

Haris Koplin

March '85

Third Priority: "Social Environment"

Vol. 5 Social Impact Assessment

Critical Overview re. F

— Heavily biased to select site F —

1. Using narrow definitions and concepts:

- ✓ • Study area is much smaller than (enlarged) others, ^(*)deliberately ignoring nearby residential and commercial areas.
- ? • Ignores the urban (vs. rural) setting and its lifestyle.
- Ignores the existing leachate problem and its increase.
- 5 — ✓ • Ignores the geographic (scenic) setting: Escapement - Bay
- ? • Ignores future development potential, creating a long term blight.
- ? • Ignores the Parkway Belt West zoning (provincial Act!)
- Ignores hauling routes passing through city streets
- Ignores site's commercial license for clay/shale extraction
- ? • Ignores emotional impact/stigma re. existing site of Bayview
- 10 — • Ignores the stress of fighting the expansion of the present landfill
- Ignores the difference between a dump and a landfill
- Ignores concern about Bay and Lake quality (leachate to sewers).
- ? • Ignores difference between urban and rural "visiting patterns"
- Ignores " " " " " appearance standards
- Good 15 — • Ignores the "social equity" issue, leaving it a "political" matter.
- minor • Ignores recreational use of sites (all-terrain motorcycles/buggies)
- Good • Ignores noise impact (50dB) at Tridon and King Rd. commercial area
- ? • Ignores use of weight factors in evaluations
- ? • Ignores past and future of social environment
- 20 — • Ignores measurements, relying on volunteered opinions.

(cont'd)

(*) Myra Schiff stated in public meeting "study areas were selected before I joined project!"

Size of Study Areas

A B C D E F

farthest from "site", km

3.1 2.3 2.5 2.1 1.4 1.0

Reference

i.e. noise remaining, relative to 'F'

10% 19% 16% 23% 51% 100%

Using only $(1/\text{distance})^2$

OR LESS

(Narrow definitions & concepts, cont'd)

- (21) • Ignores F visible from city streets, Skyway bridge, escarpment lookouts, boats on Bay & Lake
- Ignores "showcase" properties nearby, Tridon, CUMIS, Stelco R&D
- Ignores the social life of the Aldershot community (F)
- Ignores traffic counts (densities) re. visibility of sites from at Hwy. (p.2-14/15)
- 25 — • Ignores the below-standards environmental performance of landfills
- Ignores after-use plans (park) for the present Burlington landfill

2. Using inconsistent arguments (for bias to select F)

- ? • Omits maps referred to throughout the report
- ? • Does not rank impacts as "NIL" where called for (rated "Low")
- Good • Excludes "properties used for commercial purposes" (p.2-1)
- Good • Included unoccupied rental properties (p.2-2)
- Good • When Site Plans were selected, the larger "candidate" areas were retained in the "study" area (p.2-2); at F, the study area was extended into vacant land and to Waterdown Rd. (p.2-4, not on map 5 of "Noise" report), i.e. 1.8 km westward, but not to southward and eastward residential areas at 0.7 and 1.0 km. Also see footnote on previous page.
- 5 — • TABLE 1: Only 11 samples for F, vs. 24 to 66 samples (avg. 53.2) at others
- North Service Rd. included re. haulage, but not the other city streets ('built up areas') to reach it; Additional 2.8 or 2 km of streets
- ? • Uses 3-digit accuracies evaluating survey data (p.2-7), but the accuracy of the volunteered data was not verified at all.
- BP will be partly for go (rs) • Potential income (loss of...) from land is considered at all sites (p.2-7) except F: NSP land is licensed for clay/shale quarrying.
- Planning for future, older than 45: Considered at other sites, but the quoted RSP premium data shows a lack of planning (p.2-8)
- 10 — • "Fewer housing options" for families of 5 and more: 4-bedroom homes are common in the region; building codes prohibit small homes (p.2-8/9).
- (cont'd)

(inconsistencies, cont'd)

- 3 -

["Index of Success" listed but not evaluated:]

- (12) • [a] "Relative rather than absolute value", although all factors are relative.
• [b] "Relative ranking of sites will be shown instead": Not shown, Tables 2 & 3.
• "Disruption" of households & residents only: Commercial not included.
• Heavy reliance on "study area" limits, but description does not agree with the quoted map for F, "Noise" (p. 2-10 to 2-16 and p. 2-4/5).
- 15 — • Sec. 2.5 headings refer to "Study Area" but text then refers to results for "each Site Plan Area" (p. 2-13, 2-14)
• Ditto Sec. 2.6 (p. 2-19)
• Ditto Sec. 2.7 (p. 2-21 & 2-22)
• Ditto Sec. 2.10 (p. 2-27) { (consistently misuses the area definition, p. 1-2)
- 20 — • Special attention to children up to 16 yrs, but ignores growing concern with self image for 16 to 25, need wider perspective.
• Children up to 16 yrs. "represent special concern with respect to traffic safety... and specifically, the use of school buses in the vicinity of... haulage routes" — disregarding haulage routes through Burlington city streets to site F. (p. 2-12)
• Visibility from highways cited, but not multiplied by no. of vehicles.
[Stress from the selection process, "to reflect the time, energy and
- Good • [a] disruption to their lives" excludes those not "living on-site or in the study area"... [See small study area at F]. (p. 2-16)
- Good • [b] excludes the uneven availability of resources and information for governments vs. individuals or groups.
• Head count of TABLE 6 ignores (a) commercial (b) residential areas nearby or even inside (re. (a)) the study area. (oppos. p. 2-17)
- 25 — • "Stigma" assessment included but only re. visibility of land fill; the real stigma effect works much more by other factors (p. 2-17/18)
- Good • Considers "stability of the community" and "local social networks", but makes no attempt to gauge the (sub)urban context (F) (p. 2-19/20) as opposed to the rural setting: More people identify with an area, have greater regard for civilized surroundings (landscaping, architecture...)

(Inconsistencies, cont'd)

- 4 -

"Where people failed to provide usable information... it was necessary to impute a score to them on this measure" (disruption of community) (p. 2-19):

- (28) • [a] has failed to measure or validate data
- [b] takes liberty of adding manufactured data.
 - [c] decides ratings without showing the evidence after lengthy description of what should be considered (p. 2-19 to 2-22)

30 - Special consideration for "artists, writers, artisans and craftspeople" is not extended to the Aldershot community (see "study area", small; avoids the word "measure" here) (p. 2-22 to 2-25)

- Good
- "Mitigating measures" refers to other reports, omitting water quality (lists noise, visual, land use and air quality, i.e. p. 2-25 footnote): Leachate effects are a major concern at F.
 - Fails to include that leachate control at F depends on engineering works (prone to fail) while all others depend on natural effects (more reliable), i.e. the future risk factor.

minor

- Recommends and describes in detail a liaison committee (incl. some citizen reps), but fails to state the powers of the "liaison" committee, if any (none, as per present arg't) (p. 2-26)

Good

35

- Ranks sites before discussing "Social Equity" issue, although that is a major objection to site F: Termed "political" (p. 3-1)
- Cites emotional impact under "Social Equity" for sites D & E not for site F (p. 3-2 and 3-3)

minor

- Calls the Bayview site a former landfill; it was a simple dump, i.e. it is environmentally much more damaging. (p. 3-3).

Good

- "Recreational uses" cited but not for site F (motorcycles, dunebuggies); (p. 4-1)

Good

- Assessing "community facilities" only by aspects raised by some individuals "responsible for (them)" - No independent definition of impact factors (p. 4-1)

(cont'd)

- Good • Enumerates in detail minor "community facilities" aspects, e.g. walkabouts (p. 4-2, A) but ignores the encroachment lookouts for F, e.g. top of King Rd. (p. 4-5/6)
- Good 40 • Quotes Parkway Belt West (ACT) re site C (p. 4-3), but not for site F (4-5/6)
- Rates for the identical (noise) impact: site B "moderate", site C "high" (p. 4-7 & 4-8)
- Good • Concern about aesthetic (visual) impact re. Milton District Hospital ("justified") is not similarly considered in (urban) Burlington, at much closer distance to much more population (p. 4-8; 4-10/11)
- Good • "Possible impact... at Bayview Park... partially supported", (*) whereas that park must be given up, per P. Walker at public meetings. (p. 4-10)
- Good • "Community facilities" fails to address the King's Court restaurant/dance hall inside the site F study area, nor are other commercial services on King Rd mentioned: They serve the public, too (p. 4-10 to 12)
- 45 —
- not picking • Quotes a relatively high availability of parks in Burlington but fails to acknowledge higher lifestyle standards in the city than in farming areas. (p. 4-12)
- (*) (see above) "it appears both feasible and reasonable that the recreational opportunities at Bayview Park can be provided elsewhere" - contradicts "possible impact" (p. 4-12 vs. 4-10)
- Good • Concludes "impact of a landfill on community facilities in Burlington is rated Low": Uses city-wide area in this context (i.e. not the study area any longer!)
- (49) • Footnotes refer to visual, noise and air quality aspects ^{it is covered} Bayview, omitting the lead-acid problem (p. 4-10/11) ^{under the} hydrogeology section

Hans Keppler

Conclusions:

This report is constructed on the inadequate basis of dealing only with issues raised by affected parties, but then selecting only some and ignoring other issues raised. The report totally lacks independent concept of social impact, measurement and objectivity, and it is not even a valid opinion poll.

Counting 26 issues ignored and 49 inconsistencies, mostly in respect to favoring the selection of site F, we view this report as a blatantly biased attempt to justify a predetermined choice of a site.

- A. Prioritize issues ignored and inconsistency
Provide more information in top 10
List the others briefly

Don't let the preponderance of detail get in the way of your statements

(Please ^{reconsider}
to H. Koepfer)

11 (Please return to H. Kreplin)

Mar '85

Selection of a Preferred Site

— Draft Summary Report —

This summary compounds the bias for selecting site F that is blatantly applied in reports such as Vol. 5, Social Impact, and Vol. 7/7A, Hydrogeology. Its end result must be rejected not only for the tainted findings it summarizes but also for the way it evaluates those findings:

1. "Comparative Analysis of Site Plan Areas" compiles the findings in Charts 1 to 5. But Figure 1, Summary of Rankings, is not consistent with the advantages and disadvantages described.

One does not arrive at the same rankings by directly evaluating Charts 1 to 5.

2. To reflect the relative significance of findings in the environmental context, Mr. Walker has been urged repeatedly to assign weight factors to the

This is
opinion,
you will
need to
back up this
statement

You
may
want to
back up
this opinion

priority categories, and he has rejected that more objective and rational evaluation method every time. Instead, he depends "trade-offs" and "element of judgement" as "more understandable and defensible" (p. 14).

Justice, if any, is not seen to be done, here. (See article "Technique Evaluates Engineering Alternatives", Chem. Eng., Oct. 1, '84).

The result is highly suspect, and the result appears to be deliberately debatable.

3. Inexplicably, the Summary goes on to reconstruct the findings of Charts 1 to 5 in Charts 6 to 9, already eliminating two sites out of hand.

The reason for this duplication is not stated.

Logically, it follows that Charts 1 to 5 were not satisfactory for arriving at the summary's end result.

4. The method of ranking sites by the "pairing"

method provides the means to inject the "trade-offs" and "element of judgement" cited earlier, instead of using weight factors which assure a maximum of objectivity.

Conclusion:

The summary report:

- (a) uses heavily biased "technical" findings,
- (b) is inconsistent in handling those findings, and
- (c) deliberately avoids objective handling of the "technical" report findings.

Its ranking of landfill sites cannot be accepted as valid.

Mar. 12, '85

Haris Keplian

You'll have to substantiate your
claims give examples

Technique evaluates engineering alternatives

When faced with making a choice among alternatives, you need a method to select the best one. Here is a simple means that works for evaluating a wide variety of problems.

Robert L. Landis and James E. Hamilton, Brown & Root, Inc.

□ Making engineering decisions is often not easy; multiple alternatives may exist, and no one choice may seem best at first. Examples of such decisions are: selecting a vendor and deciding upon a contractor.

The technique that will be discussed provides an objective method for what otherwise could be a subjective one. Briefly, it breaks the requirements of a particular assignment into categories. Each category is rated from 1 (unsatisfactory) to 10 (outstanding). Also, a weighted factor is assigned to each category. An overall score is obtained by adding up the sum of the ratings multiplied by the factors for each option.

At the authors' company, this procedure is used to make judgments for clients who are constructing large oil refineries and petrochemical complexes. The method is used not only to select licensors (see the example) but to pick engineering contractors and commodity vendors. The implementation of this procedure has enabled our firm to make more-uniform and more-objective recommendations to clients.

Advantages and purposes

(1) As noted, the main advantage to using the method is its objectivity. Evaluators, unfortunately, often allow previous experience (including that of their colleagues) to influence their decisions. While such information should not be excluded from the evaluation procedure, it should not unduly influence the current decision.

Without a process such as the one that will be given here, people sometimes make a selection by integrating all of the positive and negative aspects of each alternative. For most people, it is difficult to stay objective and pick the best overall selection, especially if the various choices seem about the same.

The proposed procedure minimizes such problems by breaking down the case into various categories that are analyzed and rated one at a time. Doing this not only simplifies the evaluation process but helps to avoid allowing overly negative or positive opinions from influencing the decision.

(2) Another advantage is that the method purposely avoids comparing alternatives. Instead, the merits of each are judged against a predetermined standard. The

use of this technique will yield two further advantages:

1. It generates a checklist for evaluating the candidates' ability to do the job. Thus, the evaluator is forced to review the candidates' capabilities in every category. This highlights areas where additional information is needed, as well as provides a basis for further evaluations and negotiations with potential candidates.

2. In comparing the candidates against a standard rather than against each other, it avoids selecting the "best of the worst" one. With other evaluation methods, one candidate may be found to be the best overall, yet still may not meet requirements sufficiently.

(3) Still other advantages: The method will result in an overall score for each candidate, showing how close each is to the standard. Also, when all of the people working on a project use the same evaluation technique, there is a greater degree of standardization.

Standardization is especially important when specialists from different groups (e.g., process engineers, contract administrators and project managers) are all evaluating a particular bid. This, combined with evaluators' justifications of each candidate's rating for each category, gives further credibility. Thus, greater assurance can be given that an impartial evaluation has been made.

Now, let us explain how to use the method by presenting an example. The example is selecting a technology licensor for a high-density polyethylene unit.

Before a detailed evaluation can be done, a preliminary screening must be carried out to narrow potential candidates to a reasonable number. This is usually three to eight firms, depending upon such factors as client requirements, the need for international sourcing (of materials or services), and the availability of interested candidates. Without a preliminary screening, the evaluation process would become much too cumbersome.

Next, invitations to tender must be prepared. At the same time, the evaluation categories must be established (see Table I). The box shows factors to be considered for the categories. The invitations to tender must specify that the prospective candidates include a response for each evaluation category. This not only minimizes the need to query bidders for more information, but also ensures that each bidder is properly informed of the

This worksheet helps to make the evaluation process simpler and more accurate

Table I

High-density polyethylene unit

Category	Weighting factor (WF)	Licensor A Rating X WF = score	Licensor B Rating X WF = score	Licensor C Rating X WF = score	Licensor D Rating X WF = score	Licensor E Rating X WF = score
1 Process design	15	7 X 15 = 105	5 X 15 = 75	8 X 15 = 120	8 X 15 = 120	7 X 15 = 105
2 Commercial experience	10	8 X 10 = 80	6 X 10 = 60	5 X 10 = 50	7 X 10 = 70	6 X 10 = 60
3 Product capabilities	15	6 X 15 = 90	6 X 15 = 90	6 X 15 = 90	7 X 15 = 105	7 X 15 = 105
4 Operating costs	10	9 X 10 = 90	7 X 10 = 70	6 X 10 = 60	7 X 10 = 70	5 X 10 = 50
5 Investment costs	10	8 X 10 = 80	7 X 10 = 70	6 X 10 = 60	8 X 10 = 80	5 X 10 = 50
6 Return on investment	10	9 X 10 = 90	8 X 10 = 80	5 X 10 = 50	8 X 10 = 80	5 X 10 = 50
7 Licensor services	5	7 X 5 = 35	8 X 5 = 40	7 X 5 = 35	7 X 5 = 35	6 X 5 = 30
8 Future technology	10	7 X 10 = 70	8 X 10 = 80	6 X 10 = 60	7 X 10 = 70	5 X 10 = 50
9 Marketing restrictions	5	6 X 5 = 30	9 X 5 = 45	5 X 5 = 25	8 X 5 = 40	8 X 5 = 40
10 Contractor restrictions	5	6 X 5 = 30	9 X 5 = 45	5 X 5 = 25	9 X 5 = 45	8 X 5 = 40
11 Guarantees and patent coverage	5	5 X 5 = 25	8 X 5 = 40	6 X 5 = 30	5 X 5 = 25	3 X 5 = 15
Total (weighting)	100					
Total score		725	695	605	740	595

criteria upon which the proposal will be evaluated. The invitation to tender should stress the need for adequate and detailed responses to each part of the tender document. Once the tenders have been received from the bidders, the actual evaluation can start.

Evaluation categories

Selection of these categories, a crucial part of the procedure, should be done when the invitations to tender are drafted. There is no standard set of categories that can be used on all types of evaluations. They must be tailored to the evaluation being done.

After the categories are established, each one must be weighted according to its perceived importance. The weights should be set before any of the proposals are evaluated, so as to be fair to all prospective candidates. The weighting should add up to 100 (see Table I).

All those who will conduct the evaluation should review and approve the evaluation categories and weightings. When several persons are performing an evaluation, an open discussion among them works to establish the categories and weightings.

Even for a certain type of evaluation (e.g., selecting a licensor) categories and weightings change for each job, since the relative importance of criteria varies with the process. For example, a category such as "feedstock sources" (ability/experience to handle different feedstocks) would be influential in evaluating benzene-extraction licensors for a unit to process pyrolysis gasoline or reformat, but would not in looking at linear low-density polyethylene technology, since polymer-grade ethylene is the only feedstock considered for the latter.

Once the tenders are received, they are reviewed with

respect to the evaluation categories. Each licensor is assigned a score for each category, which when multiplied by the category's weight results in an overall score. The rating scale (Table II) is used by each evaluator, regardless of the type of evaluation he or she conducts.

If more than one person is making the evaluation, the same evaluator should review all bidders for a particular category, rather than do all categories for one bidder. Such an approach gives rise to a more uniform review, since the evaluation scale is somewhat subjective.

The main worksheet (Table I) summarizes the results. Additional backup worksheets are also prepared. These are for each separate licensor that makes it to the final selection, and show the major points of that candidate. These sheets, used in the final review, help to ensure that the ratings are accurate and objective. They also provide a summary for client reference, rather than presenting each client with vast amounts of detailed material.

If only one person has done the review, his or her supervisor should give the review a final checking over. If the evaluation has been made by a group, they and management should discuss the recommendations at a meeting. However, in all cases, the evaluator(s) should be allowed to set the final ratings.

Analysis of results

The maximum possible score is 1,000 points. A score of 700 or more is acceptable, since a rating of 7 means that a candidate meets a desired standard. Of course, a score of 700 or more does not mean that all of a candidate's scores in individual categories are acceptable; each category's score must be looked at for strengths or weaknesses. Some needed improvements

Considerations for some categories

Process design—Process complexity, proven unit operations, safety considerations, ease of control, special equipment requirements, unusual maintenance requirements, operating flexibility, turndown capability, yields, onstream factor, and waste streams.

Commercial experience—Number/capacity of similar units either captive or licensed, and location.

Product capabilities—Purities, number of grades, application areas covered, and product recovery.

Operating costs—Utilities, labor for operation and maintenance, license fees, maintenance materials, raw-material requirements, catalysts, chemicals, etc.

Investment costs—Equipment, bulk materials, building/"civil" construction, detailed engineering fees, construction/startup costs, procurement, field supervision, spare parts, contractors' fees, and working capital.

Return on investment—Expressed as a percent.

Licensor services—Type/duration of training, startup services, post-startup consultation, detailed engineering design assistance/consultation, delivery schedule/contents of process package, ability to develop package to standards.

Future technology—Terms and conditions of transfer of future technology from licensor to licensee and vice-versa, and licensor R&D efforts and capabilities.

Marketing restrictions—Licensor-imposed limitations on where product may be manufactured, sold, used.

Contractor restrictions—Licensor-imposed limitations on firms that can perform detailed engineering services, and allowable access to licensor technology by detailed engineering contractor.

Guarantees and patent coverage—Capacity, recovery, quality and utility guarantees with penalties, performance-test terms and conditions, and patent indemnification provisions.

may be achieved during negotiations with candidates.

The top two or three licensors should be seen for further questioning and negotiations. During the interview, commercial terms can be discussed as well. Then, the evaluation is updated for those licensors who took part in the questioning. Almost always, the licensors' scores improve after the meeting, since some client

Using a numerical scale to rate categories helps to improve choice of evaluations

Table II

Rating value	General description	Definition
10	Outstanding, superior	All qualifications exceed desired standards
9	Above average	Most qualifications exceed desired standards
8	High average	No weaknesses, generally exceeds desired standards
7	Average	Few weaknesses, generally meets desired standards
6	Low average	Some weaknesses, does not meet some standards
5	Below average	Several deficiencies, generally below desired standards
4	Inadequate	Many deficiencies, does not meet most standards
3	Poor	Severe deficiencies, almost no standards are met
2	Bad	Extreme deficiencies, nearly unacceptable
1	Unsatisfactory	Totally unacceptable

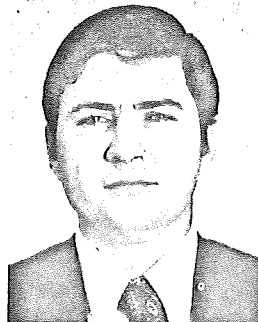
requirements will become better understood by them.

As noted, it is possible that a candidate could have an unacceptable deficiency in one or more evaluation categories, yet still achieve a high total score. However, such a situation is rare—generally, deficiencies in one category will carry over into other ones. In addition, such candidates will usually be eliminated during the preliminary screening process and in trying to get the job they will endeavor to meet all of the requirements. Nonetheless, if such a situation does arise, a licensor should not be considered unless it can change its position.

Richard Greene, Editor

The authors

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