

Section 1 – Basic information

(a) Course title: [Cumulative effects assessment](#)

(b) Level: [intermediate/advanced](#)

(c) Prerequisites for participants (all proposals for courses at the intermediate and advanced courses must list necessary prerequisites): [Foundation training on EIA \(environmental impact assessment\)](#), [strategic environmental assessment \(SEA\)](#) or [cumulative effects assessment and management \(CEAM\)](#) (professional-level short course or University-level specific course or program); and/or minimum of 2 years in professional experience in planning and conducting EIA, SEA or CEAM. These prerequisites do not apply to student participants.

(d) Language of delivery: [English](#)

(e) Duration (1 or 2 days): [2 days](#)

(f) Maximum number of participants: [50, not including students attending for free](#)

(g) Is each participant required to bring his/her own laptop? [yes](#)

(h) Name and contact details of each trainer, including whether each is an IAIA member and has signed IAIA's Code of Conduct.

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Section 2 – Course description

(a) Summary of the purpose(s), content, and anticipated learning outcomes of the course (maximum 300 words). Please include within the text the level of the course and its prerequisites. An edited version of this text will be published on the IAIA15 website.

The two day Cumulative Effects Assessment and Management (CEAM) course aims to teach participants what cumulative effects are, how to identify and predict them, and how to mitigate them. CEA considers effects *on* receptors rather than the effects *of* a plan/project, and so requires a different mindset from 'normal' impact assessment. The course discusses how to identify affected receptors, techniques for assessing and evaluating cumulative effects, and what 'other plans and projects' should be considered in CEA. Cumulative effects usually require 'cumulative mitigation', which in turn requires the collaboration of multiple institutions: the course will address some of the issues surrounding this, and how to overcome institutional constraints. It will examine several successful CEA analyses and mitigation measures, and include a range of workshops. Participants are encouraged to bring 'cumulative effect problems' with them, for discussion during the course.

(b) Detailed description of the course structure and content (2 – 5 pages), including an outline of participatory and/or case study-based exercises. Interactive approaches to courses are strongly encouraged.

Summary

The premise of this course is that CEAM should be an integral part of, and not separate from other EIA/SEA processes. The course presents stepwise procedures associated with international best practice CEAM principles: identifying key environmental receivers / valued ecosystem components (VECs) and their spatial and temporal boundaries; describing historical baseline conditions and trends; identifying cause-effect linkages between past, present, and future actions and environmental receivers; predicting and evaluating the significance of cumulative effects; and developing follow-up adaptive management/mitigation.

This intermediate/advanced level course aims to:

- summarize the state of professional practice regarding CEAM
- discuss the steps of CEAM, including potential problems faced and real-life case studies
- apply CEAM procedures to two case studies
- consider approaches to cumulative effects mitigation and management

The course focus will be on practical approaches for management of cumulative effects, including the use of emissions trading, biodiversity or other offsets, and collaborative/strategic planning. Interchange of information and experiences among the participants will be encouraged. The anticipated learning outcomes are achieving a better understanding of the principles and practices of CEAM, and the ability to effectively apply them in study planning and implementation.

Course outline

Homework: Participants will be asked to bring (or pref. to send in advance) examples of cumulative effects, how they have dealt with them, problems they have faced

Day 1

9:00 – 10:30 Introduction

- Introductions and structure of the day
- Definitions + examples of legislation requiring CEAM (RT)
- Brief examples of cumulative impacts, positive and negative (RT)
- Critical importance of CEAM and challenges in conducting CEAM studies (BR)
- Key steps in CEAM (BR)

10:30 – 10:50 Break

10:50 – 11:40 Examples of cumulative effects and CEAM (participants, RT, BR)

11:40 - 12:30 Scoping

- CEAM as a focus on receptor/VEC (BR)
- Understanding how the system works – e.g. additive, synergistic, nonlinear etc. (BR)
- Identifying 'red flag' issues (BR)
- Impact of plan/project as a whole ('total effects') v. cumulative impacts with other plans/projects (RT)
- Role of baseline data (past trends, likely future baseline without the plan/project) (RT)

- Techniques for cumulative effects scoping: scenarios, workshops etc., with real-life examples of each
- Examples of good(ish) CEAM scoping (BR/RT)

12:30 – 13:30 Lunch

13:30 - 14:50 Workshop 1: scoping

- Introduction to case studies, ideally one related to Florence; plus poss. oil exploration plan and climate change/equity; onshore windfarm project and visual/biodiversity impacts
- Ask groups to discuss:
 - What cumulative impacts might arise?
 - How could they be identified?
 - What are 'red flag' issues and how do you know?
- Plenary

14:50 - 15:10 Break

15:10 - 16:30 Other plans and projects

- What other plans/projects/human actions to consider (BR)
- Workshop 2: What other plans/projects/human actions should be considered? Who needs to be involved in the CEAM? (BR)
- Plenary

16:30 Conclude

Day 2

9:00 – 10:00 Cumulative impact prediction

- Techniques for impact prediction (modelling, GIS etc., with real-life examples of each) (RT)
- Scale issues, assumptions and uncertainty in CEAM (BR)
- Examples of good(ish) CEAM impact prediction (BR/RT)

10:00-11:20 Workshop 3: Predicting cumulative impacts

- Impact predictions based on case studies from Day 1
- Plenary: predicting cumulative impacts
- Tea/coffee taken during workshop

11:20 – 12:30 Mitigating cumulative impacts

- 'cumulative mitigation for cumulative impacts' (RT)
- types of mitigation, e.g. thresholds/standards, compensation (>1:1 etc.), provision of alternative 'attractors', etc.) (RT)
- strategic level v. project level mitigation (RT)
- issues in agreeing and implementing mitigation, esp. involvement of multiple parties (BR)
- examples of good(ish) cumulative effects mitigation (BR/RT)

12:30 – 13:30 Lunch

13:30 - 15:00 Workshop 4: Mitigating cumulative impacts

- Using previous case studies, ask groups to
 - suggest possible mitigation measures for cumulative impacts
 - identify the level at which they would best be mitigated, and who would be the lead authority and other relevant bodies

- identify hurdles to implementing 'cumulative mitigation', and possible solutions to the hurdles
- Plenary

15:00 – 15:20 Break

15:20 – 16:30 Issues in cumulative impacts

- Comprehensive assessment v. focus on key issues (RT)
- CEA in times of austerity (RT)
- Monitoring cumulative effects (RT)
- Resilience and CEAM (RT)
- Biodiversity, ecosystem services and climate change and CEAM (BR)
- Revisit of Canter and Ross's "The good, the bad and the ugly": Have things changed? how can problems be overcome? (BR)

(c) Description of the materials participants will receive prior to or during the course.

Each participant will be provided a course manual containing copies of PowerPoint slides, information on case studies, related workshop materials, and references.

(d) Description of any technology/equipment required to facilitate this course beyond the usual flip charts and PowerPoint projectors: none

(e) Provisions for pre-conference and post-conference communication with participants. We will both be at the IAIA conference and can be contacted there, or participants can email us after the conference.

Section 3 – Qualifications of the trainer

(a) An abridged curriculum vitae (*maximum 1 page*) for each trainer.

Bill Ross

Dr. Ross is a Professor Emeritus of Environmental Design in the University of Calgary (January, 2009). He has a BSc degree from the University of Manitoba, and a PhD degree in physics from Stanford University. His main academic interests are in EIA and CEAM. He has been a member of eight Canadian Environmental Assessment panels spanning five decades, and he has been a member and chair of the Independent Environmental Monitoring Agency for Ekati Diamond Mine, Northwest Territories. The recent EA panels on which Bill has served have addressed both project impacts and cumulative effects, as required by Canadian law.

Dr. Ross is the author or co-author of numerous peer-reviewed articles, including several related to CEAM. Further, he was a co-author of the highly respected "Cumulative Effects Assessment Practitioners Guide" (Canadian Environmental Assessment Agency, 1999). He was the Founding President of the Western and Northern Canada Affiliate of IAIA. Dr. Ross also received IAIA's Rose-Hulman Award at the 2009 annual conference held in Accra.

Riki Therivel

Dr. Therivel is a partner of Levett-Therivel sustainability consultants and a visiting professor at Oxford Brookes University's Department of Planning. She specialises in environmental and social impact assessment of policies, plans and projects, and in resilience thinking. Riki teaches EIA and

SEA on Oxford Brookes University's MSc courses in Environmental Assessment and Management. She is the new (Sep. 2014) editor of *Impact Assessment and Project Appraisal*.

Riki has co-authored key guidance documents on how to implement the European strategic environmental assessment (SEA) and Habitats Directives; has supported a wide range of authorities from the national to the sub-local level in their SEAs; and has written/edited many articles and books on these subjects. Work that has included a CEAM component includes SEA of the 100 year flood management strategy for the tidal River Thames; SEA for a dozen Qatari land use plans; SEA of several regional spatial strategies in England; development of guidance on SEA and climate change; and critical review of Irish guidance on cumulative impact assessment. Riki, and is the 2002-3 recipient of the International Association for Impact Assessment's Individual Award for her contribution to the development of SEA and excellence in teaching and research.

(b) History of the course: title(s), number of times, where and to whom it has previously been delivered and evidence of its success, number of attendees.

The proposed course is an evolution and updating of prior CEAM courses run by Drs. Ross and Canter. It also includes information previously presented by Dr. Therivel in courses on SEA and Habitats Regulations Assessment.

Dr. Ross has presented dozens of short courses or workshops on CEAM, lasting from two to five days. Course sponsors have included the International Association for Impact Assessment (2008 in Perth; 2009 in Accra; 2010 in Geneva; 2012 in Porto; and 2013 in Calgary), several Federal agencies in Canada, the Banff Centre, and presentations to an Ecuadorian-Canadian mining company jointly with consultants and the Ecuadorian Ministry of Environment.

Participant evaluations of Drs. Ross and Canter's courses have typically been very positive in terms of both content and presentation. The evaluations of the IAIA courses have been very positive. Further, the topical content of these courses has evolved over time. This IAIA'14 proposed course includes these themes along with an emphasis on hydropower and mining projects, cumulative effects mitigation and management and the delineation of emerging best practice principles.

A comparable example of courses run by Dr. Therivel are those on Habitats Regulations Assessment (which includes a component of 'in combination' assessment). Courses included

- Brighton (UK) 2006, approx. 30 participants
- Sligo (Ireland) 2009, approx. 40 participants – one of the trainees was impressed enough that she organised a course in Kildare the next year
- Kildare (Ireland) 2010, approx. 50 participants
- UK Infrastructure Planning Commission 2012, 30 participants, invited in part because they had heard about the success of previous courses

Dr. Therivel has been running courses for the Royal Town Planning Institute for years: this is a sign of training success, as this means that she is the chosen trainer for a national body of planners. Riki was also the 2002-3 recipient of the IAIA's Individual Award for my contribution to the development of SEA and excellence in teaching and research.

Section 4 – Commitment of the trainers

(a) Identify how many times any course by any of the trainers has been offered. If applicable, explain the reasons why a course offering has been cancelled.

- Dr. Ross has presented “fundamental and evolving” CEAM courses many times since the mid-1990s. There were no cancellations.

- Dr. Therivel has presented two courses on strategic environmental assessment at IAIA (second one 2010), neither cancelled. She has run dozens (hundreds?) of similar courses worldwide, e.g. two two-day SEA CPD courses run every year at Oxford Brookes University; two one-day SEA CPD courses run every year for the (UK) Royal Town Planning Institute; five day SEA course in Ghana 2005, four-day SEA course in Iran 2005, two-day SEA course in Northern Ireland 2007 & 2014

(b) Similarly, identify earlier approved training courses you were involved in organizing, but where changes in trainers or course structure were amended, and explain the reasons for this. *none*

(c) Indicate the level of commitment to give this course at IAIA15 by noting any circumstances that would cause the course to be cancelled (other than if the minimum enrolment is not reached) or circumstances that would cause the instructor(s) not to be in Florence to offer the course. Note also that courses that require a minimum of more than 10 participants will be at a disadvantage. *Riki is the new editor of Impact Assessment and Project Appraisal, and contractually must attend all IAIA conferences anyway. Bill has attended every IAIA conference since 1999 (and three before that). He is committed to Florence in part because it is a great place and mostly because his wife says she wants to go.*

(d) Note backup strategy in the event an instructor must withdraw unexpectedly. *Either of us could run the course solo if necessary*

(e) Statement agreeing to provide free places to students based on formula described in the "Student participation" paragraph below. *Yes that's fine. Good idea.*