

## Preparation of Students for Professional Practice: A View from the Trenches

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Environmental practitioners now are more likely to come from interdisciplinary education programs than in the previous thirty-odd years since the rise of the environmental professions. But regardless of the nature of their training, one of the most common questions and concerns lies in the nature of deciphering what to expect when leaving the "cocoon" of academia and entering the world of environmental practice; a world of jobs, competition, clients, and regulatory compliance. Bringing the experiences of practitioners into the classroom is one way to address this concern.

As a government regulator who moonlighted by teaching graduate courses in environmental impact assessment (EIA) and now teaching full-time, I have always been interested in the pragmatic aspects of environmental science. Pleased at the success of one of my recent students in the fast-paced arena of environmental consulting, I asked that student to address the next crop of EIA students. "Please write a 'letter from the trenches' summarizing the advice and wisdom you've gained from your new job," I asked my former student. After six years of continued success in preparing environmental impact statements, this same professional was asked, "What would you add or change in your earlier letter?" The two letters, edited, are reproduced below.<sup>1</sup>

Letter 1: December 5, 1992

Dear EIA Class:

In 1991, I completed my coursework in the resource management and administration (MS) degree program at Antioch. My academic concentrations were in waste management and water resources. I am writing you to discuss some things that I have

<sup>1</sup> While pleased to share his thoughts with current and future professionals, the author of these letters wishes to remain anonymous.

learned "from the trenches" of environmental impact assessment.

I am a research analyst at an engineering consulting firm where I conduct environmental assessments (EAs) and environmental impact assessments (EIAs). I have learned a number of things during my employment over the past half year. Some of the things I have found to be most important are summarized below.

- *The scope of work is very important to understand.* The scope of work should be fully understood by the contracted firm. A personal meeting with the client should be held to discuss any uncertainties. Try to get yourself included in such meetings so that they are not left to senior staff alone—you are the one who will be "in the field."
- *Use the scope of work as an outline, and provide your work in the requested format noted in the scope of work.* The scope of work is a summary of what services would be provided by the contracted firm. Accordingly, this should serve as a basic outline for the work completed.
- *Make and follow an outline, which should also be used in cost proposal development.* This outline should serve as an initial table of contents to help the preparers stay organized during project work. It should also serve as a task sheet for estimating costs for a cost proposal.
- *Attempt to get due dates for the different deliverables for your project and plan backwards for your internal due dates.* It is sometimes ambiguous when certain drafts (deliverables) are due. This is especially true for subcontracting work, where due dates are filtered through the prime contractor. Every effort should be made to get these dates and develop a time-line for the work effort. If no time-line is available, develop internal time-lines that are conservative. Don't be late!
- *Write the method of your work as you progress and not afterward. It takes more time, but it is well worth it for accuracy.* It is well worth the effort to keep a legal pad especially for methodology. Should anyone (including yourself) have a question about your methods, it will be readily available.

- *Know well where to find and how to use your data resources for each project.* Remember that as a consultant, you are a problem-solver and should be well versed on your available resources and how to use them. Seek every opportunity to learn and develop skills in obtaining data . . . any data. All knowledge is good!
- *Data are rarely in the form requested and if they are, the requested format is rarely perfect.* This is a bitter truth. In no instances have I been given a completely "clean" data set that is ready for analysis. Media form, software format, content, and structure are typical problems encountered in data. Plan ahead for problems with data manipulation . . . both an art and science.
- *Be realistic with what can be provided with certain costs.* Strive for excellence but not perfection. The effort expended in this marginal difference is not typically justified.
- *Realize that after the contract is signed, you and your firm are responsible for all things in the corresponding scope of work. Negotiate carefully.* As noted above, the contracted firm must fully understand its responsibilities outlined in the contract and corresponding scope of work. You cannot be too rigid in this phase of the project.
- *Learn what level of detail is needed for each task to be completed.* Do not discuss insignificant items in great detail while only marginally discussing important items. Detail should correspond to significance.
- *Your discussion of impacts must be accompanied by a preceding section of corresponding baseline conditions to the level of detail of the impacts discussion.* Enough said.
- *Don't be afraid to use boiler plate information to avoid wasting time.* In certain instances, information from one portion of the same or different projects may be relevant for another portion of the same project or for another. Do not reinvent the wheel. Utilize your information and always note your sources.
- *Don't be afraid of qualitative rather than quantitative assessment where appro-*

*priate*. In some instances, qualitative assessment is the only feasible method. This is perfectly acceptable. As a consultant, you have been hired for your skills and professional judgment. However, always fully explain your qualitative conclusions.

- *The baseline section must contain the information to substantiate findings of no significant impacts.* If no significant impacts are found in the EA or Environmental Impact Statement (EIS), this conclusion must be fully developed in the baseline and impacts sections. A simple statement of no significant impacts is not enough!
- *The EA or EIS is not complete after all sections are complete—editing, tables, table of contents, page numbering, inserts, copying, binding, mailing, and cover letters must also be completed.* Plan ahead! Realize the logistics in getting multiple copies (sometimes 100 or more) edited, copied, bound and mailed. Conform to the organizational systems of your key players, your typists. Helping these people will make the hectic due day much more smooth. Stay calm on the “due day,” and remember that few projects are sent without the overnight Federal Express Label.
- *Volunteer for special projects to expand your skill base.* The most important skill in a multidisciplinary consulting environment is flexibility. Use your ability to learn how to learn — the *raison d’être* for a liberal arts degree. Develop your skills at reading technical manuals. This will greatly enhance your flexibility.
- *Develop a subject specialty within environmental assessment; i.e., socioeconomic, physical environment, or natural environment.* In order for you to be included on a project team, you must have a specialized skill that will allow you to take responsibility for a section of the project. Specialization in a certain area will contribute to your usefulness and the firm’s dependence on you! But keep your generalist orientation too; your “eye on the big picture.”
- *Attempt to specialize in a type of project in order for the firm to become dependent on your skills.* Certain types of projects may recur. For example, highway expansion projects and military movement projects are common types.
  - *Do not underestimate your skills. Many people are winging it and you may be more experienced!* While only a rookie, you do have a significantly wide knowledge base from which to draw. Use it.
  - *Be confident of your knowledge and do not be afraid to ask your project team members questions.* Your project team is a team. You cannot learn unless you first understand, and the team is the fastest way to do this.
  - *Know the differences between EAs and EIAs.* Learn the level of detail expected for the agency for which you are completing the work.
  - *Develop memorandum-writing skills for coordination letters.* Concise memo-writing skills will save time in coordination between clients, different departments, and stakeholding agencies.
  - *Realize the existence of bureaucratic dislocation, disorganization, and inefficiency before beginning to deal with federal, state, or local governments.* Government employees have to deal with this too, and may be just as frustrated. Things go smoother if you understand the system.
  - *Make sure that you always keep a priority list.* Sometimes your plate is empty, and sometimes its overflowing. Always know what is more important and act accordingly. If you don’t know, your supervisor will certainly tell you.
  - *Personal meetings are much more effective than telephone conversations.* This is especially true in scope of work and contract negotiations. It’s too easy to hang up a phone! People will work much harder towards a compromise if they pay for flight, food and lodging for a meeting.
  - *Master group interaction.* Most work is completed through cooperative efforts in one way or another. Learn to share praise and responsibility.
  - *Understand the unofficial and unspoken powers of the firm’s typists and supply orderers.* The typists rule on “due day.” Be friend these special people and your life will be much more pleasant. Also, always conform to their organizational systems, no matter how bizarre they may appear! For instance, if any draft document that is to be typed must be stamped in red ink before being typed by the typist, so be it! The supply orderers also play a similarly powerful role.
- *Learn to seek and accept criticism with a smile. Remember, the people who will be giving this criticism typically are more experienced and may know best.* Technical writing is different from scholarly writing. Be concise and roll with the punches. The writing will come with practice.
- *Learn to budget your time during the day. Set daily goals. Don’t split hairs if you do not need to. Go on to other things.* Setting daily goals will help you to stay on line for longer time lines. The tendency to procrastinate or to work slowly may become overwhelming without these progress checks along the way.
- *Do not forget that in the consulting business, every minute of your day is billed to some project or overhead account. . . . be productive!* Enough said.
- *Sacrifice social acquainting during the first few weeks of employment in order to establish your lasting picture of diligence.* While difficult and seemingly fake, the first few weeks will give your supervisors a lasting impression of your performance.
- *Understand to whom you report and accept responsibility only through this person.* Changes in scope or other important changes should be given through the *one* person to whom you are responsible. It is important that directives be accepted from only one person. This will avoid conflicting directives. But do not exclude constructive input and advice from others.
- *Become proficient in MS/IBM DOS based computers. The government tends to concentrate in MS/IBM DOS format data. MS Office, WordPerfect, Quattro Pros are several software packages in which project work is frequently requested for the government.*

- *Be prepared to learn the firm's software in the off-hours. Staff development time is frowned upon although usually offered.* Staff development is an overhead account at my firm, and it is by definition non-productive in the monetary sense. Avoid it.
- *Purchase a compatible home computer for your word processing and table formation. It will be well worth the money to work at home.* Just a suggestion for a relaxing work environment for after hours work.
- *Understand that consultants are constantly sought for advice and sometimes have abundant confidence with large egos. Be careful with criticism while new at your job.* Use your best judgment.
- *Realize that the consulting business is interesting and profitable while the contracts are current. Few things last forever. Job security is dependent on contracts. Last one hired, first one fired.*
- *Always be outwardly positive about progress. Amazing things can be accomplished in a few extra hours of work. Stay cool.* Nervousness shows and never helps. You will be amazed at your productivity under pressure. You will appear much more professional if you avoid "sighs", and other signs of stress at work. It is the same logic as, "Never say that you are tired at work."
- *Tackle the most time-consuming portion of the project first by completing it or by planning on how to complete this section.* Plan ahead and get organized!
- *Complete field work as early as is practicable. More questions will be answered at an earlier time and your time will be used more wisely in the end.* If this can be arranged, it is most productive. However, it is not always possible.

I hope that these comments "from the trenches" are useful. Good luck with your career, and consider consulting. It's a very interesting career. With new projects every week your job can be a lot of fun.

Letter 2: February 15, 1998

Dear EIA Class:

I've now been in the consulting business for over six years doing interdisciplinary im-

pact analyses. I no longer work for the company in which I worked when I prepared this memo in 1992, but after rereading it, the tips still apply. A few additional comments may be helpful, however:

- *Get involved in societies, organizations, and the like.* It looks great on a resume, and extra people skill development never hurts. It's also very important for networking.
- *Network and market.* Worthy of its own tip, networking will help you during your transition or pull you through a project when you need guidance but don't want to ask the boss! Do it; maintain it up on a Rolodex or computer card file; and utilize it when you can. Regarding marketing, you never know when your subconsultant will be your prime. Keep your eyes open. Read the papers, *Commerce and Business Daily* (a compilation of bid notices for federal contract services of \$25,000 or more), and other.
- *Write articles, papers, and otherwise toot your own horn.* Everyone works hard. Your hard work will likely be unnoticed at times. Don't try to get "att-a-boy's/girl's" for every accomplishment, but do have your work noticed. Write E-mails that time-stamp your work if you work at night. There are other subtle ways to do this. Writing papers for publication or for presentation at conferences is a great way to get recognition, get to go to the conference, and sometimes honorary bonuses! Also, it's great for your resume.
- *Keep a detailed list of every project on which you have worked and your responsibilities.* Additionally, try to get a copy of each report that you've been involved with preparing. It's great to bring some of these materials, especially the list and a shining example of your work, to interviews.
- *Go the extra mile . . . on your own time.* For instance, if you believe that a certain form used at work is obsolete, make a new one, and suggest its use. Be industrious. Take command, and be invaluable.
- *Help out other divisions when you can.* Perhaps another division in your company may do very different work than

you, but that doesn't mean that they couldn't use your help in a pinch. Try to identify these times, and suggest help. Such "team" attitude can only help when managers discuss among themselves personnel actions.

- *Know the Internet, E-mail protocols, FTP protocols, and in general, your computer.* Computer maintenance (loading new programs, uninstalling programs, cleaning hard drives, and the like) is becoming assumed knowledge for employees. Office Management Information System Coordinators are taxed enough with maintaining networks. They don't want someone asking them how to reload a computer program. And, you certainly don't want them complaining about such menial requests from you to anyone important—on purpose or otherwise!
- *Shop around for the best vendor if you are spending company or project funds.* This is obvious, but it is important that you document your search. This may even be required per company policy.
- *Analyze outsourcing vs. in-house photocopying.* Photocopying can be expensive if leasing machines in-house. Often, vendors will work out deals that make spending the per page and in-house labor look very wasteful. Work the savings up on paper and keep it to justify your decision.
- *Document everything.* Document all telephone conversations and meetings where plans or decisions are made or data are collected; have someone else review work before it is submitted and have them document this review. Don't forget to check spreadsheet formulas and other calculations when reviewing the submittals. Often such spreadsheets are considered a "black box" after they are developed, with users assuming they are correct.
- *Check your work.* This also deserves its own tip. This is most important to avoid costly and embarrassing errors.
- *Stay away from gossip and socializing too much.* Not to be so straight-laced about this, but it's just a good professional decision. You can still be friendly without such things, and you'll stay away from

any problems that arise from it. And there are problems.

I have found that students appreciate and relate to the straightforward advice suggested above. However, my former student and I are the first to acknowledge that it is based on common sense and reflects typical management principles (e.g., Total Quality Management). Nevertheless, the pragmatic application of basic business practices provides reassurance during the transition from student to environmental professional.

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