously employed by, or acting on behalf of, the licensee or its affiliates (at least 2 years) and consultants cannot review work they have conducted. Conflict of interest can be a more complex issue for the Board of Consultants because, depending on the expertise required, there may be few experts in a given field. FERC always requires some level of independence by Board of Consultants members (subjectively evaluated). Board members can be refused if it appears there is a conflict of interest.
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	In general, the online FERC elibrary has many different types of reports and correspondence that can be searched for and viewed by the public. However, because dams are critical energy infrastructure Part 12 dam inspection reports become documents of the licensee that are restricted from public availability.

Table 8. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	FERC does not consider liability with regard to the consultant. The licensee must work that out contractually with the consultant.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	Professional Engineers have ethical requirements to report by the state certifying board (licencing board). There is no duty to report specified by FERC. The only regulatory authority FERC has is over the licensee: if a report is not submitted on time or is done poorly it is an issue with the licensee not the QP in the eyes of FERC. FERC only investigates non-compliance of licensees and, in this regard, has an Enforcement Hotline where potential violations can be reported.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	FERC conducts reviews of QP work that is submitted to them but does not conduct audits. Dam owners also review QP work but likely do not perform audits.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	FERC has monitoring, compliance and enforcement capabilities but not with respect to the QP work. If FERC finds an issue they go through the licensee. FERC would never go directly to the QP. Monitoring at dams could be done by staff or a consultant depending on the size of the facility.

4.2.2.Notable Features

4.2.2.1. Who is qualified

In general, the proponent can choose the QP that they employ; however, FERC has the authority to accept or reject the consultant chosen based on qualifications and or potential for conflict of interest. Further, there are clear required qualifications for independent consultants that are retained by a proponent (dam owner) to conduct Part 12 inspections (safety inspections) every five years on high or significant hazard dams. FERC Regulation 18-CFR-12 Subpart D- Inspection by Independent Consultant[12], defines an independent consultant as a person who: (1) is a licensed professional engineer (in one or multiple states within the United States); (2) has at least 10 years of experience and expertise in dam design and construction and in the investigation of the safety of existing dams: and (3) is not, and has not been within two years before being retained to perform in inspection under this subpart, and employee of the licensee or its affiliates or an agent action on behalf of the licensee or its affiliates. This last requirement addresses conflict of interest by the consultant.

FERC can also require a Board of Consultants to be convened when there are large, challenging, or unique projects. There are no written regulations on the qualifications of consultants chosen to serve

[12] https://www.ferc.gov/industries/hydropower/safety/guidelines/part12-regs.pdf

on this board; however, there are individual requirements specified by FERC based on the conditions of the project itself. In this case, FERC would send a letter to the licensee to inform them that they are required to form a Board of Consultants and would specify the number of consultants and expertise that is required for the board members. This usually consists of experts in Civil Engineering or sub-disciplines thereof. The licensee then selects the members of the board and sends their resumes to FERC for review and approval. This is a subjective process in that there are no formal requirements like there is for individuals conducting dam inspections. FERC can either approve or reject a Board of Consultants candidate at their discretion. In general, highly experienced individuals within the field of engineering are chosen.

4.2.2.2. Record keeping, disclosure and transparency

FERC strives for transparency by providing a variety of information available online to the public. For instance, the FERC website keeps a monthly collection of Delegated Orders, Notices, and Commission Decisions from Commission Meetings or Notational Voting arranged by date[13]. FERC also posts a calendar of events (e.g., Commission meetings, court dates) online that can be searched. Links to the event details including times and locations are available and the supporting documents for the event are available to download in some cases[14]. Through the FERC website an individual can subscribe via eSubscription[15] to follow an individual docket or project, or make public comments. Once subscribed a person will receive email notices of submittals and issuances associated with the project and public documents on the project can be retrieved through links in the emails. The public can make comments on a docket or project through the FERC online system at eComment[16] for short comments without attachments or at eFiling[17] for longer comments with supporting attached material (e.g., photos, documents). Registration is required for eFiling but not for eComment. The online FERC eLibrary[18] allows access to documents issued and received by FERC without need for subscription. This includes scoping documents, compliance reports, EA reports, court related documents to name a few. There are a variety of ways to search the library via a general search, advanced search, date or docket number.

Although Part 12 dam inspections are listed in the eLibrary, access to these documents is limited. Dams are considered a critical energy infrastructure so there are security concerns with releasing this information. Part 12 inspections are documents of the licensee and are restricted from public availability. If not for the security issue, these documents would be available to the public.

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[13] https://www.ferc.gov/docs-filing/dec-not.asp

[14] https://www.ferc.gov/EventCalendar/EventsList.aspx?View=listview

[15] https://www.ferc.gov/docs-filing/esubscription.asp

[16] https://www.ferc.gov/docs-filing/ecomment.asp

[17] https://www.ferc.gov/docs-filing/efiling.asp

[18] https://www.ferc.gov/docs-filing/elibrary.asp

4.3. South Australia – Mining Sector

4.3.1. Overview of professional reliance model

Reliance on professionals in Australia is similar to that in BC in that QPs are employed by industry to meet proponent needs. As such there are similar issues regarding QP qualifications, quality of work product, and conflict of interest. In addition, the QP designation system appears to be in its infancy. There are limited professional designations and these are voluntary in some cases. A certification program for environmental practitioners (Certified Environmental Practitioner Scheme[19], certifies CEnvPs (the Certified Environmental Practitioners) through the initiative of the Environment Institute of Australia and New Zealand (EIANZ)) has been recently initiated; however, becoming certified is not a professional requirement and QP work product can be poor. One respondent noted that there can be significant challenges in ensuring appropriate expertise and experience of individuals performing technical work. While government requires 'appropriately skilled person' to conduct the work, there are generally no set standards or association to designate who is appropriately skilled nor is there an ability for government to indicate that an individual is not appropriately skilled. However, one aspect of the environmental management in South Australia was found to be of particular interest for this review. This is the panel of international technical experts that the government has on retainer in the mining sector that can be called upon to work under contract for reviews of work or other needs. As such, the focused research and interviews for South Australia targeted this component of the system.

The key strength of the use of technical expert panels identified by the respondents is that government has access to an international pool of independent expertise, when and as required. Through this model, government is able to retain high calibre consultants and academics to support their assessment, regulation, and oversight of highly technical and potentially risky or contentious matters. Because the technical experts are external to government, public confidence in the assessment not being biased may be increased. By being able to draw upon technical experts as required, the government is able to use the experts for discrete tasks or to support ongoing oversight of the mines.

The key weakness of this approach is that sufficient budget must be available to support the retention of high calibre technical experts, which is costly. With additional budget, the scope of the technical experts' involvement could be expanded to more effectively support government's efforts in oversight of mines. While an assessment fee is charged to proponents, it is provided to general revenue therefore it does not directly address the costs of retaining the technical experts.

Table 9 provides an overview of the means by which the ten effectiveness criteria are addressed for South Australia, mining sector, in relation to the technical expert panel.

[19] https://www.eianz.org/institute-programs/certified-environmental-practitioner-scheme

Table 9. Focused research and interview responses to effectiveness criteria questions for South Australia, mining sector, in relation to the technical expert panel. Shading identifies those criteria for which elaboration is provided in the sections below (Part 1 of 2).

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	Through the Request for Proposal (RFP) process advertised on the government procurement site the qualifications required for each of the technical experts is specified. The panel is comprised of experts from various countries so they may have different certifications depending on where they are from.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	Each time government requires the services of the technical experts on the panel, a statement of work (SOW) is developed that specifies the functions, responsibility, and objectives of the required work. The technical experts on the panel then prepare a proposal including price for the work.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	Government selects the technical experts and pays for their services that are performed on behalf of government. Government reviews the work provided by the technical expert and may request edits. The government then relies on that information as a component of its assessment of proponent applications, monitoring data, etc. In some cases, government may also require that a proponent retain one of the technical experts on the panel directly to inform a complex assessment for an application.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	No
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	Conflict of interest is addressed in two ways: 1) through the RFP process, the technical experts are required to declare any conflicts of interest; and 2) multiple technical experts (typically 2-3) for each area of expertise are retained on the panel. This increases the likelihood that government will have access to an appropriately qualified technical expert that does not have conflict with a particular assignment.

Table 9. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	The government typically posts the applications and associated government decision documentation on its website, unless it contains proprietary or otherwise sensitive information. The work conducted by the technical experts to support government decision making is part of the material that is posted online.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	The technical experts are employed under contract to government and are therefore covered by government's insurance.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	Not determined
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	No
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	The proponents are required to conduct monitoring and the government conducts compliance oversight. The government may retain technical experts from the panel to conduct work to support government's compliance oversight.

4.3.2.Notable Features

4.3.2.1. Role reserved for government

In South Australia, the government engages the services of technical experts to support government in their assessment, regulation, and oversight of mines. The original use of technical expert panels was to support government in developing and implementing the reclamation and closure plan for the Brukunga mine, for which government is directly responsible (as opposed to industry being responsible). Following the success of that approach on Brukunga, the government expanded the use of technical expert panels to supporting government more broadly in the mining sector.

For Brukunga mine, the panel was called the 'Technical Advisory Group' (TAG). It was established to provide the technical expertise (e.g., hydrogeologists, geochemists) government required to develop and implement the remediation plan for the mine. The opportunity to serve on the TAG was advertised and candidates provided application material (e.g., CVs, examples of related experience, rates). The technical experts were selected by government and retained through contract. A term of reference was developed to govern the use of the TAG. The TAG was funded by government through a fund to develop and implement a remediation plan for the mine. The TAG developed the remediation concept and then government hired other consultants to do the work,

although the geochemistry work was done by the TAG. The TAG reviewed and commented on the work done by other consultants. The TAG has completed its mandate and is no longer active.

Following the success of the use of TAG for Brukunga, the government expanded on the approach of using a retained panel of technical experts to inform government assessment, regulation, and oversight more generally within the mining sector. The concept is to use the panel to provide expertise that government does not have internally and also to incorporate independent assessment into the government oversight. The opportunity to be a member of the panel is advertised through the government's procurement website. A group of government officials review all submissions and determine who will be selected for the panel. The panel aims to include three individuals under various areas of expertise (e.g., underground Geotech, tailings Geotech, soils) to increase the likelihood that an independent expert could be selected for any given task without a conflict of interest. The panel is funded through the operational budget of the department, although an assessment fee on a sliding scale is charged to industry which goes to general revenue.

The assessment officers in government determine what needs to be reviewed by members of the panel. The panel does not review the entire applications, rather specific complex matters for which the assessment officer determined additional expertise was required. Government develops a scope of work for each assignment requiring the technical experts. While the technical experts provide a range of services, a typical assignment would be reviewing a component of a proponent's application and environmental impact assessment. The technical expert(s) review the documentation and data to assess whether the proposed mitigation (called 'control strategies' in South Australia) are anticipated to be effective for achieving the proposed environmental outcomes. If they are deemed not effective, the expert(s) highlight concerns and propose alternative potential mitigation. Government then uses the technical experts' assessments to form the basis of their request to the proponent for additional information and analysis. Once satisfied with the information from the proponent, the government relies on input from the technical experts to inform the development of conditions to include in the mine's authorizations.

The entire premise of the use of technical expert panels is to support government in its role in regulating mines. All components are controlled by government, including in the establishment and implementation of the panels. For the establishment of the panels, the government determines what expertise is required, assesses all applications to serve on the panel, and determines who the appropriately qualified technical experts are. For the implementation of the panels, government determines the scope of work for each assignment, assesses which of the panels members is best suited to complete the work, reviews the technical expert's work product, and relies on the technical expert to support government decision-making. If a technical expert on the panel is not working within the scope or expectations of the government, they are not retained for future work.

While the technical experts typically conduct work directly for government and are paid for by government, in some cases government may require that a proponent retain a particular individual (or choose from a group of pre-qualified individuals) to conduct particularly challenging,

contentious, or otherwise sensitive work. Through this avenue, government is able to determine which technical expert will conduct the work on behalf of a proponent and their scope of work.

4.4. Africa – Gambia - Ministry of Environment Climate Change & Natural Resources

4.4.1. Overview of professional reliance model

Similar to the BC system, QPs are hired by industry. However, with regard to environmental impact assessments, the government approves the proponent's consultants, which is expected to reduce the potential for conflict of interest. The government also reviews the draft environmental impact statement.

It was not possible within the time frame of this review to obtain an interview with a knowledge holder in Gambia. As such, results presented here on Gambia reflect what was available online and no comment was received regarding strengths and weaknesses of the system. Since we were unable to arrange an interview with the Gambian Ministry of Environment Climate Change & Natural Resources, and confirm our preliminary research on the application International Finance Corporation (IFC) performance standards to their works, we present a notable feature in regards the procedural categorization of projects based on risk, and the linked and scaled diligence actions, in the support of the broader objectives of the jurisdictional/sector scan.

Table 10 provides an overview of the means by which the ten effectiveness criteria are addressed for Africa, Gambia, with a focus on the environmental impact assessment process.

Table 10. Focused research and interview responses to effectiveness criteria questions for Africa, Gambia, with a focus on the environmental impact assessment process.

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	Qualified consultants are selected by the proponent to conduct the environmental impact study. Scoping and approval of qualified consultants are completed by the Agency according to regulations. The consultant's qualifications are submitted to the Agency that can accept or reject the consultant.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	The Environment Impact Assessment Guidelines, code of conduct, or the written direction issued by the Agency specify how the consultant undertaking an environmental impact study conduct themselves.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	The Agency approves the proponent's choice of consultant. It also reviews the draft Environmental Impact Statement and provides written comments to the proponent. If it is found to be inadequate, the Agency returns it to the proponent for revision, taking into consideration the comments and objections of the Executive Director.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	Information not found.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	Conflict of interest is expected to be reduced because the government Agency must approve the proponent's choice of consultant.
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	A Freedom of Information Bill for the country is in progress but not in practice currently.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	Anyone who offers services or advice in a specialised field could be held accountable by law for the advice or service to the general standards of their profession or industry. Professional Indemnity is aimed at providing protection against financial loss resulting from a legal liability to a third party.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	Information not found.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	Information not found.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	The government carries out periodic audits of approved projects and advises the proponent on remedial measures in cases of non-compliance with previously determined measures. Audits can be random or initiated by a petition from the public demonstrating reasonable cause.

4.4.2.Notable Features

4.4.2.1. Auditing and reviews of professional work product

Certain projects in developing countries are required to meet the IFC performance standards (i.e., some natural resource companies operating in countries that are not members of the Organization for Economic Co-operation and Development (OECD)). The IFC is the private-sector lending arm of the World Bank Group and is the largest global development institution focused exclusively on the private sector in developing countries.[20] The IFC is an important global financier, and their performance standards further influence global financing through the Equator Principles[21]. These standards are therefore highly relevant to several aspects of the professional reliance effectiveness criteria investigated in this review, in particular to criteria #9, auditing and reviews of professional work product.

The IFC Sustainability Framework consists of:

- The Policy on Environmental and Social Sustainability, which defines IFC's commitments to environmental and social sustainability;
- The Performance Standards, which define clients' responsibilities for managing their environmental and social risks; and
- The Access to Information Policy, which articulates IFC's commitment to transparency."

The performance standards provide guidance on the roles and responsibilities of the private sector. Compliance with international standards is a method to maximize project benefits and the reduction of risk and adverse effects. There are eight IFC Performance Standards which aim to strengthen social and environmental policy and practice and to guide project proponents and financiers:

- PS1. Social and Environmental Assessment and Management Systems;
- PS2. Labour and Working Conditions;
- PS3. Pollution Prevention and Abatement;
- PS4. Community Health, Safety and Security;
- PS5. Land Acquisition and Involuntary Resettlement;
- PS6. Biodiversity and Sustainable Natural Resource Management;
- PS7. Indigenous Peoples; and
- PS8. Cultural Heritage.

[20] www.ifc.org

[21] http://equator-principles.com

The standards employ an outcomes-based approach with clear requirements for client performance and project outcomes, alongside greater consultation, transparency and accountability[22]. For the purposes of this report, we provide a brief summary and links to materials in regards to some aspects that relate to reviews and accountability of professional work products.

The IFC's Environmental and Social Review Procedures Manual[23] (Procedures Manual) includes directions on how to conduct due diligence for the business activities under consideration. As part of this manual, and relevant to reviews of professional works, we note that a key step to be applied in this sector is the categorization of projects, as further defined in an interpretation note[24]. Categorization of projects based on risk links to specific requirements for due diligence. Although it is noted that the categorization of projects are the result of professional judgement, there are peer reviewed documentations and principles that guide these categorization decisions.

The categorization level of a project in this sector is especially relevant in the context of external (third party) review of the project assessments. For example, "Category A" encompasses "activities with potential significant adverse environmental or social risks and or impacts that are diverse, irreversible, or unprecedented." Category A projects trigger various forms of peer review, such as "Peer Review Meetings", roles and responsibilities defined for these "Supervised Projects", and action plans (or ESAP). In some cases, IFC will not complete an appraisal unless the "client undertakes additional assessments or studies needed to assess any number of issues". In other cases, IFC may direct the client to engage an external expert to support, for example, specific EAs of certain significant impacts, such as threats to critical habitat, natural resources, or legally protected areas (PS6); Indigenous peoples (PS7) or unusual cultural heritage issues (PS8); or to conduct an environmental or resettlement audit if facilities are existing." If supplemental assessment or external expert studies are required, an IFC lead is directed to assist the client with developing Terms of Reference and/or suggest potential external experts.

An Environmental and Social Action Plan (ESAP) [25] is a core outcome of Performance Standard 1 (Social and environmental assessment and management system) that requires: an integrated

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[22] Understanding IFC's Environmental and Social Due Diligence Process (Infographic) http://www.ifc.org/wps/wcm/connect/b58ead804942ee5da7a5ff4f5ddda76e/IFC+Process.pdf?MOD=AJPERES

[23] IFC's Environmental and Social Review Procedures Manual http://www.ifc.org/wps/wcm/connect/a1048880436475789303 93d3e9bda932/ESRP%2BManual.pdf?MOD=AJPERES

[24] IFC: Interpretation note on Environmental and Social Categorization http://www.ifc.org/wps/wcm/connect/18993fe1-0c0f-4b83-9959-8e021f313e6f/Interpretation+Note+on+E+and+S+Categorization.pdf?MOD=AJPERES

[25] "The Environmental and Social Action Plan (ESAP) or Action Plan - "The Action Plan will (i) describe the actions necessary to implement the various sets of mitigation measures or corrective actions to be undertaken; (ii) prioritize these actions; (iii) include the timeline for their implementation; (iv) be disclosed to

assessment to identify the social and environmental impacts, risks, and opportunities of projects; effective community engagement through disclosure of project-related information; and consultation with local communities on matters that directly affect them and that the client's management of social and environmental performance is tracked and reporting on throughout the life of the project. For Category A projects, this includes disclosure of external expert reviews, and reports.

4.5. Canada - Government of Canada, Government of BC- Lax-Kw'alaams, Metlakatla

4.5.1. Overview of professional reliance model

Although not a professional reliance model as such, an Environmental Monitoring Agreement for the Pacific NorthWest LNG Project (PNW Project) provides a unique example of an approach to government approval of QPs retained by industry, and oversight of their work product, that has a number of strengths relevant to this review.

The PNW Project was proposed as a natural gas liquefaction and export facility on Lelu Island within the District of Port Edward, BC. The project received EA approvals from the Federal government in 2016[26] and the Provincial government in 2014[27]. Prior to the Project receiving federal EA approval, the Federal and Provincial governments and Lax Kw'alaams Band and Metlakatla First Nation negotiated an Environmental Monitoring Agreement[28] (Agreement) for the PNW Project. As noted in a Federal announcement, this Agreement represented an opportunity for the federal and provincial governments to work with First Nations to protect the environment while supporting the development of the liquefied natural gas industry.

While the PNW Project is not moving forward to construction at this time, the Agreement provides a unique example to government approving a QP retained by industry and providing oversight of QP work product, in collaboration with Indigenous groups. Through the Agreement, the Federal government, Provincial government, and Indigenous groups agreed on structure that would inform regulatory oversight of the PNW Project. Many of the regulatory requirements for the PNW Project were required to be completed by QPs while others the proponent would have likely voluntarily relied on QPs to conduct the work. Examples of this work include development of mitigation to address adverse effects, development of environmental management plans, design and implementation of monitoring programs, and development of adaptive management strategies.

Through the Agreement, various structures, roles and procedures were established to provide oversight of work frequently conducted by QPs. The diagram on page 4 of the Agreement[28]

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the affected communities; and (v) describe the schedule and mechanism for external reporting on the client's implementation of the Action Plan."

[26] http://www.ceaa.gc.ca/050/document-eng.cfm?document=115669

[27] https://projects.eao.gov.bc.ca/api/document/58869047e036fb0105768a37/fetch

[28] https://www.ceaa-acee.gc.ca/050/documents/p80032/117025E.pdf

describes the key components, including the Environmental Monitoring Committee (EMC), Technical Committee, Coast Tsimshian Monitor (CT Monitor) and Independent Environmental Monitor (IEM). The Agreement provides clarity on how these parties work together in the environmental management oversight of the development of the PNW Project. In addition to providing a first-of-its kind approach, the discussions leading up to the signing of the Environmental Monitoring Agreement were recognized as being valuable to inform similar approaches for other resource development.

The key strength of this approach is that it provided a coordinated and collaborative approach for federal, provincial, and Indigenous governments to work together in monitoring, compliance, and enforcement of a major resource development project. It also provided the means for these parties to be involved in the ongoing adaptive management of the project and increased confidence that the work being conducted by the proponent's QPs was unbiased. As noted by the Honourable Catherine McKenna, Minister of Environment "Having both provincial and federal governments and First Nations leading this committee not only provides for stronger environmental protection, it also increases confidence in the rigour of the environmental oversight." Mayor John Helin, Lax Kw'alaams Band, stated that "Any development can only take place if the necessary environmental protections are in place and this is an important step in that direction."

The key weakness of this approach is the considerable amount of resources that would have been required by all parties to implement this Agreement. While there are many ways this could be addressed (e.g. increasing governments' resources, requiring proponent financial contributions, etc), it would currently not be feasible to have this same type of agreement/committees for every major natural resource development due to budgetary and personnel constraints. Various other challenges include the lack of coordination among various similar agreements that relate to the same Indigenous groups and/or resource development projects, lack of clarity around potential conflicts of interest of parties on the committee, lack of independent technical experts on the committee, and lack of public representation. The concept of this type of committee would be improved if conflicts of interest were clearly identified at the outset for all parties, and if public and expert members were included to incorporate persons that are knowledgeable and independent. These public and expert members would represent the public of BC, have no other conflicts of interest or agenda in terms of use of the land, and their sole responsibility on the committee would be considering protection of the environment/conservation. These weaknesses could all be addressed by a regional model in which a single committee could oversee multiple projects at a regional level, as opposed to a project-specific or Indigenous group specific approach. Through a regional model, a committee could be established with federal government, provincial government, municipal government, Indigenous groups, independent experts and members of the public to oversee the development of the riskier resource development in that region.

Table 11 provides an overview of the means by which the ten effectiveness criteria are addressed for Government of BC- Lax-Kw'alaams, Metlakatla in relation to the Environmental Monitoring Agreement.

Table 11. Focused research and interview responses to effectiveness criteria questions for Government of BC- Lax-Kw'alaams, Metlakatla, in relation to the Environmental Monitoring Agreement. Shading identifies those criteria for which elaboration is provided in the sections below (Part 1 of 2).

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	Requirements of qualifications for QPs are specified within the Environmental Monitoring Agreement (Agreement), in the BC Environmental Assessment Certificate (EAC), and in the Federal EA Decision Statement. The Agreement references the EAC and the Federal EA Decision Statement when defining the IEM; as such, the requirements and definitions for QPs and IEMs specified in these documents are also a component of the Agreement. The Agreement also generally defines the qualifications of the Coast Tsimshian Monitor (CT Monitor).
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	The Agreement and the associated provincial and federal EA approvals provide clarity on the IEM and CT Monitor's functions, responsibilities, and objectives. These documents also provide details on requirements of work products.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	The Agreement was negotiated to provide clarity on how the Federal and Provincial Regulatory Authorities and the IEM would work with Lax Kw'alaams and Metlakatla to coordinate the environmental monitoring and regulatory oversight of the PNW Project. Many of the activities that the PNW Project is required to complete under federal and provincial regulatory requirements must be, or typically are, conducted by a QP.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	While the Agreement does not provide formal procedures for the certification of QP products, there are formal procedures in some regulatory authorizations for the approval of various management plans and programs developed by QPs.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	While the EAC and Federal EA Decision Statement do not address conflict of interest directly, the Environmental Assessment Office has a guidance document about IEMs that addresses the question of "How can IEMs be independent if they are paid for by the Certificate Holder?" (http://www.eao.gov.bc.ca/files/EAO-EM-and-IEM-Bulletin.pdf)

Table 11. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	While the Agreement does not provide requirements for record keeping, disclosure, and transparency in relation to QP products, the EAC and federal EA decision statement provide requirements. Both the EAC and the Federal EA Decision Statement specify the length of time for which reports must be retained, who must have access to them, and the time frame within which they must be provided.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	Not addressed
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	The Agreement, Federal EA Decisions Statement, and EAC all address the requirement for the IEM to report occurrence(s) of non-compliance. These documents specify to whom this reporting must occur and the time frame within which it must occur.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	The Agreement is in place in large part to provide oversight and review of activities typically conducted by QPs. Through the Agreement, the Environmental Monitoring Committee, Technical Committee, CT Monitor, and IEM all have roles in reviewing what is often QP products (see also Question #10).
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	The Federal and Provincial agencies have formal responsibility to conduct compliance and enforcement. The proponent is required to conduct monitoring as established by multiple requirements in the federal and provincial authorizations. Through the Agreement, the Environmental Monitoring Committee, Technical Committee, CT Monitor and IEM all have roles to inform compliance oversight by the regulatory authorities.

4.5.2. Notable Features

4.5.2.1. Who is qualified

Requirements of qualifications for QPs (i.e., the IEM) are specified within the Agreement[28], in the Provincial Environmental Assessment Certificate (EAC), and in the Federal EA Decision Statement. The Agreement provides clarity on IEM qualifications, and, because the Agreement references the EAC and the Federal EA Decision Statement, both of which also specify IEM qualifications, the requirements and definitions of these documents are also a component of the Agreement. In addition to the specific requirements relating to the IEM who must be a QP, the Federal EA decision statement specifies that 'qualified individuals' must be used to complete the activities required by the authorization. While the provincial EAC does not specify the use of a QP other than for the IEM, most proponents retain QPs to conduct the various activities required by the EAC.

While the BC EAC did not require provincial approval of the selection of the IEM (although this is now a standard requirement in EACs), the Federal EA approval and the Agreement provide a role for the governments and Indigenous groups to inform the selection of the IEM. The Federal EA

approval required that the proponent was required to make reasonable effects to obtain the approval of the Lax Kw'alaams Band, the Metlakatla First Nation, the British Columbia Environmental Assessment Office and the Agency for the retention of the service of an IEM, and specified contingencies if no agreement could be achieved. The Agreement also specified the involvement of the EMC and Pacific NorthWest (PNW) in the appointment of the IEM, and addressed the process that would be invoked if the IEM required replacing.

While not necessarily a QP, the Agreement provides for a Coast Tsimshian Monitor (CT Monitor) which works alongside Regulatory Authorities and the IEM. Through the Agreement, the CT Monitor is required to have demonstrated experience in and knowledge of environmental monitoring and have neither a real nor perceived conflict of interest in the Project.

4.5.2.2. Functions, responsibilities, and objectives

The Agreement and the associated provincial and federal EA approvals provide clarity on the functions, responsibilities, and objectives of the IEM. For example, the Agreement specifies IEM responsibilities regarding preparation and submission of reports, compliance with environmental assessment, stop work authorization, and roles and responsibilities in relation to permits, authorizations, licenses, or other approvals or amendments. The Provincial EAC and/or the Federal EA Decision Statement also provide clarity on the role of the IEM including stop work authority, commitments and responsibilities to carry out mitigation measures, coordination between the IEM and other monitoring activities, and reporting requirements.

In addition to the IEM requirements, both EA approvals provide detail on the requirements of work product typically conducted by QPs (e.g., development of management plans, development and implementation of monitoring programs). For example, the provincial EA requires the development of a Vegetation Buffer Management Plan, which would typically be developed by a QP, with details specified including plan objectives, timelines, and conditions for plan submission for review, submission to EAO, approval, and implementation.

4.5.2.3. Role reserved for government

The Agreement was negotiated to provide clarity on how the Federal and Provincial Regulatory Authorities and the IEM would work with Lax Kw'alaams and Metlakatla to coordinate the environmental monitoring and regulatory oversight of the PNW Project. Many of the activities that the PNW Project was required to complete under federal and provincial regulatory requirements must be, or typically are, conducted by a QP.

The Agreement established roles for the EMC and Technical Committee in assessing, regulating, and overseeing various work activities typically conducted by QPs. The EMC consisted of one senior representative each from the Metlakatla and Lax Kw'alaams First Nations, and one senior representative each from the Governments of British Columbia and Canada. The purpose of the EMC was to ensure oversight of environmental and compliance monitoring, management plans, and follow-up program requirements. Key responsibilities included receiving recommendations from the

Technical Committee, being the decision maker on matters and recommendations within the scope of the Agreement, approving the appointment of any IEM in conjunction with PNW, and providing recommendations on PNW's environmental performance and any additional actions the Committee deemed necessary. While consensus was established as to the goal in the Agreement, the regulatory authorities retained full authority to make decisions within their mandates.

The Technical Committee was established to coordinate and collaborate on environmental and compliance monitoring related to construction and operation of the PNW Project and the Agreement specified its composition and clearly established its roles and responsibilities in support of the EMC. Responsibilities of the Technical Committee included coordination of management plans and programs as well as monitoring and compliance oversight, review of results of monitoring, monitoring effectiveness of implementation of regulatory requirements, information sharing, making recommendations and providing advice to regulatory authorities, and collaboration on potential solutions to environmental problems.

4.5.2.4. Monitoring, compliance and enforcement

Compliance was central to the Agreement. Through the Agreement, the Environmental Monitoring Committee, Technical Committee, CT Monitor and IEM all had clear roles to inform compliance oversight by the regulatory authorities[28].

A component of the role of government (Section 4.5.2.3) was monitoring, compliance, and enforcement. Key components of the discussions during the development of the Agreement involved ensuring that government agencies were unimpeded in their abilities to conduct effective compliance and enforcement and ensuring administrative fairness to the proponent. In order to ensure that compliance and enforcement was appropriately considered in the Agreement, the Environmental Assessment Office's Director of Compliance and Enforcement and other parties with relevant knowledge were involved in the discussions. Key provisions that were included in the Agreement included providing clarity on: definitions for compliance related terms; the intention and limitations of advice; advisory vs. decision-making roles; requirements regarding communication of information; and the ability of Regulatory Authorities to take action.

4.6. Ontario – Ministry of Environment and Climate Change

4.6.1. Overview of professional reliance model

In Ontario, the Ministry of Environment and Climate Change (MOECC) has regulations that stipulate who are "qualified persons" and what their functions, responsibilities, and objectives are. Engineers and Geoscientists are validated with licensing bodies that have requirements for obtaining a license. These licensing bodies have a complaint process by which misconduct is investigated. The Ministry does not regulate the licensing bodies, but works with them when creating policy. The Ministry reviews QP work and can accept it or reject it and may perform a random sampling of audits on QP work.

Strengths of this model identified by the interview respondents include clarity on qualifications when a licensing body regulates the QP and clarity on functions, responsibilities, and objectives that are set forth in regulations or statutes. A potential weakness of this model identified was that the use of QPs must be accompanied by corresponding expertise and resources within the Ministry or agency that reviews or accepts the QP work product. The potential utility and reliability of the QP approach is undermined if the Ministry lacks the funding and staff to do the necessary review at the appropriate level of detail. Superficial desktop reviews are not sufficient to ensure work quality and validity, but substantive reviews, along with field site visits in some cases, are required. Further, it was noted that the ability of government reviewers to do their job is significantly enhanced where there are opportunities for review/comment by other interested parties, such as environmental groups, municipalities, or Indigenous communities (provided that they have their own resources to retain the technical/scientific expertise needed to provide meaningful input). One respondent is aware of situations where serious environmental issues were missed, glossed over, or discounted by government reviewers until experts waded in and pointed out the problems in the QP work. The respondent indicated that if such problems persist, the interested/affected persons should have the opportunity to appeal the matter to an independent, specialized adjudicative body that holds a public hearing and renders a decision on the technical/scientific issues in dispute.

An interview respondent also identified general problems with the "streamlined" approvals reform now underway in Ontario that is intended to reduce or allow reallocation of MOECC staffing/resources and thereby increases the overall reliance on the proponent's QP's. For certain prescribed activities/projects, site-specific approvals are no longer required; instead, the proponent simply registers his/her facility with MOECC, then complies with generic standards set out by regulations. Although this approach may have merit in some cases, its use should be risk-based: while it may be appropriate for benign or environmentally insignificant activities (with no or low risk of off-site harm), it may not be appropriate for others that have greater potential for adverse consequences.

Table 12 provides an overview of the means by which the ten effectiveness criteria are addressed for Ontario MOECC.

Table 12. Focused research and interview responses to effectiveness criteria questions for Ontario MOECC. Shading identifies those criteria for which elaboration is provided in the sections below. (Part 1 of 2)

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	Requirements for qualifications vary by the discipline, topic, and sector. Some disciplines are regulated by a licensing body requiring specific qualifications. Some orders issued under the EPA, or certain types of licenses/approvals, have specific qualification requirements. It is more difficult to ensure qualifications when there is no licensing body.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	Resource management or environmental objectives are often set out by regulations or statutes. For instance, O. Reg 1/17 defines the functions and responsibilities of a QP. The Ministry also works with regulating bodies (e.g., Professional Engineers) to develop practice standards for work.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	The government's role in accepting the QP product depends on the related regulation. QP work products must be submitted to the Ministry and the government is free to accept/reject QP products, or to require further work, information, or analysis.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	Regulations set out the procedures and rules for certification of the QP products (i.e., O. Reg 1/17 and O. Reg 153/4). The Ministry specifies that a report must be sealed. Practice guidelines (e.g., PEng) set out by the regulating body specify what is required when signing and sealing reports.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	Where there is a regulating body (e.g., PEng and PGeo statutes), conflict of interest is addressed by this body. In some cases legislation does specifically address conflict of interest (e.g., O. Reg 1/17; acoustic assessment reports). In general, because a QP is conducting work on behalf of the person or company they were retained by, it is understood that the work should be critically, objectively, and independently examined by MOECC staff.

Table 12. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	Requirements for record keeping and transparency are specified in the regulations. Under the EPA any information presented at the time of registration that is not sensitive/private is made public online through Access Environment. Some issues have been noted with key supporting information being missing and difficult to access.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	The Ministry does not specify requirements for insurance for QPs. The Professional Engineers Act specifies that if an engineer is providing service to the public, insurance is required unless the client is informed previous to accepting the job. The licensing body requires insurance prior to issuing a certificate of authorization.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	Whether a QP is duty-bound to report enviro incidents or non-compliance depends on the sector. For example, adverse drinking water test results need to be reported by private labs to the MOECC. A duty to report is specified in the regulations for PGeos and PEngs if they become aware of anything that could endanger public health or safety.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	The approach to auditing (who conducts the audits and how auditing is triggered) is dependent on the regulation. Audits may be conducted through a multilayered approach in which the audit is initiated by the Environmental Officer and additional review is conducted by a third party professional if deemed necessary.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	In general, monitoring/reporting conditions are built into the environmental approvals/orders; some are complaint-based and others are planned regular or systematic inspections. This work is typically done by a QP and is presumably reviewed by MOECC upon receipt. Compliance/enforcement activities by the MOECC are discretionary and depend upon a variety of factors.

4.6.2.Notable Features

4.6.2.1. Who is qualified

Requirements for qualifications depend on the discipline, topic, and sector. Some disciplines are regulated by a licensing body requiring specific qualifications (e.g., Professional Engineers). For brownfields work, Part XV.1 (records of site conditions) of the *Environmental Protection Act* (EPA) (1990)[29] requires a "qualified person" to evaluate the likelihood for impacts due to contamination and qualifications are set out in O. Reg 153/04[30,31]. For drinking water testing, private labs must be

[29] https://www.ontario.ca/laws/statute/90e19

[30] https://www.ontario.ca/laws/regulation/040153

[31] https://www.ontario.ca/page/brownfields-redevelopment

duly certified and accredited, as per *Safe Drinking Water Act* (2002)[32]. The *Ontario Water Resources Act* (1990)[33] and regulations set out licencing qualifications for persons who do well-related work. Under the EPA supporting documents, certain types of approvals are required to be prepared by a qualified consultant (e.g., Professional Engineer (PEng) or professional geoscientist (PGeo)). As another example, groundwater studies/modelling in support of a landfill application are typically prepared by a hydrogeologist licenced under the *Professional Geoscientists Act* (2000)[34]. Some orders issued under the EPA, or certain types of licenses/approvals, require the retention of a specifically qualified consultant. The interview respondents acknowledged that it is more difficult to ensure qualifications of a QP when there is no licensing body.

4.6.2.2. Role reserved for government

The government's role in accepting the QP product depends on the related regulation. For instance, O. Reg 153/04 states who is qualified to do brownfield's work but they still must submit to the Ministry. For O. Reg 1/17[35], the proponent has the PEng prepare the report and have it available for audit on Ministry request. The Ministry relies on the engineer to register and do the work properly. If audit (see Section 4.6.2.1) reveals a major issue with the work, a complaint process would go through the licensing body. For minor issues, the Ministry would ask the proponent to have the report amended. In general, the government is free to accept/reject QP products, or to require further work, information, or analysis. In practice, however, sometimes more work is required by MOECC and sometimes inadequate/incomplete work is accepted, which puts the onus on concerned citizens to retain their own experts to respond to and/or highlight problems, or to utilize statutory appeal mechanisms (e.g., appeal an MOECC approval decision to the Environmental Review Tribunal) in order to ensure accountability, transparency, credibility, etc.

4.6.2.3. Formal procedures and clear rules for certification

Procedures and clear rules for certification of QP products are specified in some regulations (e.g., O. Reg 1/17 and O. Reg 153/04). In such cases the Ministry specifies that a report must be sealed and the licensing body (e.g., for PEng and PGeo) specifies what is required when signing and sealing a document (i.e., practice guidelines specify the signing and sealing of reports). There are some instances where MOECC has promulgated guidance materials to provide direction to a QP on what should be included in reports (e.g., hydrogeo studies of landfills). Additionally, under the EPA for self-registration for low risk projects, PEng or PGeos are required to take responsibility for the report and sign off as a self-registration process.

[32] https://www.ontario.ca/laws/statute/02s32

[33] https://www.ontario.ca/laws/statute/90o40

[34] https://www.ontario.ca/laws/statute/00p13

[35] https://www.ontario.ca/laws/regulation/170001

4.6.2.4. Conflict of interest, self-interest and independence

Where there is a regulating body (Professional Engineers, Professional Geoscientists), conflict of interest and misconduct is addressed by this body (i.e., QPs are the responsibility of the regulating body and the Ministry is not responsible for them). However, in some cases legislation does specifically address conflict of interest. For example, in legislation for O. Reg 1/17, it states that a QP that prepares an acoustic assessment report cannot conduct the audit of that report if it is required.

In general, it is understood that a QP conducts work on behalf of the person or company who retained them. Thus, although this situation does not necessarily represent a conflict of interest, the QP is advancing the private or corporate interests of a proponent. Therefore, the findings, conclusions, or recommendations submitted by the QP should be examined critically, objectively and independently by MOECC staff. This is why accountability mechanisms (e.g., public notice/comment, appeals, etc.) are needed. In cases of clear professional misconduct, there are complaint procedures available under the P.Eng and P.Geo statutes.

4.6.2.5. Record keeping, disclosure and transparency

Requirements for record keeping and transparency are specified in the regulations. For example, O. Reg 1/17 requires that summary tables for air and noise be uploaded at the time of registration and become available for public access, and O. Reg 153/04 requires a public directory of site conditions. Some material is redacted. Under the EPA any information presented at the time of registration that is not sensitive/private is made public online through Access Environment. However, issues were noted with key supporting information being missing, difficult to access, or withheld for reasons of privacy which then require persons to file time-consuming FOI requests and appeals that may extend the retrieval of the requested information to beyond the typical 30 day public comment period. Such issues are less problematic under Ontario's EPA but have been a persistent concern for other types of statutory approvals/orders/registrations under environmental statutes.

4.6.2.6. Auditing and reviews of professional work product

Audits are conducted of professional work products, with the approach to auditing dependent on the regulation. It is usually decided at the time that a regulation is established who would conduct the audits and how it would be decided when audits would occur. For example, O. Reg 1/17 audits are conducted by PEng and are intended to be a random sampling of work; for O. Reg 153/04, PGeos would conduct audits. Audits may be conducted through a multilayered approach in which the audit would typically be started by the Environmental Officer, then if further investigation is required of technical reports, another engineer would be asked to conduct the review. Compliance is usually the trigger for audits.

4.6.2.7. Monitoring, compliance and enforcement

In general, monitoring/reporting conditions are built into the environmental approvals/orders. This work is typically done by a QP, and is presumably reviewed by MOECC upon receipt.

Compliance/enforcement activities by the MOECC are discretionary and depend upon a variety of factors (e.g., budget, annual work planning, staffing availability, MOECC priorities). In some instances MOECC investigations are complaints-based (e.g., water well program), while in other cases (e.g., drinking water treatment plants) the MOECC inspectors undertake planned visits on a regular or systematic basis, regardless of whether public complaints have been filed. The MOECC has developed a compliance/enforcement manual to help provide direction to abatement staff.

4.7. Canada - Department of Fisheries and Oceans Canada

4.7.1. Overview of professional reliance model

During work conducted by Department of Fisheries and Oceans Canada (DFO) in the application of the *Fisheries Act* (1985)[36], QPs are hired by the proponent of the project and thus the QP has a duty of confidentiality to the client, similar to the system in BC. The qualification requirements for QP registration are regulated/overseen by their professional associations (e.g., College of Applied Biology (CAB) in BC), and the colleges also review complaints and conduct audits of their members. However, DFO assesses the QP's work to ensure it meets regulatory requirements and to challenge it if needed, to ensure it accurately represents biological processes and the requirements of the guidelines (e.g., Request for Review (RfR) and Fisheries Act Authorization (FAA)). Further, all documents submitted to DFO can be obtained using the *Access to Information Act* (1985)[37]. Monitoring, compliance, and enforcement is conducted by DFO and DFO occasionally hires an independent QP to conduct an audit of monitoring programs.

A number of weaknesses in the current system were identified by the interview respondent. Firstly, the current professional reliance method was evaluated not to have the proper mechanisms in place to be effective. For example, there is a lack of QP training, QP audit, and QP tracking performance, which should be conducted by the professional associations (e.g., CAB). It was suggested that the QP associations should therefore do more in this regard (e.g., additional training, additional auditing of QPs, a better business bureau rating approach).

Other identified weaknesses and recommendations were related to availability of information, QP definitions, and certification of work. Compliance performance of proponents is not currently posted online (as they should be), a better definition of QPs is needed, as is a defined professional sign off requirement.

One strength of the current system identified by the respondent was the ability of industry to choose their own QPs. This was considered a strength because there are consequences inherent in this choice. If the proponent chooses an unqualified QP the review will be longer and more complicated; thus there is a deterrent to choosing an unqualified QP and an incentive to choosing a qualified one.

[36] http://laws-lois.justice.gc.ca/PDF/F-14.pdf

[37] http://laws-lois.justice.gc.ca/eng/acts/a-1/

Table 13 provides an overview of the means by which the ten effectiveness criteria are addressed for DFO.

Table 13. Focused research and interview responses to effectiveness criteria questions for DFO. Shading identifies those criteria for which elaboration is provided in the sections below. (Part 1 of 2)

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	The definition of a QP is vague within the guidelines for Request for Review (RfR) and Fisheries Act Authorizations (FAA) and is limited to a generic statement similar to provincial language (which varies based on the professional). However, while there is no specific regulation requiring a certain professional affiliation, it is expected.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	The roles and responsibilities of QPs (e.g., biologist, engineer) are provided in the guidelines for RfR and FAA. They are also provided in some of the *Fisheries Act* Authorizations (e.g., they must do the monitoring a certain way).
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	DFO's role is to assess the work provided by the QPs to ensure it meets regulatory requirements, and to challenge the work of QPs, as needed, to ensure it accurately represents biological processes, and the requirements of the guidelines (e.g., RfR and FAA).
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	There are no formal procedures or clear rules for certification of QP products.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	There is a conflict of interest as the QPs are hired by the proponent of the project. The interviewee did not have time to answer this question, so no additional information can be provided.
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	The QP has a duty of confidentiality to the client but all documents submitted to DFO (e.g., for a project) can be obtained using the Access to Information Act, which provides all Canadian citizens with the right to request records under the control of government institutions. The interviewee did not have time to answer this question to add additional information.

Table 13. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	The professional associations indicate that the QPs are responsible for arranging insurance to protect them against liability claims. The interviewee did not have time to answer this question to add additional information.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	The QP professional associations (College of Applied Biology (CAB), Engineers and geoscientists BC) specify that the QPs must report non compliance and/or unprofessional conduct of other QPs to governing bodies. The interviewee did not have time to answer this question to add additional information.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	DFO occasionally hires an independent QP to conduct an audit of monitoring programs for various proponents, which are triggered by the sensitivity of the project and/or the credibility of the results. In addition, DFO also conducts audits related to proponent compliance with the conditions of their FAA.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	DFO conducts both monitoring compliance and enforcement (different jobs with different staff - Fisheries Officers conduct enforcement, biologists conduct monitoring reviews). There are provincial and national strategies for monitoring of proponent projects. All projects with an FAA are submitted to monitoring reviews while only a few are submitted to enforcement actions. It is the monitoring review conducted by the biologist, which leads to enforcement actions.

4.7.2.Notable Features

4.7.2.1. Auditing and reviews of professional work product

Each year, DFO conducts a number of audits related to fisheries in Canada and DFO processes[38]. For example, in the past, an audit was conducted by DFO to assess the overall performance of industry in meeting the objectives of the *Fisheries Act* (1985). Once completed, audit reports are tabled at the Departmental Audit Committee (DAC) which is responsible for recommending these reports to the Deputy Minister for his approval. Once approved, the reports are available online[38].

On occasion, DFO hires independent QPs to conduct an audit of monitoring programs and/or compliance with *Fisheries Act* (1985) conditions for a specific project. In BC, these audits are usually conducted by KPMG, a specialized audit and assurance firm, whereas in other provinces, the audits may also be conducted by environmental consultant companies. For example, in Alberta, DFO has retained QPs from an independent environmental consulting company to conduct audits of the monitoring programs and offset measures implemented by oilsands companies to ensure they conform with the conditions of their FAAs[39].

[38] http://www.dfo-mpo.gc.ca/ae-ve/audits-verifications-eng.htm

[39] Girard, I. 2018. Personal experience.

In general, DFO audits, which are a rare occurrence, are triggered by the sensitivity of the project (e.g., public pressure, Project size, scale of impacts) and/or the credibility of the results provided the proponent's QP.

4.7.2.2. Monitoring, compliance and enforcement

Fisheries and Oceans Canada (DFO) conducts both compliance monitoring and enforcement tasks related to the application of the *Fisheries Act* (1985) and other regulations and legislation, within Canada[40]. The monitoring compliance is conducted by DFO biologists whereas the enforcement activities are carried out by DFO fishery officers.

There are provincial and national strategies for monitoring of proponent projects. For example, the 2017-2018 Departmental Plan indicates that DFO is "advancing its monitoring modernization initiative to enhance the analysis and reporting of ongoing compliance and effectiveness monitoring. This includes developing standardized national procedures to track and analyze information provided by proponents and report semi-annually in support of the Government of Canada's commitment to incorporate modern safeguards"[41].

The fisheries monitoring programs conducted for all projects with an FAA are submitted to DFO for review. Usually the review is a desk top exercise but in some cases a DFO biologist investigates the project in the field before the FAA is submitted and is more involved in the FAA with the QP. For each Project, the DFO biologist conducts an intensive review of the Project's impacts on fish and fish habitat, as documented by the QP on behalf of the proponent or by the proponent.

Enforcement occurs when a monitoring review conducted by a DFO biologist detects contraventions to the *Fisheries Act* (1985) legislations and/or the conditions of the Projects FAA. Enforcement activities are carried out by Fishery Officers in Conservation and Protection detachments across Canada who conduct regular patrols on the land, on the sea and in the air, but also respond to DFO biologist reports on project proponent contraventions[42]. Potential penalties for contravening the *Fisheries Act* (1985) include a minimum fine of $500,000 for large corporations and a maximum fine of $6 million (on indictment[43]).

4.8. BC - Ministry of Health

4.8.1.Overview of professional reliance model

QPs in the BC Health system are referred to as registrants. In general, registrants are regulated by the profession-specific colleges; however, an administrative tribunal, the Health Professions Review Board (HPRB), can also provide independent review of some decisions made by the colleges in the

[40] http://www.dfo-mpo.gc.ca/fm-gp/enf-loi/index-eng.htm

[41] http://www.dfo-mpo.gc.ca/rpp/2017-18/dp-eng.html

[42] http://www.dfo-mpo.gc.ca/fm-gp/enf-loi/index-eng.htm

[43] http://www.canadianlawyermag.com/author/jennifer-brown/new-fines-policy-in-place-for-fisheries-act-2275/

regulation of QPs. Regulations set the broad scope of practice and colleges specify additional profession-specific conditions through their bylaws. These may vary substantially based on profession-specific considerations such as risk. The government does not regulate the colleges and it is highly unusual for government to intervene in the regulation of QPs (discipline matters); however, it has the power to intervene if needed.

Substantial changes to the BC health system are relatively recent and occurred when, in approximately 2002, separation of the roles of regulatory functions (colleges) and advocacy functions (associations) allowed the colleges' duty to be unambiguously and solely to the public (as per the *Health Professions Act* (HPA) (1996)[44] section 16 which specifies that it is unlawful for a college to act in a manner that falls outside of its duties or objectives). This was not historically the case and it was considered a conflict of interest for an association to discipline members. Another recent change to the previous system (from 2001 to 2011)[45] was that individual profession-specific statutes were repealed and most regulated health professions were brought under the 'umbrella' legislative framework of the HPA. The nested regulatory approach has substantial advantages including that it is easier and less complicated to have one piece of legislation with regulations nested under it and that it allows a move to a shared scope of practice. The nested regulatory approach allows the kinds of restrictions/conditions to be separated by scope as appropriate based on risk and on profession-specific issues.

A weakness of the current system identified by the interview respondents was the potential for confusion regarding the board. Each college board is comprised of a number of registrants, that are elected by the pool of registrants, and by government appointed persons. Both mechanisms, election by registrants and appointment by government, reduce the effectiveness of the board in serving the interests of the public (which is its role). This is because when a member is elected, there is often a misunderstanding that the person elected must "represent" the people who elect them. Further, a politically appointed member may incorrectly believe that they must represent the Minister/government that appointed them. A better system advocated by the respondents would be to populate boards on a core set of three types of attributes: 1) attributes every member must have; 2) attributes the collection of members must have together; 3) attributes appropriate for the issues faced by board. These attributes would be assessed by an independent body (independent of government and of the profession) and, although there would still be registrants and public elements within the board, this independent body would determine the persons on the board. Having an independent group separate from government and not elected could help to remove misconceptions related to election and appointment.

[44] http://www.bclaws.ca/civix/document/id/lc/statreg/96183_01

[45] https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/professional-regulation/legislative-reform

A second weakness was identified by the respondents as the large number of regulatory colleges (22), which is not a weakness of the model *per se*, but a weakness in its implementation. Having a large number of regulators has many drawbacks, including unnecessary expense and complexity, as well as lack of collaboration or connectedness which hampers regulation of professionals that may need to work as a team and may in some cases have overlapping roles (i.e., for a shared scope of practice). In comparison, the UK health sector (Section 4.9) has only nine regulators, and even they are proposing significant reforms including a decrease in this number.

Another limitation of the current system identified by the respondents is a lack of capacity. The professional regulation and oversight team responsible for policy and oversight of the existing regulatory model (Professional Regulation and Oversight Clinical Integration, Regulation and Education Division; i.e., members of which were the interview respondents) has increased from two to 15 persons in just four years. However, the respondents indicated that team it is still not adequately dealing with its responsibilities. This is partly a function of the complexity of the regulatory model and partly owing to insufficient capacity to establish a comprehensive model of oversight. For example, an assessment program to allow evaluation of whether or not colleges are performing all of their duties and performing them well does not yet exist. Although power to do so is there, the capacity is lacking. As a consequence the team is currently largely reactive. Thus confidence is lacking that colleges are functioning as they should (achieving their functions and performing them well) and it is also not known if exercising their functions is achieving the intended outcomes.

The main strength of the system was identified by the interview respondents as having a single piece of legislation for all health professions. Separate legislation for each profession is seen as not effective for providing consistent comparable flexible regulation. This is especially important within the health professions because separate legislation reinforces separateness rather than inter-professional communication, and this is detrimental when there are overlapping roles among professions. Further, having a small number of regulators helps to clarify the roles of the regulators (i.e., easier to remain clear on the colleges responsibility). This is partly due to perception, but is also a real effect because if a particular board is responsible for a single profession it is more likely to allow confusion regarding whether it is acting for the public or for the professions than if a single board is responsible for ten professions. As discussed above, separation of the roles of regulatory functions (colleges) and advocacy functions (associations) was also considered highly important by the interview respondents.

Table 14 provides an overview of the means by which the ten effectiveness criteria are addressed for BC Health.

Table 14. Focused research and interview responses to effectiveness criteria questions for BC Health. Shading identifies those criteria for which elaboration is provided in the sections below.

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	The regulatory colleges have delegated responsibility from the government to ensure that registrants (QPs) are qualified to practice. Regulations set the broad scope of practice for QPs, and colleges can specify additional profession-specific conditions through their bylaws. Colleges also have responsibility to investigate matters such as complaints and disciplinary actions. The government does not regulate the colleges and it is highly unusual for government to intervene; however, they have the power to intervene if needed.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	Professional Standards, which are college-specific, and required to be established and maintained by the HPA, provide guidance on responsibility.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	See responses to Question #1 and Question # 9. The colleges have delegated responsibility from the government for such oversight.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	Accountability for service is addressed in the Practice Standards.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	The establishment of standards of professional ethics for registrants, including standards for the avoidance of conflicts of interest, is required by the HPA. Provisions regarding conflict of interest are addressed in bylaws, and vary depending on profession and college and in what they require and address.
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	The Health Professions Review Board is subject to the Freedom of Information and Protection of Privacy Act and the regulations under that Act. If a member of the public requests access to records about a review, access may be given unless the information falls under an exception to disclosure in the Freedom of Information and Protection of Privacy Act or the Administrative Tribunals Act.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	All colleges have bylaws regarding liability insurance. However, colleges vary in the requirement for how this is achieved and the level of insurance required. The amount of specificity and details of insurance requirements vary by college in accordance with assessed risk and likelihood of insurance needs and this is reflected in the bylaws and they also consider national consistency when setting insurance requirements.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	There is a legislated obligation (specified within the HPA) for a registrant of a college to report to any college if they have concerns about competence, ethical nature, or impairment of practice of another registered professional. Thus, if a registrant was aware of a situation and did not report, they could be held accountable by their college. However, this obligation relies on professionals to follow through on their responsibilities and the extent to which it is upheld is unknown.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	Audits may target professional obligations as well as professional work products. They may be triggered by complaints and are also conducted as part of the college's quality assessment program which includes competency review (thus serving a different function). The mechanisms by which audits are triggered and conducted, as well as audit frequency and targets, are college-specific and vary in accordance with risk and other factors. Audits are usually conducted by college staff.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	See Question #9 for monitoring of work and obligations through audits and Question #1 for general regulation of quality control.

4.8.2.Notable Features

4.8.2.1. Who is qualified

Ensuring QP ("registrant") qualifications is the responsibility of the regulatory colleges, which have delegated responsibility from the government to ensure that registrants are qualified to practice. There are 26 regulated health professions in British Columbia, of which 25 are self-regulating professions governed by 22 regulatory colleges (e.g., college of registered nurses)[46]. Each college has a board that includes members elected by its peers (registrants) and public members appointed by government. The HPA[44] specifies (section 16.2) various objectives of the college to ensure qualification of registrants (e.g., to establish, monitor and enforce standards of practice to enhance the quality of practice and reduce incompetent, impaired or unethical practice amongst registrants; to establish and maintain a continuing competency program to promote high practice standards amongst registrants). The government does not regulate the colleges and it is highly unusual for government to intervene; however, they have the power to intervene if needed (see also Section 4.8.2.6) and they appoint public members to the college boards.

Requirements that ensure QP qualifications are college-specific and include a wide variety of mechanisms. Colleges set the requirements (standards/conditions) for qualifications of QPs. For example, they may include requirements for education, entry to practice requirements, or continuing competency requirements. Regulations set the broad scope of practice for QPs, and colleges can specify additional profession-specific conditions through their bylaws (each college has its own set of bylaws) that specify requirements or confine allowable activities. For example, regulation may say who can perform a particular professional activity (e.g., inject, cut) and college can narrow that down by specifying conditions (e.g., only with this particular training). Colleges also have responsibility to investigate matters such as complaints and to evaluate the need for disciplinary actions, and to apply such actions. In addition, the HPA[44] specifies that (section 25.2) that the board may appoint an investigating committee to evaluate whether a registrant has adequate skill and knowledge. All colleges have quality assessment programs which include competency reviews; however, colleges also have discretion in the means in which they implement this program (see also Section 4.8.2.5).

The HPRB is an administrative tribunal created under the HPA to provide an independent review of certain decisions made by the self-governing colleges of designated health professionals (regarding the registration of their members and disposition of complaints) [47]. Through its reviews, early resolution processes and hearings, the Review Board monitors the activities of the colleges' complaints inquiry committees and registration committees, in order to ensure they fulfill their duties in the public interest and as mandated by legislation, and provides a neutral forum for members of the public as well as for health professionals to resolve issues or seek review of the colleges' decisions. However, the operation of the HPRB is not related to government oversight. In

[46] https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/professional-regulation

[47] http://www.hprb.gov.bc.ca/

contrast, although government oversight and intervention of the colleges is highly unusual and the provisions for this are designed as a "safety net" rather than an expected occurrence, the HPRB is set up specifically to exercise its authority whenever asked to (note that it would not be government requesting this but members of the public, registrants, etc).

4.8.2.2. Conflict of interest, self-interest and independence

The establishment of standards of professional ethics for registrants, including standards for the avoidance of conflicts of interest, is required by the HPA[44] (Section 16). Provisions regarding conflict of interest are addressed in bylaws, and vary depending on profession and college (are college-specific) and in what they require and address. Each profession has different conflict of interest issues. Thus, sometimes standards are set in bylaws sometimes not, this is up to the college and depends on the issues that need to be addressed. What is addressed in bylaws and what is not is related to risk as well as to professional conduct. Some bylaws set up standards for professionals that may include requirements on a variety of topics (e.g., including what they may advertise, what they may put on their website).

4.8.2.3. Civil liability, insurance and bonding

The HPA[44] specifies that a college board may make bylaws including setting requirements for establishment of amounts of professional liability protection or insurance coverage that health profession corporations must carry or provide to their employees. As such, all colleges have bylaws regarding liability insurance. However, colleges vary in the requirement for how this is achieved and colleges are also free to determine appropriate level of insurance. For example, some colleges require the professional to have liability insurance or require that their organization or employment must provide that for them; some colleges specify the mechanism for how insurance must be obtained and others do not specify such details. The amount of specificity and details of insurance requirements vary by college in accordance with assessed risk and likelihood of insurance needs and this is reflected in the bylaws. This approach is consistent with the concept of "right-touch regulation", which is the use of only the amount of regulatory force necessary to achieve your objectives. Colleges also look across Canada when setting insurance requirements to provide national consistency. It is important to note that if damages are sought against a professional, this does not involve the college. The college only deals with issues that are regulatory and practice-based; for example, if there is complaint against a registrant this is the responsibility of the college, but if damages are sought this is outside of their scope of responsibility.

4.8.2.4. Duty to report

Duty to report is specified in the HPA[44] (Section 32.2): "A registrant must report in writing to the registrar of an other person's college if the registrant, on reasonable and probable grounds, believes that the continued practice of a designated health profession by the other person might constitute a danger to the public." Thus, there is a legislated obligation for a registrant of a college to report to any college if they have concerns about competence, ethical nature, or impairment of practice of

another registered professional. Further, colleges have a code of conduct. As a consequence, if a registrant was aware of a situation that might constitute a danger to the public, and didn't report on this, they could be held accountable by their college. However, this obligation relies on professionals to follow through on their responsibilities, and the effectiveness of these requirements has not been determined. Requirements for duty to report within the HPA highlight the need for separation between the associations and the colleges, because the duty of the colleges is to the public not the registrants. If there was no such separation, it is more difficult for the public to trust that the regulator is acting in the interest of the public rather than in the interest of the professional.

4.8.2.5. Auditing and reviews of professional work product

Conducting audits of registrants is a routine part of college business. Audits may target professional obligations as well as professional work products (e.g., physicians targeted for audit may have a patient's chart pulled and inspected for quality and competency). Audits may be triggered by complaints and can also be conducted as part of a college's quality assessment program which includes competency review; however, they are only one of the means by which to achieve assessment program objectives. A quality assessment process is used to help registrants of the college identify any gaps in knowledge and training and provides advice on how to fill those gaps (it should be noted that, because the term "audit" tends to have a punitive connotation, this term is generally not used for this function). Although every college conducts audits, the mechanisms by which audits are triggered and conducted, as well as audit frequency and targets, are college-specific and vary in accordance with risk and other factors. Some colleges may, for example, choose random audits of professional work, and others may choose to conduct regular quality assessment tests. Colleges have discretion to implement those mechanisms that best ensure quality control given their particular situation. Colleges also differ greatly in their level of resources (given that the number of their registrants ranges widely), which affects their capacity for conducting audits. When audits are triggered by complaints, a particularly thorough audit may be conducted.

4.8.2.6. Government Oversight of Associations

Although government does not regulate the colleges, it does have oversight capacity enabled through its authority to intervene. Each college has its own set of bylaws that the government can review, reject, request changes to, or impose changes on. The government also has the ability to conduct an investigation or cause an investigation to take place, and as a result can provide direction to the board without limitation. The government was also recently given an additional power: the government now has the authority to appoint an administrator to take over the role of the board provided that this is done only if the public interest is at risk. This ultimate safeguard is intended to be exercised only if every other means has failed to protect the public interest.

4.9. United Kingdom - National Health Service

4.9.1. Overview of professional reliance model

Health professionals in the UK (Accredited Registers) are regulated by nine statutory bodies (referred to as registers or regulators). These regulators set the standards for professional qualifications which are profession-specific. The regulators devolve standards to the Medical Royal Colleges and each of these sets requirements for training and examinations. In addition, an independent body (independent of government and NHS), the Professional Standards Authority (PSA), has been established to oversee the regulators and ensure that the regulator is accountable to the public. The PSA was created to form a buffer between the government and the regulators. It assesses the performance of each regulator, has the legal power to challenge their positions in court, and is accountable to the Parliament. The regulators pay for the PSA thus there is no direct cost to government. Apart from the Royal Colleges there are the professional Associations (e.g., British Medical Association) which are trades unions, although they are also involved in research and standards. They do not regulate or certify doctors. The UK health system is similar to the BC health system in that there is a nested regulatory approach: there is overarching regulation that applies broadly, and there are bylaws and rules that govern the finer scale aspects of profession-specific requirements.

A strength of the system was identified by the respondent to be the composition and means of selecting the individuals that establish the board of the Colleges (i.e., the regulators). In contrast to BC, where College boards are either elected by registrants or appointed by government (Section 4.8.1), the selection of board members in the UK is entirely competency based. Boards are composed of members of which 50% are professionals and 50% are members of the public, and vacancies on the boards are advertised and treated like job applications and appointments are made based on merit (i.e., qualifications). Further, the PSA prescribes a set of standards for the appointment process and confirms that any appointment was conducted in accordance with this process and was fair and merit-based. This process avoids the problems encountered in the BC system associated with confusion around the purpose of the board, which, contrary to the understanding of many, is to serve the public rather than the profession or the government (Section 4.8.1).

A second strength was identified by the respondent as the nested approach to legislation. It was a general recommendation of the respondent that primary legislation (i.e., overarching legislation) be as unrestrictive as possible, that it be enabling rather than prescriptive, and that it aim to provide maximum possible flexibility. Further, it was recommended that legislation be risk-based such that strong regulation is used for aspects that entail significant risk. Secondary legislation, such as rules and bylaws which are more easily changed, can then be more prescriptive and profession-specific. These could be controlled by the government or delegated by the government to a regulator. The reasons for this nested and risk-based approach are multi-fold. Firstly, regulation has a significant cost paid by the individual and industry and eliminating all risk is not feasible; thus development of regulation should be risk-appropriate (e.g., focus regulation most effectively on areas where this is

justified by risk). Further, given that innovation continually requires changes, flexibility is a key requirement when designing regulation and a view to the future is critical. Finally, similar to recommendations from BC health, it was recommended that there is a move away from single profession regulators to regulation of the industry as whole. Given that people work in teams and different professions may share roles and responsibilities, collaboration and connectedness is a requirement and it is therefore detrimental to have occupation-specific regulations. A weakness identified for the UK health system, was that in spite of these achievements, it is still considered too rigid and occupation-specific, and, as such, is undergoing work on modernization.

Table 15 provides an overview of the means by which the ten effectiveness criteria are addressed for UK Health.

Table 15. Focused research and interview responses to effectiveness criteria questions for UK Health. Shading identifies those criteria for which elaboration is provided in the sections below (Part 1 of 2).

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	Nine statutory bodies (Councils) regulate health professionals in the United Kingdom (UK). Their main function is to maintain standards; they also maintain a list of medical practitioners who are allowed to practice. The regulators devolve standards to the Medical Royal Colleges and each of these sets requirements for training and examinations. Where occupations are not subject to statutory regulation, the Professional Standards Authority (PSA) sets standards for those organisations that hold voluntary registers and accredits those that meet them.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	QP functions, responsibilities, and objectives are set out in the professional standards produced by the registers. There are two components to the standards: standards of behaviour, which applies fairly broadly to health professionals, and standards of practice which vary among occupations.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	The statutory bodies have delegated responsibility from the government for such oversight. The regulators govern the QPs and their work products, and the PSA oversees the regulators to ensure that they are effective.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	Accountability is addressed in the Professional Standards.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	Conflict of interest issues in health care (e.g., professionals having shares in pharmacy companies or in research, acceptance of gifts from patients or colleagues, conference paid for by industry) must always be declared. This is addressed through strict rules specified by the Department of Health and by regulators that specify that this guidance must be followed. If conflict of interest is breached, there are strict disciplinary proceedings.

Table 15. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	Information can be requested from the PSA under the Freedom of Information Act or Data Protection Act as can information about Government disclosure and financial information.
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	Requirements for insurance are specified by regulators. Regulations may specify the level of insurance but may not be that specific, given that the requirements for insurance are risk-based and therefore vary greatly by profession.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	Professionals do have a duty to report on others, as well as on themselves, if they judge that a patient may come to harm. This is generally set out in standards of the regulators; however, a "duty of candor" is also specified in legislation that applies to the professionals own mistakes (i.e., covering up ones mistakes). These duties are hard to enforce in practice, but health professionals are increasingly recognizing that their duty is to public not to other professionals. The PSA also has a whistle-blowing policy: it describes a duty to report, and provides guidance on what types of concerns can be raised, the process that should be taken for internal and external concerns, anonymity, and where to find support.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	Auditing is conducted by the regulators Registers though a combination of random and risk-based selection. The risk-based component is informed by results of the annual performance review which each Accredited Register must conduct annually.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	See Question #9 for monitoring of work through audits and question #1 for general regulation of quality control.

4.9.2.Notable Features

4.9.2.1. Who is qualified

There are 24 regulated professions in the United Kingdom (UK) health care system and there are a further 45 occupations covered by accredited registers programs. The health professionals (Accredited Registers) are regulated by nine statutory bodies (registers/regulators) (e.g., General Medical Council (GMC), General Dental Council, Health and Care Professions Council (HCPC)). The regulator determines the profession-specific qualifications required. The regulators also maintain lists of those allowed to practice, and, in accordance with a specified process, determine the entry of professionals onto the list (with admittance based on qualifications) and the removal of

people if they are found incompetent, dishonest, or a danger to the public. They also have set standards.

All regulators have approaches to the evaluation of "continuing fitness to practice" that is used to demonstrated continued qualification of registered professionals. These approaches vary by occupation and may include peer review and feedback, patient feedback, and individual reflection on practice (requirements for registrants to participate in reflective discussions or complete reflective writing examining how the standards of conduct and competence have been relevant to specific area of their practice)[48], along with regular audits (see Section 4.9.2.2). In the GMC system, revalidation requires doctors to participate in local systems of appraisal and receive sign-off from a local Responsible Officer who confirms their ongoing participation in revalidation activity to the HCPC, which outlines a set of CPD criteria with which registrants should comply and asks that individuals reflect on their own practice. In a recent publication[49], the PSA has recommended principles of right-touch regulation[48] to develop a proportionate and targeted approach to continuing fitness to practise. They suggest that "regulators identify and quantify the risks presented by the professions they regulate in order to develop continuing fitness to practise mechanisms that provide them with the levels of assurance they need to mitigate these risks".

In contrast to the BC health model, which specifies regulated acts that professionals are able to perform (Section 4.8.2.1), the UK model has "protection of title" and is less prescriptive. This means that a certain set of qualifications are required for a specific title (e.g., Doctor of Medicine) and that the acts that are allowable under this title are not set by regulation (as in BC) but that competency to conduct these acts is determined in practice (e.g., through the individual's experience such as additional training/examinations). Similar to the BC health system, there is a nested regulatory approach such that the regulators have bylaws and rules that govern the finer scale aspects of profession-specific requirements.

The UK model is unique in that all registers are overseen by the Professional Standards Authority (PSA) for health and social care. This is an independent, arms length organization, that oversees the registers and ensures that they are doing their regulatory jobs properly. Thus, the QPs are regulated by the registers, and the registers are kept accountable to the public by the PSA (see Section 4.9.2.2).

4.9.2.1. Auditing and reviews of professional work product

Auditing is conducted of Accredited Registers through an approach that combines random and risk-based selection. The size of the sample audited is based on the size of the register. Although most regulators have a random audit, there is also a risk component to audit that is evaluated from the annual performance reviews. Although the details of the annual assessments differ by regulator, all

[48] https://www.professionalstandards.org.uk/docs/default-source/publications/thought-paper/right-touch-reform-2017.pdf?sfvrsn=2e517320_5

[49] https://www.professionalstandards.org.uk/docs/default-source/publications/policy-advice/continuing-fitness-to-practise-based-on-right-touch-regulation-2012.pdf?sfvrsn=68c67f20_6

Accredited Registers must demonstrate their professional qualifications and competency each year when renewing their registrations (e.g., training conducted, diary of work done, references from employers). Risk for audits is determined from this information, for example, if the register is late, or sends an incomplete submission, this may indicate that there is a problem and that an audit may be required. Audits are conducted by regulators, although they may commission this work to external persons.

4.9.2.2. Government Oversight of Associations

Government provides oversight of the associations that govern professionals (the registers/regulators) through the PSA. The PSA works with organizations that register and regulate Accredited Registers. It is an independent body (independent of government and NHS), with the primary function of helping protect the public, that is accountable to the Parliament of the United Kingdom (Parliament oversees the work of the PSA; the Health Committee can require the professional standards committee to appear and give account of their work). The PSA acquires its power from its own statutory framework. It assesses the performance of each regulator, conducts audits, scrutinizes their decisions and reports to Parliament. The PSA can take regulators to court if they are deemed to not be protecting public. It can also conduct investigations and can advise government. It conducts performance reviews and audits, has the legal power to challenge their positions in court, and produces policy papers that set out models of regulations. It seeks to achieve balance in the oversight of regulation through the application of the concept of right-touch regulation[50]. There are eight members on the board of the PSA (called a "unitary board"), one executive member appointed by the board, and seven non-executive members appointed by the privy council.

Although the PSA reports directly to parliament, government does not pay for it. Regulators pay for the PSA in that they pay a fee to the PSA similar to the way the Accredited Registers pay a fee to their regulators (approximately $5 CND of the annual fees of an Accredited Register goes to pay for the PSA). Thus there is no direct cost to government although government has to pay for advice from PSA if they ask for it. The Privy Council consults on the budget and sets the fees that the regulators must pay.

The PSA was created to form a buffer between the government and the regulators. As explained by the respondent, it grew out of two scandals, the primary one being a case of a doctor unqualified to be conducting the work undertaken which was resulting in patient deaths. Although this was reported by another registrant, the problem was not resolved. This resulted in an enquiry (the Kennedy enquiry) which concluded that regulators may be too focused on their own interests and of those of the professionals they regulate to adequately defend the public interest. The enquiry proposed that a body be set up to keep regulators accountable. Over the next approximately 14

[50] https://www.professionalstandards.org.uk/docs/default-source/publications/thought-paper/rethinking-regulation-2015.pdf

years, legislation was developed and the PSA came fully into existence in 2012. Although there was original hostility towards the PSA by some of the regulators, over time the PSA developed a good working relationship with regulators and has become an important and powerful component of the health system that both government and the regulators have confidence in.

4.10. Quebec - Ministère de la justice

4.10.1. Overview of professional reliance model

Before 1974 there was no structure surrounding professional practice in Quebec; a few corporations existed but nothing really protected the public. It is the Castonguay-Nepveu Commission on Health and Social Welfare, which started in 1966, that led to the creation of the Code of Professionals in 1974. Within this Code, the government required that professional orders protect the public by creating rules and regulations, which must be respected by their members. Since then, the requirements of the Code of Professionals have changed but the overall objectives have remained the same. Today, there are 46 professional orders in Quebec, which represent over 390,000 professionals. Oversight of these professional orders is provided by an independent branch of the government called the “"Office des professions du Quebec" which controls and monitors the orders and their members. Any non-compliance by a QP member or order can lead to discipline actions and/or fines.

It was not possible with the time frame of this review to obtain an interview for Quebec, Ministère de la justice. As such, results presented here reflect what was available online and no comment was received regarding strengths and weaknesses of the system.

Table 16 provides an overview of the means by which the ten effectiveness criteria are addressed for Quebec, Ministère de la justice.

Table 16. Focused research and interview responses to effectiveness criteria questions for Quebec, Ministère de la justice (Part 1 of 2).

Effectiveness Criterion	Question	Response
1) Clarity on who is qualified to perform professional reliance functions	Is there clarity on QP qualifications? If so, how is this specified/ required?	The government created professional orders with the mandate to protect the public by creating rules and regulations, which must be respected by their members. Today there are 46 professional orders in Quebec, which represent over 390, 000 professionals in the province.
2) Clarity on professional functions, responsibilities and objectives	Is there clarity on QP functions, responsibility and objectives? If so, how is this specified/required?	The responsibilities and objectives of QPs (i.e., 54 professions including lawyers, notaries, doctors) are provided by the 46 professional orders and vary according to the profession.
3) Role reserved for government	What is the role of government in relation to oversight of QP work products?	The "Office des professions du Quebec" is a branch of the gouvernment that ensures public protections by controlling and monitoring the 46 professional orders. They also collaborate in this task with the National Assembly, the Québec Government (Council of Ministers), and the Conseil interprofessionnel du Québec.
4) Formal procedures and clear rules for certification	Are there formal procedures and/or clear rules for the certification of QP products? If so, how/where are these specified?	There are a number of rules for the certifications of QP products that vary according to the professional orders. These rules are provided within the professional code, the 25 professionals laws and the regulations. For example, a psychotherapist can only practice once they hold a Master's degree in the field of mental health and human relations, and have university-level theoretical training in psychotherapy of 765 hours apportioned within certain areas.
5) Conflict of interest, self-interest and independence	Are there conflict of interest issues related to QP responsibilities and products? If so, how is this risk addressed?	The oversight branch of the government "Office des professions du Quebec" is under the ministere de la justice. Thus oversight is not conducted by individual branches of the government which may be biased due to political agendas. The oversight branch conducts non-compliance investigations, which avoids any political conflict of interest. Furthermore, potential conflicts of interests related to QP work are handled by code of ethics for various QP professional orders.

Table 16. Continued (Part 2 of 2).

Effectiveness Criterion	Question	Response
6) Record keeping, disclosure and transparency	Are there requirements for record keeping, disclosure, and transparency, in relation to QP work and work products? If so, what are these and how are they specified?	The work of some QPs (e.g., doctors) usually only becomes available when there are disciplinary actions. These decisions are available on the "Société québécoise d'information juridique (SOQUIJ)" and the "Institut canadien d'information juridique (CanLII)" websites. For other QPs (e.g., engineers), their work is available through the "Commission d'accès à l'information du Québec".
7) Civil liability, insurance and bonding	How is risk managed in relation to civil liability, insurance, and bonding?	The Code of Professionals requires that all members of a professional order in Quebec provide a guarantee for professional liability according to the requirements of their order of professionals. For example, all geologists that are part of the Quebec Geologist Order automatically receive liability insurance coverage.
8) Duty to report	Do QPs have a duty to report environmental incidents or non-compliance, or to report unprofessional conduct of other QPs to governing bodies?	Each order of professionals has Code of Ethics which regulate when and how QPs must report non-conformity issues to governing bodies. Complaints can be submitted to the order or directly to the disciplinary council, which is a quasi tribunal that is led by a lawyer named by the government and two QPs from the board of directors of the relevant order. In some cases, the case ends up in the Quebec tribunal system.
9) Auditing and reviews of professional work product	Are there audits of QP work? If so, who conducts these and how are they triggered?	An inspector from the "Office des professions du Quebec" can arrive at any time in an professional office (e.g., lawyer) and inspect any file/project to make sure it conforms with the Code of Professionals, as well as professional laws and regulations.
10) Monitoring, compliance and enforcement	Who conducts monitoring, compliance and enforcement? Is there a mechanism that allows effective monitoring, compliance, and enforcement for the large amounts of programs/data generated given limited staff time/budget?	According to article 116 of the Code of professionals, any professional who does not follow the Code of Professionals or the rules and regulations of its order, is liable to complaints and investigation by the professional order's disciplinary council. Non-compliance can lead to discipline actions, fines and/or removal from the order. Appeals with the Professional Tribunal in court can be heard following an official request with the Courts of Quebec within 30 days of the order's disciplinary council's decision (article 164 of the Code of Professionals).

4.10.2. Notable Features

4.10.2.1. Government Oversight of Associations

In Quebec, there are 46 professional orders, which represent over 390,000 professionals within 54 professions (e.g., lawyer, notary, doctor, acupuncturist, architect, chemist, dentist, geologist, engineer, psychologists). Government oversight of the QP product from these professionals is provided by the "Office des professions du Quebec" (hereafter, Office), which is a branch of the government that ensures public protections by controlling and monitoring the professional orders. They also collaborate in this task with the National Assembly, the Québec Government (Council of Ministers), and the "Conseil interprofessionnel du Québec".

The Office reduces the potential for conflict of interest by being independent from a specific Ministry. Section 12 of the Code of Professionals also provides clear roles and responsibilities for the Office, including their requirement to follow the Ethics and Professional Codes mandated by the Quebec government. Furthermore, the composition of the Office is geared towards impartiality.

The core team of the office is composed of 50 members, of which four are QPs from relevant orders that are selected by government (Ministère de la justice du Québec), while the rest (~46 staff) are government employees that are hired to be part of the Office.

Non-compliance issues related to QP work are identified in one of two ways: 1) Audit - where an inspector from the "Office des professions du Quebec" arrives unannounced in a professional office (e.g., lawyer) and inspects any files/project work available to make sure it conforms with the Code of Professionals, as well as professional laws and regulations; and 2) each order of professionals has Code of Ethics which regulate when and how QPs must report non-conformity issues to governing bodies. In both cases, complaints are submitted to the order or directly to the disciplinary council, which is a tribunal-like concept that is led by a lawyer named by the government and two QPs from the board of directors of the relevant order. In extreme cases, the case ends up in the Quebec tribunal system and may target an order of professionals as well as the QP. For example, in July 2016, the Office concluded that "the effective execution of the activities of control of the profession and the financial stability of the Quebec Order of Engineers (OIQ) were seriously affected, to the point of putting in doubt the capacity of the OIQ of carrying out its primary mission of protecting the public". In response, the Justice Minister placed the OIQ under the trusteeship of the provincial government, which would appoint three administrators to oversee how the organization is run.

5. CONCLUSIONS

This jurisdictional/sectoral review investigated a variety of professional reliance systems to identify and assess those features that impart effectiveness in achieving public trust. This was conducted largely through consideration of the ten effectiveness criteria (Section 2) developed by Mark Haddock[2]. Several key elements important in the effective implementation of professional reliance systems were identified. These elements, which are expanded upon in more detail below, include:

- prioritization of review/auditing/monitoring approaches based on risk;
- risk-based independent third party reviews;
- expert panels and boards of consultants
- agreements and contracts;
- nested approach to legislation;
- creation and composition of bodies that regulate professionals;
- separation of roles of regulatory and advocacy functions; and
- mechanisms for oversight of associations.

Prioritizing by risk the oversight of QP work and work products (through reviews, audits, and monitoring) was identified as an important mechanism for focusing effort in a number of jurisdictions/sectors. Projects that are required to meet IFC performance standards are categorized

based on environmental and social risk, with the resultant level of categorization linked to specific requirements for due diligence and resultant consequences/outcomes. There are also risk-based components to audits in both the BC health and UK health sectors which allow the focusing of effort onto professionals most likely to require re-evaluation. One of the auditing triggers used by DFO is also risk-based (scale of impacts). In Australia, the Department of the Environment and Energy prioritizes monitoring, compliance, and enforcement by risk severity. Prioritization by risk was also identified to be an important mechanism for the development of regulation: the concept of right-touch, risk-appropriate regulation was advocated by UK health to prevent unnecessary cost and rigidity.

Independent third party review was identified as a critical component of the review of QP work products, the use/triggering of which may also be risk-based. For Ontario MEOCC, audits of QP work products may be conducted through a multi-layered approach, with third party review initiated if deemed necessary following initiation by an Environmental Officer. In Western Cape, Africa, Department of Environmental Affairs and Development Planning, independent peer review of specialist studies are triggered for a variety of reasons including if the project is complex, controversial, or associated with high levels of uncertainty and risk.

Expert panels and boards of consultants were also found to be used as a means of gaining third party review in the South Australia mining sector and by FERC, and their use can also be triggered based on risk. In the South Australia mining sector, the availability of a panel of international experts that can be called upon to work under contract for reviews of work or other needs allows the government the ability to retain high calibre consultants and academics to support their assessment, regulation, and oversight for highly technical and potentially risky or contentious matters, given that government cannot maintain such expertise internally. FERC also may convene a Board of Consultants for large, challenging, or unique projects.

The use of legally binding agreements and contracts was documented in two jurisdictions/sectors. The Agreement for the PNW Project demonstrated many advantages related to issues of public trust in professional reliance and provided an example of a means to facilitate bodies of different governments and Indigenous groups working together in a coordinated/collaborative approach. The Agreement provided clear definitions, specified QP qualifications, functions, responsibilities, and objectives, addressed conflict of interest, and clearly specified the roles of all parties. It also made provisions for government approval of QPs retained by industry and oversight of their work products. The Agreement also referenced other legally binding documents, such as the BC EAC, which thereby also incorporated the requirements and definitions of those documents into the Agreement. Other examples of legally binding documents that create clarity around issues of accountability, expectations, or conflict of interest are the contracts and the disclosure statements used by the EPA.

The importance of the structure in the development of regulation was advocated by both BC Health and UK Health for the regulation of QPs. A strength in both of these systems was identified to be a

nested regulatory approach that allows restrictions/conditions to be separated by scope as appropriate based on risk and on profession-specific issues. Having a single piece of legislation for all professions with regulations nested under it was found to be easier, less complicated, and less expensive than having multiple pieces of legislation, and also has benefits related to a shared scope of practice that is important when professionals interact and work as a team. Both health systems have overarching regulation that applies broadly, is not anticipated to require revision in the near future, is as unrestrictive as possible, is enabling rather than prescriptive, and is risk-appropriate. Under this are nested bylaws and rules that govern the finer scale aspects of profession-specific requirements and that can be more easily changed to accommodate innovation and other inevitable changes. Reducing the number of regulators was also identified as a desirable modernization for both BC health and UK health systems.

The means by which the bodies that regulate professionals (e.g., college boards) are created and their composition was also an issue of importance in the regulation of health professionals. In BC, college boards are composed of members elected by registrants (professionals) and appointed by government thereby resulting in confusion about their role, which is protection of the public interest rather than serving those that elected or appointed them. In the UK this problem is recognized and resolved by appointing boards based solely on merit which is combined with oversight and a set of standards that ensures that appointment is fair and merit based. Another important issue identified by BC health regarding duty to the public was the need for the separation of regulatory functions from advocacy functions for the regulation of professionals (e.g., colleges vs. associations) to allow the duty of the bodies that regulate professionals to be unambiguously and solely to the public.

The means by which government gains oversight over the associations (or registers) that govern QPs (Objective 2 of this review) was investigated in four jurisdictions/sectors and was addressed differently in each. For BC health, although government oversight and its intervention in the colleges is highly unusual, there are "safety net" provisions such that the government has the power to review, reject, request changes to, or impose changes on the college bylaws. Government has recently also gained, as an ultimate safeguard, the authority to appoint an administrator to take over the role of the board. Similarly, although the *Real Estate Services Act* (2004)[51] establishes the Real Estate Council of BC (the Council) as the self-regulating body and grants it broad powers to develop and enforce its own rules and bylaws, Section 130 of the Act gives government the power to make regulations that take precedence over any rules or bylaws created by Council; thus government retains ultimate authority over the regulation of real estate. In Quebec, oversight of professional orders is provided by an independent branch of the government called the ""Office des professions du Quebec" which controls and monitors the orders and their members. In the UK, the PSA was established as an independent body that is accountable to Parliament to provide a buffer between the government and the regulators. The primary function of the PSA is to protect the public which

[51] http://www.bclaws.ca/civix/document/id/complete/statreg/04042_01

it does by overseeing the regulators that may be too focused on their own interests and of those of the professionals they regulate to adequately defend the public interest.

Many other important aspects of professional reliance systems in a range of jurisdictions/sectors were also identified during this review. The need for transparency and access to information was addressed by a number of jurisdictions/sectors, largely by clearly specifying access requirements and making information available online. The latter was most notably addressed by FERC's extensive online record keeping system that allows the public to access information, subscribe to a register for notices and updates, and submit comments. Clarity on many aspects of professional work, such as definitions, professional qualification requirements, responsibility, conflict of interest, and certification/accountability for work is an important feature of all systems, although the extent to which the necessary mechanisms have been developed varies, as does their effectiveness. For example, the EPA enters into third party agreements with applicants that address QP selection, and the government has substantial input into QP selection and review of work products. Further, contracts and disclosure statements address issues such as expectations, accountability, and conflict of interest. In Ontario, licensing qualifications of professionals are clearly set out in regulations that govern some professions, and in both health systems investigated, profession-specific and risk-based mechanisms for continued evaluation of professional quality are critical and routine components of the regulatory bodies' activities.

There is also opportunity to learn from the weaknesses of the systems investigated. A number of interview respondents identified weaknesses related to the expense of good solutions. For example, the use of technical experts in the South Australia mining sector is costly, as is the multi-government Environmental Monitoring Agreement for the PNW Project. The FERC interview respondent highlighted the trade-off between having restrictive QP qualification requirements, which would increase quality of the work product, and the size of the pool of available consultants, the reduction of which would increase cost. It should be noted, however, that examples were also encountered for means of reducing the cost of solutions to government, such as the PSA which is funded by registrants, and the agreements that can be made between government and industry in the South Australia mining sector on the funding of technical experts for the review of work products. Other weaknesses identified by respondents included regulatory complexity (BC Health) and the potential for inter-personal biases within government on QP selection to concur with increased government involvement (EPA). General limitations, that plague all professional reliance systems to some extent, were identified by the DFO interview respondent and can be summarized by stating that the system would be improved if critical aspects, including definitions, availability of information, and certification of work, were improved upon.