

ORGANIZATIONAL STRUCTURE & CERTIFICATION PROGRAM



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- 1) Organizational Structure and Certification Program
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Yours truly,

Bruno Luzak
President
AESAC Inc.

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EXECUTIVE SUMMARY

At the request of the Associated Environmental Site Assessors of Canada Inc. (AESAC), **GLOBALTOX INTERNATIONAL CONSULTANTS INC.** has prepared a set of two documents to assist AESAC in developing a certification and training program for environmental site assessors. The Standard for Phase I Environmental Site Assessments recently produced by the Canadian Standards Association is the standard of practice to which AESAC wishes to train its members.

The first of the two documents produced is this *Discussion Paper* which addresses the issues and processes involved in the evaluation of competency of those wishing to be accredited by AESAC as environmental site assessors. Reviews and comparisons of the certification and training programs of various organizations are presented as an overview of the common expectations of organizations similar to AESAC for professional accreditation.

The principle recommendations, summarized below, are based on this overview of professional accreditation standards presented, and on the level of knowledge and skills required of environmental site assessor by the CSA Standard. The role of AESAC in the establishment of an accreditation process is the main focus of this *Discussion Paper*.

The accompanying document is the *Educational Curriculum* proposed by **GLOBALTOX** to meet the training needs outlined in the *Discussion Paper*. These two documents are complimentary and together present a progressive plan to guide AESAC in its role as the accrediting body for environmental site assessors in Canada.

GLOBALTOX recommends that:

- 1. AESAC should set two main goals: (a) the accreditation of individuals demonstrating a high level of competence, knowledge, and experience in environmental site assessment, and (b) the maintenance of a high standard of practice in the environmental site assessment profession;**
- 2. AESAC be structured as a non-exclusive professional organization and accept applicants from a wide variety of backgrounds;**
- 3. AESAC should adopt a two tiered system for recognizing environmental site assessors. The entry level tier would provide a registration function, allowing access to courses,**

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newsletters, "apprenticeship" postings, errors and omissions insurance etc. *Registered Members* would accumulate points according to their educational background, formal training in environmental site assessment, and directly relevant experience. Once a critical number of points had been accumulated, the *Registered Member* would be eligible to write a challenging certification examination. Successful candidates would rise to the second tier and be called "certified members". Certified members would be eligible to train *Registered Member* apprentices and to advertise their services as a *Certified Environmental Site Assessor*;

4. the point system used to quantify the qualifications of applicants for certification should be based on that of the National Environmental Auditors Registration Board of the United Kingdom and should include the completion of a post-secondary degree, specified training programs in environmental site assessment, and a period of practical experience. Certification should also require successful completion of a uniform examination;
5. AESAC should endeavour to establish a training program for environmental site assessors to ensure that AESAC-accredited environmental site assessment professionals are competent to perform Phase I Environmental Site Assessments as defined by the CSA Standard;
6. AESAC should require re-certification every five years by, (a) the resubmission of credentials to show that the certified member is still active in the profession, and (b) the submission of evidence of continuing education activities.

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**STRUCTURE ORGANISATIONNELLE ET
PROGRAMME D'ACCREDITATION DE L'AESAC**

RÉSUMÉ

À la demande de l'organisme Associated Environmental Site Assessors of Canada Inc. (AESAC), la société GlobalTox International Consultants Inc. a produit deux documents en vue d'aider l'AESAC à mettre au point un programme d'accréditation et de formation pour les experts en évaluation environnementale de sites. La firme AESAC souhaite offrir un cours de formation fondé sur les normes établies récemment par l'Association canadienne de normalisation (CSA) concernant la Phase 1 de l'étude environnementale d'un site.

Le premier, un document de discussion, porte sur les questions et les processus dont il faut tenir compte pour évaluer les compétences des candidats désirant être accrédités par l'AESAC, à titre d'expert en évaluation environnementale de sites. On y présente l'aperçu des attentes générales d'autres organismes semblables à l'AESAC, ainsi que des études des programmes de formation et d'accréditation offerts par d'autres sociétés et des comparaisons.

Les principales recommandations, résumées ci-après, sont fondées sur l'aperçu des normes d'accréditation professionnelles et le niveau de connaissances et de compétences que doivent posséder les experts en évaluation environnementale de sites pour répondre aux normes de la CSA. Le document de discussion traite principalement du rôle de l'AESAC dans l'établissement du processus d'accréditation.

Dans le deuxième document, un plan d'études, la société GlobalTox propose un programme qui permettrait à la firme AESAC de répondre aux besoins de formation dont fait état le document de discussion. Ces deux documents complémentaires constituent un plan progressif devant permettre à l'AESAC d'assumer son rôle à titre d'organisme d'accréditation pour les experts en évaluation environnementale de sites au Canada.

La société GlobalTox recommande que :

1. L'AESAC fixe deux principaux objectifs pour : a) accréditer des personnes possédant un niveau élevé de compétences, de connaissances et d'expérience dans le domaine de l'évaluation environnementale des sites; b) maintenir des normes rigoureuses en ce qui concerne l'exercice de la profession d'expert en évaluation environnementale de sites;
2. L'AESAC soit structurée comme un organisme non exclusif qui accepte des candidats provenant de divers domaines;
3. L'AESAC adopte un processus d'accréditation comportant deux étapes de formation pour les experts en évaluation environnementale de sites. Durant la première étape, les candidats s'inscriraient au programme, ce qui leur permettrait notamment de suivre les cours de formation, d'avoir accès aux bulletins d'information, à l'affichage de postes de

stagiaires et à l'assurance contre les erreurs et omissions. Les membres accumuleraient des points en fonction de leur instruction, de leur formation théorique en matière d'évaluation environnementale des sites et de leur expérience connexe. Une fois qu'ils auraient acquis le nombre de points voulu, les membres seraient admissibles à passer l'examen rigoureux d'accréditation. Les candidats qui réussiraient pourraient ensuite former les membres inscrits à la première étape de formation, soit les stagiaires, et faire connaître leurs services à titre d'expert en évaluation environnementale de sites;

4. Le système de points utilisé pour évaluer les compétences des candidats devrait être fondé sur celui du National Environmental Auditors Registration Board du Royaume-Uni et inclure l'obtention d'un diplôme post-secondaire, des cours de formation spécialisés en évaluation environnementale des sites et une période d'expérience pratique. Avant d'être accrédités, les candidats devraient réussir un examen normalisé;
5. L'organisme AESAC devrait s'efforcer de créer un programme de formation pour les experts en évaluation environnementale de sites pour s'assurer que les professionnels qu'elle accrédite possèdent les compétences nécessaires pour effectuer la phase 1 des études environnementales des sites conformément aux normes de la CSA;
6. L'AESAC devrait exiger que ses membres renouvellent leur accréditation à tous les cinq ans en leur demandant de soumettre des documents attestant a) qu'ils pratiquent encore activement la profession d'expert en évaluation environnementale de sites; b) qu'ils continuent de suivre des cours de perfectionnement.

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I. INTRODUCTION

GLOBALTOX INTERNATIONAL CONSULTANTS INC. was contracted by the Associated Environmental Site Assessors of Canada Inc. (AESAC) to prepare a pair of documents to assist AESAC in developing a certification and training program for environmental site assessors. The first of these two documents is this *Discussion Paper* which addresses the issues and processes involved in the evaluation of competency of those wishing to be accredited by AESAC as environmental site assessors. The second document is an *Educational Curriculum* proposed by **GLOBALTOX** to meet the training needs outlined in the *Discussion Paper*. These two documents are complimentary and together present a progressive plan to guide AESAC into its role as the accrediting body for environmental site assessors in Canada.

There are many organizations and agencies in North America and Europe that offer certification and/or training programs for environmental site assessors and related professions. In order to be widely accepted as a certifying body, AESAC needs to have a program of accreditation with requirements at a similar level as these organizations. Therefore, this *Discussion Paper* includes reviews of the certification and training programs of two groups of these organizations.

The first group consists of associations and agencies that have programs for the training and accreditation of environmental site assessors or auditors. None of these organizations are universally accepted as accrediting bodies in their field and so a comparison and discussion of the main components of their accreditation programs was prepared. Based on this discussion, recommendations have been made about AESAC's approach to accreditation.

The second group consists of professional organizations whose members are accredited to participate in activities related to those performed by environmental site assessors. This comparison is made because it is important that environmental site assessors be treated as professionals by their peers. The degree of exclusivity of these related professional organizations, as well as their certification/licensing, and training programs have been discussed. This has allowed the identification of requirements for accreditation that are common to other professions. Building on these common standards, **GLOBALTOX** has recommended the requirements for accreditation which the AESAC should stipulate.

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In April 1994, the Canadian Standards Association released Standard Z768-94 for the performance of Phase I Environmental Site Assessments (Phase I ESAs) in Canada (hereafter referred to as the "CSA Standard"). This Standard sets out the issues and tasks which must be considered and completed as part of a Phase I ESA. As such, it provides guidance as to the knowledge and skills that a credible environmental site assessor must possess. In order to properly perform a Phase I ESA according to the CSA Standard, an environmental site assessor requires a combination of general technical knowledge about environmental contamination, experience in recognizing environmental hazards and pollution, and training in the specifics of the requirements of the CSA Standard.

This *Discussion Paper* outlines the levels of these and other components that AESAC should stipulate for certification. It also details a practical point system for the quantification of applicants' qualifications and experience. This system will allow individuals from a wide range of backgrounds to be accommodated. It also provides a mechanism for gauging the eligibility of a candidate to sit the proposed certifying examination.

The *Educational Curriculum* details the training program recommended by GLOBALTOX to ensure that AESAC-certified environmental site assessors possess a high level of competence in the performance of Phase I ESAs according to the CSA Standard.

The role of AESAC in the coordination of these required areas and in the establishment of an accreditation process are the main focal points of the *Discussion Paper*.

II. REVIEW OF EXPECTED QUALIFICATIONS FOR ACCREDITED PROFESSIONALS

II.A. EXISTING ENVIRONMENTAL SITE ASSESSOR CERTIFICATION, REGISTRATION, AND TRAINING PROGRAMS

There are a large number of organizations that provide certification and/or training programs for environmental site assessors or auditors. Their requirements for accreditation and the calibre of the training offered, varies widely. The programs of the following organizations have been reviewed to provide a summary of the certification and training programs for environmental site assessors and auditors used in other jurisdictions.

- California Registry of Environmental Assessors (CREA)
- Environmental Assessment Association, United States (EAA)
- National Environmental Auditors Registration Board, United Kingdom (NEARB)
- Canadian Environmental Auditors Association (CEAA)
- Appraisal Institute of Canada (AIC)
- Canadian National Association of Real Estate Appraisers (CNAREA)

An overview of the findings of these reviews are given in Table 1 on the following page which is followed by the summaries for the individual organizations.

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TABLE 1. COMPARISON OF ASSESSMENT AND AUDITING CERTIFICATION AND TRAINING PROGRAMS

	CREA	EAA	NEARB	CEAA	AIC	CNAREA
PURPOSE	voluntary registration and referral service	range of services for members and users of EAA environmental site assessments	assisting users in selecting audit teams	progressive accreditation of auditors	setting and maintaining high standards of professional appraisal practice	high quality real estate appraisals
REGISTRATION/ACCREDITATION	voluntary with no distinction between Phases	upon completion of in-house seminar and examination	registration by qualifications; indirect method of accreditation	accreditation on the basis of qualifications	registrants eligible to work towards accreditation	by qualifications; ongoing improvement required
POINT/CREDIT SYSTEM	none	none	points allotted for qualifications: relevance and formal exam emphasized	points allotted for qualifications with emphasis on relevance	recertification requires specific number of credits from courses taken and experience	credits for specific and general qualifications
TIERED MEMBERSHIP	none but disclosure of areas of expertise is encouraged	three progressive levels of accreditation	three progressive levels of accreditation	three progressive levels of accreditation	two levels of accreditation with a candidacy beforehand	three levels and apprenticeship
EXAMINATION	none	standardized open-book examination	oral examination on dissertation	highest level requires written examination	national standard exams for all courses	mandatory courses have set examinations
TRAINING	none	basic seminars to accredit EAA-assessors; continuing education for members	long term goal is accreditation of externally run courses	proposed establishment of courses with universities and colleges	mandatory course sequence (university level), and articling or period of related work	in-house and specific external courses required as is ongoing education

II.A.1. California Registry of Environmental Assessors¹ (REA)

¹ Luzak 1993

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The California REA program is strictly a voluntary registration system that is aimed primarily at Phase II environmental assessors, as defined by the California Environmental Protection Agency (California EPA). However, it makes no distinction between members with training or experience in the various California EPA-defined phases of environmental assessment. The California EPA administers the registry and will provide a list of members upon request.

Registrants are required to complete an application form in which they must demonstrate a minimum of five years full-time experience, within the last eight years, in their general field. As well, they must show a minimum of two years experience, within the last four years, in executing environmental assessments. The academic requirements can be filled by the possession of a post-secondary degree, or licensing or registration by a professional body, in a physical or biological science, engineering, or law. Five years of environmental assessment experience within the last eight years is considered equivalent to these training qualifications. Three references, a signed list of criminal or professional misconduct or lack of any, and disclosure of ownership of any business involved with hazardous wastes are also required prior to registration. The applicant is offered the opportunity to voluntarily disclose his/her specific areas of environmental assessing expertise, and types of businesses assisted.

The California EPA offers this registration mechanism strictly as a referral and networking tool for assessors and for those requiring the services of an environmental assessor. The Agency makes no judgements as to the experience and/or ability of the members of its registry as long as they have fulfilled the qualifications above. The list of registrants can be searched for environmental assessors within a specified geographical area or area of expertise, according to the request of the prospective client. In this way, the registry affords its members exposure as qualified individuals in specified areas but the responsibility of judging suitability for a specific job is left to the client.

The Agency offers no form of accredited training program nor any standardized examination or assessment. Their service is one of registration based on general guidelines, and of referral to prospective clients. No guarantee of ability or quality is implied by registration although membership does indicate a basic level of expertise.

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II.A.2. Environmental Assessment Association, United States¹ (EAA)

The EAA is an organization of individuals who provide basic environmental assessments or inspections (as defined by the EAA). Members are provided with a number of services including educational programs, and promotion to those who need such environmental assessment services.

Membership in the Association is granted upon completion of an educational seminar that covers the basics of environmental assessment or inspection. This initial education consists of a one- or two-day seminar covering topics such as: basic definitions and concepts in environmental assessment, detailed examinations of general environmental hazards and impacts and of specific chemical hazards, how to complete inspection forms, legal aspects of environmental assessment, report writing, communications skills, choosing environmental assessment teams, finding information, and additional services that an environmental assessor might provide. Participants complete a very basic, open-book examination at the end of the sessions which, when passed, qualifies them for designation as a *CEI-Certified Environmental Inspector*. The Association states that this certification qualifies individuals from fields such as appraisal, lending, insurance, law, and the environmental sector to do basic environmental inspections as part of their client service. No one can become accredited with this Association and receive certification without completing the training course and examination.

Members of the EAA are kept informed of available training sessions and they can become certified as a *CES-Certified Environmental Specialist*, *CER-Certified Environmental Reviewer*, and if an attorney, as a *REA-Registered Environmental Attorney*. These higher designations are intended to indicate increased levels of training and professional experience which allow the individuals to complete more complex or detailed environmental assessments.

The Association also offers a variety of continuing education programs for professionals in the field who wish to keep their environmental assessment skills and knowledge up to date.

¹ Environmental Assessment Association 1992

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In conclusion, the EAA requires the completion of a basic training course and exam before membership and accreditation as a *CEI* is granted. Once membership has been attained, there is the opportunity for furtherment of skills and knowledge through in-house continuing education programs. The member can also become accredited at higher levels of membership through further training and examination.

II.A.3. National Environmental Auditors Registration Board, United Kingdom¹ (NEARB)

The NEARB registers environmental auditors based on their academic and professional qualifications, training, and practical experience. The primary objective of the register is to assist potential clients in selecting audit teams. However, the secondary objective is to provide a possible mechanism for accrediting individuals to perform environmental audits who have demonstrated competence in the field.

Currently, no specific training programs or set of examinations are proposed as prerequisites for registration. The accreditation of training courses is a long-term goal of the NEARB but is presently impractical as the register is still in its infancy. The training record of applicants is considered on a case-by-case basis by the administering body.

A point allocation system is used to quantify the qualifications and experience of applicants. Points are allotted for academic qualifications, membership in professional institutions, training, and practical experience. The points system emphasizes the relevance of the qualification or experience, and encourages applicants to be trained and to get experience in a wide range of areas relevant to environmental auditing. Training programs, memberships etc. which involve formal assessment or exams gain more points as well.

The applicant may be registered in one of three categories based on their qualifications as quantified by a points system. Designation as a *Provisional Environmental Auditor* will be afforded those applicants who gain ten (10) points from a suitable combination of qualifications and experience and provide one suitable reference. This category is designed for newcomers to the field with minimal practical experience. Those with 100 days of directly relevant experience in addition to the requirements above will be registered as *Environmental Auditors*. Membership

¹ National Environmental Auditors Registration Board Steering Group 1992

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at this level requires at least 30 points and indicates a sound background of practical experience. The highest level of membership available is that of *Principal Environmental Auditor* and is achieved only by highly experienced auditors with at least 100 days of experience in addition to those required for the *Environmental Auditor* designation, and 50 points. The applicant must also submit and be orally examined on a written dissertation about a relevant topic.

In summary, the NEARB scheme registers applicants in one of three levels of membership according to experience and other qualifications. It emphasizes the importance of having a broad base of relevant knowledge and specifically related experience. The Board does not currently accredit training programs nor run any of its own, but registration requires a certain level of competence and experience and so can be seen as an indirect certification and accreditation mechanism.

II.A.4. Canadian Environmental Auditors Association¹ (CEAA)

The CEAA has proposed a series of steps for the accreditation of auditors that is based very closely on the requirements of the National Environmental Auditors Registration Board in the United Kingdom.

The CEAA intends to use a point system which allots points for academic qualification (up to five (5) points), membership in professional institutions (up to three (3) points), relevant training courses (up to five (5) points), and relevant experience (one (1) point for every five days). The allotment scheme emphasizes the relevance of the offered qualification or experience.

The awarding of points will lead to accreditation in one of three levels of registration. In the short term, the Association intends to accredit individuals in only the two lower categories of *Provisional Environmental Auditor* and *Environmental Auditor* as these require the point system alone for measurement of qualification. The former category requires a minimum of ten (10) points and is intended for relative newcomers to the field. The later category requires a minimum of 30 points (equivalent to 100 days of experience after accreditation as a Provisional Environmental Auditor) and would be for those with a sound background of practical experience.

¹ Canadian Environmental Auditors Association 1994

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In the long term, the Association intends to prepare a written exam which addresses both auditing principles and practices, and province-specific legislation. Those wishing to be accredited in the third level, as a *Principle Environmental Auditor*, must have 50 points (equivalent to a further 100 days of experience), and have successfully completed the written exam for the province(s) in which they wish to practice.

The Association has also proposed the future establishment of accredited training courses in conjunction with universities and colleges but no attempt at official training program certification is being made at the moment.

The proposed accreditation scheme of the CEAA is thus a tiered system with membership at the different levels determined by a point system that accounts for a large range of educational and practical qualifications. The Association intends to set up a standard examination to qualify for the highest level of membership, and training programs for all three levels. These measures will ensure the uniform quality of auditors accredited by the Association.

II.A.5. Appraisal Institute of Canada¹ (AIC)

The goal of the AIC is to set a high standard for the professional practice of real estate appraisal in Canada. Its members are accredited to carry out appraisals of the value of real property and to assess damage done by fire, natural disasters, etc. Accredited AIC members are governed by a Code of Ethics and a Uniform Standard of Professional Practice.

In order to become accredited with the AIC, an individual must first complete a period of candidacy which involves formal training and on-the-job training. Any high school graduate can become a *Candidate Member*.

The Institute offers a large number of courses through its provincial branch offices and by distance-education from St. Francis Xavier University. All of these courses involve the writing of standard national examinations which are offered in a number of cities on three dates in a year. The AIC will also give credit towards certification for certain university and college courses.

¹ The Appraisal Institute of Canada

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Accreditation at the level of a *Canadian Residential Appraiser (CRA)*, qualifies the member to appraise residential dwelling sites containing not more than three self-contained housing units. The *CRA* designation is granted upon completion of a specific series of courses in the areas of: basic real estate appraisal theory, economics, real estate appraisal law, ethics, etc. The candidate must also submit a Demonstration Appraisal Report which can be likened to a case study report. Three years of relevant experience or one year's articling is the third requirement for accreditation.

Fully accredited membership in the Institute is granted to those who attain the designation of *Accredited Appraiser Canadian Institute (AACI)*. The holder of this designation is qualified to appraise a full range of real property. The achievement of this level of accreditation requires that the candidate complete specified courses and have experience in addition to that required for the *CRA* designation. The candidate specializes in either Urban or Agricultural Appraisal, must submit two Demonstration Appraisal Reports, and must complete three years of articling.

The AIC requires its members to be recertified every five years. A large number of activities such as course and seminar attendance, experience logs, etc. are allotted credits towards recertification. *AACI* members are required to accumulate 60 credits and *CRA* members 45 credits in each five year cycle in order to maintain their designation.

II.A.6. Canadian National Association of Real Estate Appraisers¹ (CNAREA)

The CNAREA is a body that accredits real estate appraisers by a credit system. This system awards credits for education and experience with equal emphasis.

Appraisers must have an educational background in the chosen appraisal field and related areas. Credit is given for courses taken in economics, real estate law, building construction, title searching, mortgage practices, and the principles of appraisal. The allotted number of credits depends on the field and level of education. Specific courses such as the Canadian Real Estate Association licensing courses are given allotments of up to 100 credits each.

¹ Canadian National Association of Real Estate Appraisers 1993

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Many forms of experience are recognized by the CNAREA. Credits are given for specific activities such as appraisal report writing, case studies, and attendance at conventions and chapter meetings. Credits are also awarded under the more general heading of "years of appraisal experience". A large number of credits (100) are granted for the completion of the formal appraiser's examination although many applicants can meet the minimum credit requirement without these credits and so do not write the exam.

Upon receiving 520 credits (minimum of 200 each for education and experience), the applicant is accredited as a *Designated Appraiser Residential (DAR)*, a *Designated Appraiser Commercial (DAC)*, or a *Designated Appraiser Agricultural (DAA)* depending on the area of the individual's experience and education. The applicant is a *Candidate* before accreditation and becomes a member of CNAREA once designated as a *DAR*, *DAC*, or *DAA*. To maintain this status, the member must earn 30 credits per year by attending conferences, completing courses, and gaining further experience.

In summary, the accreditation system of the CNAREA requires a high degree of relevant education and experience in order to become designated as a member. Maintaining this designation requires an on-going commitment by the individual to the maintenance of high levels of appraisal quality. Certain courses and training programs are recommended by the Association and rewarded with a large number of points towards accreditation. These courses involve the successful completion of standard exams and accreditation by licensing boards and so this requirement ensures a high level of knowledge and training among designated appraisers.

II.A.6. Summary, Discussion, and Recommendations

The certification and training programs of the five organizations that were reviewed cover a wide range of the accreditation practices available. The comparison of main characteristics presented in Table 1 illustrates this clearly. The advantages and disadvantages of the different approaches taken to those characteristics are discussed below. Recommendations for the design of the AESAC system are based on this discussion.

II.A.6.i. Purpose and Registration Practices

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The stated purposes of the various accreditation programs range from basic registration and referral for commercial purposes, to the preparation of experts for specific positions. In all of these organizations, membership offers a certain level of recognition. Those offering a simple registration and referral system cannot ensure the quality of the individuals that they represent. This is a disadvantage as the prospective client is not guaranteed the quality that may be required and expected. The requirement for a high level of knowledge and skill by some of these organizations means that certification by them indicates a suitable level of competence. This is an advantage for clients who can be confident of the quality of work that they will receive, and also for the environmental site assessor (as defined by the respective body) who can use the certification to provide evidence of competence.

Some of the organizations also have the purpose of providing on-going education in order to ensure a continuously high level of work by their certified members. This is a definite advantage for both the client and the environmental site assessor as the maintenance of high standards of competence and knowledge are beneficial to both.

GLOBALTOX thus recommends that AESAC set as its main purpose, the accreditation of individuals demonstrating a high level of competence, knowledge, and experience in the performance of Phase I ESAs. AESAC should also ensure that its members are required to maintain a high level of expertise throughout their career as certified environmental site assessors.

II.A.6.ii. Point/Credit System, Tiered Membership, and Examination

These three characteristics are the procedures used by the various organizations to measure and represent the level(s) of expertise of their applicants and members.

Three of the five organizations reviewed have a point or credit allocation system to measure the past achievements of applicants. Points or credits are granted for academic, professional, and practical qualifications. Each organization has adapted this idea to suit its own needs. For all of them however, this method is advantageous because it allows the processing of applications from a diverse group of people. It also gives the organizations a simple method to stipulate levels of achievement required for a given level of accreditation.

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Four of the certification programs reviewed involved a tiered or progressive system of accreditation. Thus, individuals work their way up through successive levels as they gain knowledge, skills, and experience. For those organizations using a point or credit system, the eligibility for entrance into successive levels can be controlled and measured. The advantages of this kind of system are that it gives individuals working in the field motivation to continually improve their level of accreditation and it allows the client to choose an environmental site assessor from a variety of levels of accreditation. The disadvantages are that the multiple levels may create confusion for clients and they may be cumbersome for the accrediting organization.

Most organizations require some form of uniform examination before accreditation is granted. The degree to which this examination actually measures knowledge and skills of the candidate differs from organization to organization. Some simply pay lip service to this assessment mechanism while others set quite stringent achievement requirements. For organizations with point or credit systems, some require a certain number of points or credits in order to be eligible to sit the exam. Others allot a large number of points towards accreditation to those who successfully complete the exam. In tiered systems, examination is sometimes required upon entrance into each successive level but more often, it is required only for entry into the highest level. As long as the examination is set in such a way that only truly competent candidates will pass, then it is very useful as a requirement for accreditation as it ensures a minimum standard of achievement. The disadvantage of an examining process, especially in a tiered system, is its high administrative cost. This cost is offset with examination fees by some organizations.

GLOBALTOX recommends that AESAC adopt a point system to quantify the qualifications of applicants. The details of an existing model, that of the National Environmental Auditors Registration Board of the United Kingdom, are given in Section IV.A.1. of this Paper. The NEARB model includes three levels of accreditation, however, it is recommended that AESAC adopt a simpler system. GLOBALTOX recommends an apprentice/certified environmental site assessor structure. This would mean that any individual with a suitable educational background, could work as an apprentice environmental site assessor (to be called a *Registered Member*) under the supervision of an accredited professional. The apprentice would be required to earn a certain number of points before being eligible to write the certification examination. Points would be allocated for direct experience and for completion of the AESAC training program. Upon successful completion of the examination, the individual would be entitled to use the designation of *Certified Environmental Site*

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Assessor. Certified Environmental Site Assessors would be qualified to conduct Phase I ESAs, and to supervise apprentice environmental site assessors.

II.A.6.iii. Training

Almost all organizations examined have a requirement for some form of certification-specific training in addition to any education or past-training that an applicant may have. This ensures that the certified individual possesses profession-specific knowledge and skills. Some organizations run their own training programs, while others require the completion of courses run by external organizations. The advantage of having an in-house training program is that it can be tailor-made for the certification process. The disadvantage is the cost incurred to the organization. The opposites of these two points apply to externally-run training as the certifying organization does not pay for the programs but it also has very little control over them.

The skills and knowledge required to complete a Phase I ESA according to the CSA Standard are not currently taught by any training programs. Therefore, GLOBALTOX recommends that AESAC endeavour to establish its own training program, based on the requirements outlined in the *Educational Curriculum* document which accompanies this *Discussion Paper*. This would ensure that AESAC-accredited professionals are competent to perform Phase I ESAs according to the CSA Standard.

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II.B. ROLES AND PROCEDURES OF PROFESSIONAL ORGANIZATIONS

As a guide towards defining its own role in the accreditation of professionals qualified to conduct Phase I ESAs, it would be useful for AESAC to consider the practices and functions of other professional organizations. For this reason, the roles and procedures of a variety of these organizations have been summarized below. The main points considered are the degree of exclusivity exercised by the professional organization and the exact processes and requirements they use to accredit their members.

At its 2nd Annual General Meeting, held October 28 and 29, 1993, in Toronto, the Canadian Environmental Auditing Association explored its role in the context of what other similar organizations do to enhance their professions. For the benefit of AESAC, a review of the information presented there was completed. Documents published by the professional organizations were also consulted. The certification and training programs for the six associations listed below are summarized on the following pages.

- American Board of Industrial Hygienists (ABIH)
- American Board of Toxicologists (ABT)
- Canadian Institute of Chartered Accountants (CICA)
- Institute of Certified Management Consultants of Ontario (ICMCO)
- Law Society of Upper Canada (LSUC)
- Association of Professional Engineers of Ontario (APEO)

The above list includes two types of practitioner organizations. These are (1) Exclusive and (2) Non-Exclusive organizations.

Exclusive organizations are typical of professional disciplines, such as the legal and medical professions. The role of Exclusive organizations (eg., LSUC) is to regulate practitioners with the

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goal of protecting the public interest. They are exclusive in that members must hold a degree or be licensed to practice their profession by a government licensing body.

Non-Exclusive organizations are those whose formation is market-driven and whose mission is to set standards of practice for their members. They are non-exclusive in that almost anyone who meets certain criteria can join.

A third type of organization is the trade association, which is akin to a union. The mission of a trade association is to protect the common interests of its members, but these organizations usually do not set standards of practice. Trade associations are therefore not considered further in this document.

The table below should serve as a guide to the level of exclusivity of the organizations considered.

TABLE 2. LEVEL OF EXCLUSIVITY OF PROFESSIONAL ORGANIZATIONS

	ABIH ¹	ABT ²	CICA ¹	ICMCO ¹	LSUC ¹	APEO ¹
Exclusive					*	*
Non-exclusive	*	*	*	*		

II.B.1. American Board of Industrial Hygienists (ABIH)

The designation of *Certified Industrial Hygienist (CIH)* that can be obtained from this professional organization is recognized throughout the world as a standard of accreditation and

¹ Information is from notes taken at the 2nd Annual General Meeting of the Canadian Environmental Auditors Association on 28-29 October, 1993, in Toronto and from telephone inquiries for the missing details.

² Ecobichon 1983

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competence in this area of expertise. This certification is received only after the successful completion of the *Industrial Hygienist (IH)* training program or of a series of rigorous exams.

To be eligible for either the *IH* or *CIH* programs, individuals must have completed at least a BSc. in a related field, and preferably, an MSc. They must also have at least five years of experience in the general area of industrial hygiene or a related field. The discipline is broad in itself, so there is some flexibility in this requirement to allow for the variety of professional backgrounds from which applicants come. Applicants must also supply professional references.

The *IH* program is one of specialized training and experience for one year. This leads to a final exam which, if passed, allows certification as a *CIH*.

Applicants who chose not to undergo the *IH* training program are required to complete a set of two exams. The first core exam is seven hours long and consists of 280 questions about the general practice of industrial hygiene. The second exam, which follows the same format, is in a chosen area of specialization (several are offered). A grade of 65% or higher is required to pass either of these exams.

Once certified, the hygienist must keep up to date and actively working in the field in order to keep the accreditation. Every six years, a hygienist's record is evaluated and he/she must have earned sixty credits by attending conferences, writing papers, teaching, and actively practising industrial hygiene. Hygienists who have not fulfilled this requirement may be asked to rewrite the certification exam in order to remain certified.

II.B.2. American Board of Toxicologists (ABT)

A designation of *Diplomate of the American Board of Toxicology* which is a certification in general toxicology, is accorded to individuals after they have undergone a peer review to establish eligibility to write the comprehensive examinations in general toxicology, and successful completion of three examinations.

The eligibility of candidates for admission to write the certifying examinations is determined by the ABT based on educational training and professional experience. The combinations of education and experience that are the minimum requirement for eligibility are specific and very

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demanding. For example, a candidate with a Doctoral degree (PhD) must have at least three years post-doctoral experience, including one year of specifically toxicological work. Once a candidate is deemed eligible, he/she is able to sit the examinations, but only within the next two years. Otherwise the candidate must reapply to the ABT for eligibility consideration.

The written certifying examinations consists of 100 multiple choice questions on each of three areas (toxicology of agents, special toxicology, and applied toxicology/risk assessment) and is designed to cover the full scope of general toxicology. The candidate must successfully complete each of these sections, within a single sitting, or must complete two exams in one sitting and the third in the next sitting. Examinations are held only once every years.

Diplomates are certified for five years and then must undergo re-certification. In order to be re-certified, they must provide evidence of continued growth and advancement in their knowledge of toxicology. The criteria by which this is judged are: active practice, and continuing education in toxicology. A "take-home" re-certification exam must also be completed.

No training program, as a preparation for the examinations, is offered by the ABT. However, the ABT does offer annual self-assessment examinations that are similar to the certification examination. These are supposed to be used by prospective candidates to gage their preparedness and to identify areas where additional study is required.

II.B.3. Canadian Institute of Chartered Accountants (CICA)

This organization sets the standard by which the competence of practitioners in public accounting practice is measured. Public accounting practice is differentiated from private accounting practice on the basis that public practioners, *Chartered Accountants*, are qualified to perform audits of third parties whereas private practioners are not.

A candidate for accreditation as a *Chartered Accountant* must possess a university degree, and must enter into a three-year apprenticeship program under a *Chartered Accountant*. During the apprenticeship period, the candidate must complete classroom training sessions provided by the provincial Institutes. Each of these involves an examination. At the conclusion of the apprenticeship program, candidates undertake a comprehensive written examination set by the federal CICA body.

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Candidates are accredited as *Chartered Accountants* once they pass the final examination and provide acceptable professional references from *Chartered Accountants* who have supervised their apprenticeship. This professional designation is permanent; there is no requirement for continuing professional education or for on-going active practice to maintain the accreditation. The Institute does offer opportunities for continuing education through conferences.

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II.B.4. Institute of Certified Management Consultants of Ontario (ICMCO)

The designation of *Certified Management Consultant* is one which is sought by professionals from very diverse backgrounds and so the setting of practice standards and acceptable accreditation practices is a difficult task.

Acceptance by the Institute as a *Prospective Member* requires that the candidate possesses a post-secondary degree or the work equivalent and some basic experience in the field of management consulting. The candidate must then complete a program of independent study, guided by material and references provided by the Institute, in preparation for a series of eight examinations.

The first exam is of a general format (60 multiple choice questions) and the material is an introduction to the profession and its practices. The ICMCO does offer a brief seminar to help prepare students for this examination. Applicants must pass this examination within two years of acceptance of their application or must reapply for *Prospective Member* status.

Upon successful completion of this exam, the applicant is then eligible to write six *Functional* examinations (60 multiple choice questions each) in the areas of finance, marketing, strategic planning, human resources, operations management, and information technology. Each of these must be written or a *functional equivalency* granted before the candidate is eligible to write the final *Comprehensive* examination.

The *Comprehensive Examination* is eight hours in length and is presented in the form of a case study. It is intended to reflect and ensure competence in this multi-disciplinary field. The candidate must submit a consulting report for grading.

The designation of *Certified Management Consultant* will be granted upon successful completion of all of the exams or granting of equivalencies, completion of three years' consulting experience, submission and acceptance of five assignment summaries, sponsorship by a certified member, and acceptance by the certification Council of the Institute.

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The ICMCO conducts a variety of seminars for its members but there is no requirement for continuing education or experience in order to keep the designation of *Certified Management Consultant*. No periodic evaluation or re-certification processes are used.

II.B.5. Law Society of Upper Canada (LSUC)

The practice of law is a very exclusive one and so this organization, that sets the professional standards for lawyers in Ontario and licenses them to practice after a period of apprenticeship, is very strict about eligibility and admission.

An applicant must have at least an LLB degree from an accredited school. He/she must then pass through three successive phases of admission. The first is a review to assure good character which involves searching for criminal records and getting character references, as well as a general interview. Phase two consists of one month of intensive training and then twelve months in an articling program. Upon completion of this, the third phase begins, involving four months of training and the final examination.

Once admitted to the Society, the lawyer must abide by a strict code of professional conduct. The Society investigates every complaint that it receives and also conducts random audits of its members' practices to insure that professional standard are met.

II.B.6. Association of Professional Engineers of Ontario (APEO)

Individuals wishing to practice engineering in the public marketplace of Ontario must be licensed by this professional body. Only graduates of engineering programs or faculties that have been accredited by the Organization of Professional Engineers of Canada are eligible for this designation. In addition to holding a post-secondary degree in engineering, the candidate must also complete a two year program of apprenticeship, during which time they hold the designation *Engineer in Training*, and they must earn a passing grade on a non-technical written examination. This exam covers the legal issues and ethics of practising engineering and a candidate may write it after one year of apprenticeship under the supervision of a licensed engineer. Many engineering firms employ unlicensed engineers to work under supervision and thus give them the practical training required before they become licensed themselves.

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There is no requirement for periodic re-licensing, as the profession depends on market pressure to ensure the continued competence of its practising members. The APEO does, however, investigate any complaints about the professional conduct of its members and these can result in the permanent loss of the license.

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**TABLE 3. SUMMARY OF CERTIFICATION/LICENSING AND TRAINING PROGRAMS OF PROFESSIONS RELATED TO THAT
OF ENVIRONMENTAL SITE ASSESSORS**

REQUIREMENT	ABIH	ABT	CICA	ICMCO	LSUC	APEO
university/college degree	R	R	R	R	R	R
eligibility review by peers		R		R	R	
apprenticeship program	R		R		R	R
training by organization	R		R	R	R	
practical experience	R	R	R	R	R	R
professional reference(s)	R	R	R	R	R	
formal examination(s)	R	R	R	R	R	R
continuing education or experience	O	R	O	O		R
periodic re-accreditation	R	R				
re-accreditation exam(s)	O	R				

R = Required O = Optional

III. THE ROLE OF AESAC IN THE STANDARDS OF Phase I ESA PRACTICE

III.A. OVERVIEW

AESAC fits the definition of a non-exclusive organization. Its role is to set or drive the profession to more stringent standards of practice. AESAC has been organized with the needs of its members' clients in mind. Clients, such as financial institutions, want credibility, confidence and consistency in an environmental site assessor.

AESAC can satisfy these client needs by establishing the qualifications of an environmental site assessor and then comparing would-be practitioners to these established standards. These qualifications might include knowledge, training, successful completion of an exam, judgement, experience and trust-worthiness.

Other non-exclusive associations may set the standards of practice for their members. In AESAC's case, the CSA has established the standard of practice. The role of AESAC is to measure prospective members and determine whether they can deliver Phase I ESA services at the level prescribed by the CSA standard.

III.B. AESAC'S ROLE

The aspects of AESAC's role appear to be the following:

III.B.1. Recognition of Appropriate Experience

This role necessitates the implementation of a system to evaluate the qualifications of applicants to the AESAC training program. The system adopted must be able to handle the experience and abilities of the applicants which will be wide ranging due to the diverse backgrounds from which they come.

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The NEARB uses a point system to quantify the qualifications of its applicants. Their scheme has been summarized below and is also used by GLOBALTOX as a model on which to base its recommendations to AESAC. It has also been used by the CEAA as a model.

III.B.2. Establishing Standards of Training

The accompanying *Educational Curriculum* document deals solely with this recommended role of AESAC as a training body. It outlines the standards of training required for competency in the performance of Phase I ESAs according to the specifications of the CSA Standard. Mandatory modules are recommended, as well as some supplementary ones.

III.B.3. Certifying Practitioners' Competence to Meet Requirements of the CSA Standard

This role involves the certification of environmental site assessors to the standards of competence required by the CSA Standard. GLOBALTOX has made recommendations for AESAC's certification program. These recommendations are based on reviews of other certifying organizations described in the earlier sections of this document.

III.B.4. Other Roles

Three other roles include the establishment of a code of ethics, continuing education, and standards for re-certification of environmental site assessors. The recommendations for AESAC's certification program include recommended requirements in both of these areas. The summaries of requirements by other professional organizations were used by GLOBALTOX to make these recommendations.

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III.C. THE CONSIDERATION OF EXPERIENCE, EDUCATION AND TRAINING IN THE CERTIFICATION OF ENVIRONMENTAL SITE ASSESSORS

The prospective applicants for certification by AESAC come from a wide variety of backgrounds. They have a range of academic and practical experiences which need to be considered when offering accreditation.

The NEARB uses a point allocation system to quantify the qualifications of its applicants. This is summarized below as a model on which AESAC may wish to base a system of its own. The CEAA has proposed adoption of this point system with only minor differences.¹

III.C.1. Summary of the NEARB Point Allocation Scheme

The primary objective of this scheme is the registration of environmental auditors in order to create a listing that is useful to clients looking for people to perform such work. However, the NEARB hopes that registration will come to be seen as indirect accreditation to perform environmental audits.

The qualifications and experiences of each applicant are quantified by the allocation of points. This system allows for the wide range of backgrounds and levels of the applicants. It accounts for academic qualifications, membership in professional institutions, training, and experience.

A maximum of five (5) points is allocated for the academic qualifications of the applicant. A degree in a directly relevant audit field (eg.science, engineering, management) gains three (3) points and academic accomplishment in fields that are not directly relevant are allotted two (2) points. A higher degrees aimed specifically at environmental auditing may gain the maximum five (5) points.

Senior membership in only the most directly relevant institutions with formal assessment will gain the maximum five (5) points towards registration. Other membership categories will be allotted up to three (3) points depending on the relevance of the institution and the degree of training and assessment required for membership.

¹ Canadian Environmental Auditors Association 1994

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Each day of formal training in directly relevant areas is allotted one (1) point but a variety of training must be demonstrated. The applicant can be awarded a maximum total of five (5) points for formal training. An individual training course which involves formal assessment or exams counts for more points than does a course of the same length and content which involves no such assessment.

Every five days of directly relevant experience is awarded one point.

Registration is accorded into one of the three categories based on the points allocated by this system. The categories are: Provisional Environmental Auditor, Environmental Auditor, and Principal Environmental Auditor.

The Provisional Environmental Auditor category is intended for newcomers to the field with academic qualifications, practical training, and experience although the amount of experience necessary is minimal. The applicant must be allotted ten (10) points and provide one reference.

An applicant for the category of Environmental Auditor must have at least 100 days of directly relevant experience in excess of the requirements for Provisional Environmental Auditor. He/she must be allotted 30 points and provide one acceptable reference.

An applicant with 100 additional days of directly relevant experience in addition to the requirements for the Environmental Auditor category is eligible for the Principal Environmental Auditor category. Applicants must submit a dissertation on a relevant topic for oral examination, be allotted 50 points, and provide one acceptable. This category is intended for highly experienced auditors.

III.C.2. Comparison of NEARB and CNAREA Systems for the Evaluation of Qualifications

The CNAREA uses a system of credit allotment to measure a candidate's eligibility for designation as a real estate appraiser. It is different from the point system used by NEARB in a number of ways. These differences are summarized in Table 4.

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TABLE 4. COMPARISON OF NEARB AND CNAREA SYSTEMS FOR EVALUATING QUALIFICATIONS

	NEARB	CNAREA
accreditation levels	·Three progressive levels	·an apprenticeship and then three equal designation levels
critical designations	·10, 30, and 50 points respectively for the three levels	·520 credits for designation in the first level
relative weights given to areas of qualification	·initial accreditation can be achieved with little experience but lots of education and training ·higher levels require increased practical experience	·education and experience (which includes training) are considered equally important ·minimum of 200 credits must be earned in each of these areas
academics or education	·maximum 5 points ·the more relevant courses receive more points ·no specific courses mentioned	·no maximum set ·specific courses are mentioned and some are mandatory ·each receives 25–100 credits
training in Phase I ESAs	·maximum 5 points ·relevance and formal assessment receive more points ·each full day of training receives 1 point	·courses are included under the heading of "education" credits ·specific courses are mentioned and some are mandatory ·each receives 25–100 credits
professional memberships	·maximum of 5 points ·relevance and formal assessment are given more points	·not mentioned specifically ·designation by MVA or CRA is awarded 100 credits
experience	·no maximum set ·five days of relevant practice is rewarded with 1 point	·minimum of 200 credits for accreditation ·specific jobs receive 1–50 credits each ·attendance at conventions and meetings receives 5–10 credits each ·each year of experience is awarded 10 credits

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III.C.3. Recommendation for AESAC

GLOBALTOX recommends that AESAC use the NEARB point allocation system as a model on which to base a system of its own. The details of the actual allocation of points for various qualifications and experiences could be used directly by AESAC. However, it would be excessive for AESAC to have three progressive levels of accreditation as NEARB does. Instead, GLOBALTOX recommends that AESAC implement a two tiered system as detailed in the recommendations section below.

TABLE 5. PROPOSED AESAC POINT SYSTEM FOR EVALUATING APPLICANTS

	Point System Proposed for AESAC	
accreditation levels	·one accredited level (with one pre-accreditation or apprentice level)	
critical level for designation	·100 points earns eligibility to write the accreditation examination	
relative weights given to areas of qualification	·education/training and experience/professional membership are given equal weight ·50 points must be earned in each of these two areas	
post-secondary education	·maximum of 25 points ·post-secondary degree or equivalent in related field receives full number of points	50 points total
training in Phase I ESAs	·minimum of 25 and maximum of 50 points for courses taken ·5 points for each 8 hours of AESAC-approved course time	
contribution to professional organizations	·maximum of 25 points total ·relevant professional memberships (maximum 10 points) ·contribution to AESAC committees (maximum 25 points)	50 points total
experience	·minimum of 25 and maximum of 50 points for practical experience ·1 point for every ten days of relevant experience	

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IV. RECOMMENDATIONS FOR AESAC'S CERTIFICATION PROGRAM

TABLE 6. SUMMARY OF RECOMMENDED AESAC CERTIFICATION PROGRAM

	Associated Environmental Site Assessors of Ontario (AESAC)
PURPOSE	·certification of individuals to perform Phase I ESAs according to the CSA Standard
REGISTRATION	· <i>Registered Members</i> are at an entry or pre-accreditation level
POINT SYSTEM	·points accumulated for: educational background, formal training in environmental site assessment (including that in Phase I ESAs), directly relevant experience, relevant professional memberships, and serving on AESAC's committees
TIERED MEMBERSHIP	·two levels of membership: <i>Registered Members</i> (entry level) and <i>Certified Environmental Site Assessors</i>
EXAMINATION	·standard national certification exam upon achievement of eligibility by accumulation of points
TRAINING	·specific AESAC-administered courses and a period of practical experience required for certification-eligibility
RECERTIFICATION	·every five years by submission of evidence of continuing education and professional activity

Note: The details of Table 6 (above) can be compared directly to those for other similar certifying bodies in Table 1.

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GLOBALTOX recommends that AESAC adopt a two-tiered system for recognizing environmental site assessors. The entry level would provide a registration function, allowing members of AESAC access to courses, newsletters and other publications, annual meetings, and "apprenticeship" postings. People at this level would simply be called *Registered Members*. *Registered Members* would accumulate points based on their educational background, formal training in environmental site assessment, and directly relevant experience. Points would also be awarded for serving on AESAC's committees.

When a critical number of points had been accumulated, the registered member would be eligible to write the certification examination. The registered member would have to submit an application to write the certification exam, along with two letters of character reference and an application fee¹. AESAC's Credentials Committee would review all applications for eligibility based on this point system. Eligibility would last for two years, after which time a registered candidate would have to re-apply and re-submit the fee.

Eligible candidates would write the examination on a fixed date (perhaps two times each year) in a fixed location. If several locations are chosen, the examination would have to be administered simultaneously. A challenging two hour examination would be administered which would include a case study. Successful candidates would rise to the second tier and become certified members. Unsuccessful candidates would maintain eligibility for the remainder of the two year period. Weaknesses would be identified and these members would be encouraged to take courses to make up deficiencies and to sit the examination the next time it was offered. Certified members would be eligible to train registered members. They would also be able to advertise their services as a *Certified Environmental Site Assessor*.

Re-certification would be required every five years, but would not involve an examination. Instead, re-certification would consist of re-submission of credentials to show the member was still active, and submission of evidence of continuing education activities. Submission of examination questions and case studies by certified members could be encouraged by

¹ It is recommended that the examination fee be substantial, but not prohibitive (between \$250 and \$500).

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making them as evidence of continuing education, as will serving on the Credentials Committee.

The advantages of the proposed two-tiered system is that it allows environmental site assessors to gain experience on the job while working under the supervision of a certified member. The examination barrier between the two tiers also helps to elevate the profession by giving a measure of exclusivity to a non-exclusive organization. This helps to instill confidence in clients of certified members (mainly financial institutions). It also helps to instill pride in certified members and respect for their profession as they have had to "jump through some hoops" before they can hang out their shingles and be accepted as independent practising professionals.

The disadvantages of this proposed system of certification is that AESAC will have to set and administer the examination. However, it is highly likely that the examination fees collected will pay for the costs of administration of this system. Another disadvantage is the need to maintain the standards of practice of certified members. For this reason, an Ethics committee is also recommended. The Ethics committee would be required to investigate charges of wrong-doing or inappropriate behaviour by certified members. The Ethics committee should have the power to discipline members by preventing them from having access to registered members ("apprentices"), by suspending their right to receive referrals from AESAC or, in extreme cases, by suspending the certification of a member for a fixed period of time. Ethics Committee decisions could be appealed to the Board of Directors, who would make the final decision.

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