INTERACTIVE ENVIRONMENTAL IMPACT COMPUTER SYSTEM (EICS) USER MANUAL

by

Robert Baran
R. D. Webster

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This report describes a computer-based system which is in the process of being transferred to an operating agency for production use, training, and maintenance. However, until the process is completed, CERL has been authorized to work with DOD users in extending the field testing of the system. This arrangement provides for CERL staff assistance to the user on a cost reimbursable basis and on a staff available basis. The details for making such an arrangement are described in the report.

When the transfer is completed, the operating agency will provide these services.

Louis J. Circeo

LOUIS J. CIRCEO
Colonel, Corps of Engineers
Commander and Director
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<tr>
<th>REPORT NUMBER</th>
<th>CERL-TR-N-80</th>
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<tr>
<td>TITLE (and Subtitle)</td>
<td>Interactive Environmental Impact Computer System (EICS) User Manual</td>
</tr>
<tr>
<td>AUTHOR(s)</td>
<td>Robert Baran, R. D. Webster</td>
</tr>
<tr>
<td>PERFORMING ORGANIZATION NAME AND ADDRESS</td>
<td>U.S. ARMY CONSTRUCTION ENGINEERING RESEARCH LABORATORY P.O. Box 4005, Champaign, IL 61820</td>
</tr>
<tr>
<td>REPORT DATE</td>
<td>September 1979</td>
</tr>
<tr>
<td>NUMBER OF PAGES</td>
<td>24</td>
</tr>
<tr>
<td>DISTRIBUTION STATEMENT (of this Report)</td>
<td>Approved for public release; distribution unlimited</td>
</tr>
<tr>
<td>DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)</td>
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<tr>
<td>SUPPLEMENTARY NOTES</td>
<td>Copies are obtainable from National Technical Information Service Springfield, VA 22151</td>
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<td>KEY WORDS (Continue on reverse side if necessary and identify by block number)</td>
<td>environmental impact statements computer applications</td>
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<td>ABSTRACT (Continue on reverse side if necessary and identify by block number)</td>
<td>This report describes the Environmental Impact Computer System (EICS) and provides instructions for obtaining and using output for the current interactive version of the system. It is recommended that the instructions be used to obtain the most efficient use of the system.</td>
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FOREWORD

This project was performed for the Directorate of Military Programs, Office of the Chief of Engineers (OCE), under Project 4A7652720A896, “Environmental Quality for Construction and Operation of Military Facilities”; Task 01, “Environmental Quality Management for Military Facilities”; Work Unit 002, “Development of Environmental Technical Information System.” The applicable OCR is 103.006. Mr. V. Gottschalk, DAEN-MPE, was the OCE Technical Monitor.

This research was made possible through the efforts and support of OCE personnel, consultants from the University of Illinois, and scientists and engineers of the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratory (CERL).

Administrative support and counsel were provided by Dr. R. K. Jain, Chief of EN, COL L. J. Circeo is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.
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INTERACTIVE ENVIRONMENTAL IMPACT COMPUTER SYSTEM (EICS) USER MANUAL

1 INTRODUCTION

Background
The 1969 passage of the National Environmental Policy Act (NEPA), which was intended to insure that the environmental impacts caused by new Federal projects or actions are examined as closely as other technical and economic considerations, placed new responsibilities on Army planners. To respond to these new responsibilities, the U.S. Army Construction Engineering Research Laboratory (CERL) developed the Environmental Technical Information System (ETIS). ETIS is a computerized system that provides information useful in preparing environmental impact assessments and statements (EISs). Three major subsystems are currently available: the Environmental Impact Computer System (EICS), the Computer-Aided Environmental Legislative Data System (CELDs), and the Economic Impact Forecast System (EIFS). EIFS and CELDS are available to field and headquarters personnel either through CERL or via direct use on an interactive basis. The original version of EICS was oriented toward batch operation, in which the system user sent input and received output by mail. However, user acceptance of the Interactive EIFS and CELDS made the advantage of an interactive EICS apparent, and reprogramming of EICS was begun.

Objective
The objective of this report is to provide DA environmental personnel with the information needed to use the interactive EICS.

Approach
The same matrix format used in the original batch version of EICS was used for the interactive version. User output was broken into smaller units, filtering mechanisms were made interactive, and the system was implemented into the existing ETIS shell.

Chapter 1 discusses the background of EICS and the objectives of this report. Chapter 2 discusses the use of EICS output. Chapter 3 discusses the procedures to obtain EICS output interactively, and Chapter 4 contains the conclusions and recommendations.

Mode of Technology Transfer
The information in this report will be issued as a DA Pamphlet in the 200 series and as the module called EICS in the remote terminal ADP system entitled Environmental Technical Information System (ETIS).

2 EICS DESCRIPTION AND EXAMPLE

System Description
EICS enables a user to determine how an Army action may affect various aspects of the environment. System documentation includes assistance in addressing these effects in an EIA/EIS. Output is provided in matrix format. The matrix describes the complex relationships between the two basic elements of EICS: Functional Areas and Environmental Technical Specialties.

EICS considers nine broad areas (Functional Areas) of Army military activities: Construction; Mission Change; Operations and Maintenance; Training; Industrial; Research, Development, Test, and Evaluation; Procurement; Real Estate; and Decision/Policy-Making.
Environmental considerations for each of these nine Functional Areas are classified into 13 Technical Specialties, broad categories which define and categorize environmental attributes*: Ecology, Health Science, Air Quality, Surface Water, Groundwater, Economics, Earth Science, Land Use, Noise, Transportation, Aesthetics, and Energy and Resource Conservation. Intersections within the detailed matrix are identified with indicators of "need-to-consider" for the potential impact of an Army activity on an environmental attribute.

The Functional Areas are further broken down into basic Army activities and programs (BAAPs). These BAAPs are compared to the environmental attributes in each Technical Specialty, using a "need-to-consider" scale which indicates the probability of impact occurrence, rather than the potential magnitude of the impact. Keyed to the BAAPs are Ramification Remarks and Mitigation Statements. Ramification Remarks explain why the BAAPs were scored in the matrix as they were and typically address differing degrees of impact. The Mitigation Statements describe ways to decrease or avoid a specific impact.

The user has the option of obtaining output at two levels: review and detailed. The review level contains attributes that give an overview of the nature of potential impacts (see Figure 1). This level is used primarily to assist reviewers of completed EIAs and EISs to aid in selecting the best environmental alternative from numerous alternative actions. The detailed level, which is generally used to help prepare major EISs, contains the more specific attributes of a Technical Specialty (Figure 1) Controversial attributes, which are presented at both levels, are attributes that are controversial in nature, whether or not the actual impact is scientifically significant.

To make the output more site-specific, the user completes an input form and answers a series of filter questions for each Technical Specialty. (The following example provides instructions for completing the current Mission Change input form.) This information is then either sent to CERL, where it is processed, or retrieved interactively by the user. (An operating agency has not been designed. CERL is providing limited usage as part of the R&D effort, until designation is complete.) Chapter 3 provides instructions for using and accessing EICS.

---

*Environmental variables or characteristics.
Completion of the following steps will insure rapid access to and effective use of EICS.

a. Obtain Essential User Manuals. CERL points of contact are Dr. Harold Balbach or Dr. Edward Novak of the Environmental Division at Commercial (217) 352-6511 or FTS 958-7299, 7286, or 7011. Users will need the documents and user manuals to use the system effectively; they are available from National Technical Information Service. CERL or the operating agency will generally assess how extensively the EICS will be used for each project and will determine any necessary reimbursement for assistance.

b. Specify EICS Functional Area Requirements. After initial telephone conversations with CERL researchers and a general review of the EICS user manuals, the user will determine which Army Functional Areas (e.g., Construction, Training, Mission Change) should be accessed for his/her project. For example, in the case of the Sunny Point alternatives, the user has determined that the Mission Change Functional Area will best meet project needs.

c. Complete EICS Functional Area Input Forms. The EICS user manuals (CERL Technical Reports E-50, E-85, and N-43) provide instructions for completing the input forms. (The interactive procedure requests the same information in slightly different order and format; it is recommended that you use the input form to summarize your project even if your access will be entirely through the computer terminal.) For example, for the Sunny Point alternatives, the user chooses to complete two sets of Mission Change input forms from CERL TR E-85, one form for each of the alternatives (Figures 2a and 2b). The user completes the following portions of the Mission Change input forms:

1-3. The user completes the standard, self-explanatory information asked for. Note: if FTS access is possible, users should include both their commercial and FTS phone numbers. CERL cannot use Autovon.

4. The user labels the geographical site on which the activity will be performed with a number or a descriptive name.

5. This section, which contains the "BAAP Filtering Mechanism," varies slightly among Functional Areas. In the case of Mission Change, the user responds to three questions (called prefilter or program or subprogram questions) which are found in the User Manual (CERL Technical Report E-85). The first question asks if this is a realignment of military forces (Answer A) or a change in support function only (Answer B). The second question is concerned with whether this realignment will increase military strength (Answer A), decrease strength (Answer B), or generate both increases or decreases (Answer C). The third question involves changes in support functions. The user determines if this change will require: (a) more support in the form of civilian employees, housing, etc., (b) less support in the form of civilian employees, housing, etc., or (c) more support in some areas and less support in others. Answering these questions accurately will allow EICS to determine which activities involved in a mission change should be examined by the user.

6A and 6B. In 6A, the user selects the environmental Technical Specialties for which he/she desires output, and then records the total number of specialties selected in part 6B. For example, the Sunny Point user has elected to receive output only from the Ecology Technical Specialty Area of EICS. (Interactive access allows retrieval of only one Technical Specialty at a time.)

7. A user who wants an explanation of the impacts on his/her matrix and ways to mitigate those impacts may request the Ramifications and Mitigations text (Figure 3). These statements are presently available only through CERL and are not available interactively.

8. The user elects to review both the detailed- and the review-level matrices.

9. Not on input form at this time.

10. Since the user has selected only the Ecology Technical Specialty from which to receive output, he/she need only answer the 14 Ecology filter questions to complete the input form (Figure 4). As shown in Figures 2a and 2b, answers to the filter questions for the two alternatives are significantly different.

d. Request Output. EICS output may be obtained either by (1) mailing the completed input form to CERL, or (2) obtaining output via remote terminal (see Chapter 3). If a remote terminal is used, completing the input form will decrease the time required for inputting the information.

e. Receive Output. If the user has mailed or phoned in the answers to the filter questions, he/she will receive output from CERL by mail within 1 to 2 weeks. However, using the interactive mode will enable the user to obtain output within minutes.
Figure 2. EICS input forms for the Sunny Point, NC, alternative actions.
ramifications:
increased numbers of troops or vehicles in movement, particularly in relatively remote areas, will increase the likelihood of
obstruction of navigation and railroad routes, which will increase
habitats and food for numerous small mammals, birds, and other
which influences the rate and quality of surface water. troop
increases of gun or more may be important.
problems of sanitation and littering will also increase.

mitigations:
movement should be restricted to designated and marked routes and
areas. consideration should be given to permanent improvement of
heavily-used routes.
provisions for collection of sanitary and solid waste should be
increased proportionately.

ramifications:
opening new areas to troop operations will cause impacts on the
ecology, particularly where the area has been relatively
uninhabited. some vegetation will always be removed or damaged.
affected animals or reducing potential animal and food sources,
may be forced to move out of the area but may not be able to
adequately acclimate to the new environment. increased
problems of sanitation and littering will also increase.
mitigations:
survey proposed areas of use to determine relative ecological
value. keep those areas of average or low value. new routes
should avoid natural water bodies and known habitat of endangered
species.

ramifications:
changing the time of day or vehicle movement from day to night
will increase wildlife activities and potential impacts on
habitats. may help animals adapt to new or different schedules.
change to a new schedule or season for plants, animals, and
habitat. increased likelihood of vegetation obstruction due to soil
inundation. increased risk of fire. increased activities in critical
seasons affecting sites can cause impacts. may affect birds
and small animals to move to or to abandon these areas.
mitigations:
changing the time of day or vehicle movement from day to night
will increase wildlife activities and potential impacts on
habitats. may help animals adapt to new or different schedules.
change to a new schedule or season for plants, animals, and
habitat. increased likelihood of vegetation obstruction due to soil
inundation. increased risk of fire. increased activities in critical
seasons affecting sites can cause impacts. may affect birds
and small animals to move to or to abandon these areas.
mitigations:
increased frequency in duration of ground operations activities will
increase all effects due to vegetation obstruction. an increased
problems of sanitation and littering will also increase.
mitigations:
movement should be restricted to designated and marked routes and
areas. consideration should be given to permanent improvement of
heavily-used routes. provisions for collection of sanitary and solid waste should be
increased proportionately.

ramifications:
weapons with much greater destructive power will produce greater
vegetation obstruction. all effects on animal populations
will be time dependent on that vegetation. for both wildlife, it is
of extreme importance that introduction of new species, rocketry, and other
fire hazards.

mitigations:
impacts are generally unavoidable.

ramifications:
conversion to impact area or firing range status of areas that have
not previously been used is expected to increase impacts on
habitat. consideration should be given to permanent improvement of
heavily-used routes. provisions for collection of sanitary and solid waste should be
increased proportionately.

ramifications:
affected areas close to natural water bodies will be created by
large bodies, left unfilled after flooding. which will cause standing
water, noise effects, and may influence the rate of plants to 
embrace. fire hazard and erosion effects will be considerable.
mitigations:
use preferentially those areas of average or lower value. may not be of
value close to natural water bodies that have been
affected areas close to natural water bodies with critical slope. increased
endangered species, and areas with critical slope. increased
endangered species, and areas with critical slope.

ramifications:
changing heavy weapons firing to a daily season will increase
firing time. on this basis, may be possible. change to night
season. may reduce wildlife impacts. may reduce potential
fire or potential food plants. may skew the environment.
mitigations:
permanent change of firing time to night or day season will reduce
impacts. this is expected to be more important. temporary changes should be
planned to avoid such changes as much as possible. change to night
season firing may require the avoidance of all areas with critical slope or
unstable soils as indicated by soil conservation service. 

mitigations:
increased frequency in duration of ground operations activities will
increase all effects due to vegetation obstruction. an increased
problems of sanitation and littering will also increase.
mitigations:
some degree of impact is generally unavoidable.

Figure 3. Ramification and mitigation remarks for ecology/mission change functional area matrices.
...
...increased loads on sewage systems that do not presently have tertiary treatment will increase the likelihood of severity of contamination of ground or surface water, streams, or lakes. With resulting disturbance to aquatic ecosystems, increased loads on all type of sewage systems will increase changes of nutritional imbalance in receiving water bodies, with resultant eutrophication, algal blooms, etc.

**Mitigations:**

*Effects of contamination will be unavoidable where present treatment is not tertiary. Conversion to tertiary treatment may be necessary and is highly recommended where increased load requires increasing the capacity of a present primary or secondary system. Impacts of nutritional imbalance are unavoidable with all treatment systems in which discharge into natural water bodies occurs.*

...increased volume of refuse to be disposed of in dumps or landfills will increase the incidence of animal pests attracted to refuse, such as rats, mice, raccoons, skunks, bears, snakes, and insects. As well as unsightly weeds which thrive on disturbed soil.

**Mitigations:**

*Any increase in refuse load should be handled by approved sanitary landfill. Covered fill should be planted with native grasses within 7 days in spring or summer and within 3 weeks in autumn or winter.*

...decrease in refuse disposal will have a negative effect on those animals which find shelter and food available in dumps or near landfills, such as rabbits, raccoons, skunks, bears, and snakes. Although these animals are often considered pests at Many, they are also part of food webs in nature.

**Mitigations:**

*Decrease in refuse disposal from reduced refuse disposal is unavoidable. In terms of human values, most of these impacts are positive.*

...construction of new facilities will produce those problems described under the construction functional area. These include such items as temporary increased erosion potential, increased sedimentation in nearby streams or lakes, and aquatic disturbance due to disturbance or surface disturbance patterns. Removal of vegetation and accompanying destruction of wildlife habitats; creation of flow effects (greater wind and sunlight along areas at the edge of clearings), enforcement on territory of many or endangered species; introduction of weeds, and increase in animal pests. These impacts are less likely of lesser importance in many cases where such construction is to occur in already-disturbed areas.

**Mitigations:**

*Mitigations for particular construction activities can be found under the construction functional area. Construction should be restricted if possible to areas which have already been disturbed. Previously undisturbed areas should be inventoried to determine relative ecological values; use first those areas of average or lower value.*

...demolition of facilities may result in a few temporary effects such as unavailability of increased sediment loads in nearby streams due to erosion effects, and introduction of or increase in weeds or plants or animal pests.

**Mitigations:**

*Demolition should be cleared as it accumulates, and disturbed soil replanted with ground cover within 1 day even if all work has not been completed. Disturbed areas adjacent to water bodies should utilize sediment control measures during demolition.*

Figure 3. (cont'd).
1. Do any changes in military function involve changes in field training as opposed to classroom training?
   (1) Yes
   (2) No

2. Does this mission change involve any new construction?
   (1) Yes
   (2) No

3. Will any areas be used that have not previously been employed for training or support activities?
   (1) Yes
   (2) No
   (3) No new areas and no increase

4. Which of the following statements best describes any areas which have previously been used for training or support activities and in which the intensity of these activities will increase?
   (1) Extensively modified by construction, grading, paving, landscaping, etc.
   (2) Regularly used by men, vehicles, and/or weaponry for field training for more than 20 days per year during at least two of the last five years.
   (3) Infrequently and lightly used by men, vehicles, and/or weaponry for field training. Average usage for each of the last 10 years has been 10 days or less.
   (4) No increase.

5. Measuring distances downstream or downslope, how far are any newly used areas, or any existing areas in which intensity of field activities or support use will increase, from the nearest perennial stream or perennial, year-round lake, pond, or freshwater marsh with permanent open water? (If more than one area is involved, choose the shortest measured distance from any area.)
   (1) Less than 300 meters (about 100 ft)
   (2) 300 to 1000 meters (about 6/10 mile)
   (3) Greater than 1000 meters
   (4) No new areas and no increase

6. Measuring distances downstream or downslope, is any newly used area, or any area having increased field activity or support use less than 2500 meters (about 1.5 miles) from the nearest year-round stream, pond, or small lake?
   (1) Yes
   (2) No
   (3) No new areas and no increase

7. Measuring distances downstream or downslope, is any newly used area, or increased field activity or support use less than 8000 meters (about 5 miles) from any body of water known to support trout or salmon at any time of the year?
   (1) Yes
   (2) No
   (3) No new areas and no increase

8. Measuring distances downstream or downslope, is any newly used area, or any area having increased field activity or support use less than 8000 meters (about 5 miles) from a large, deep freshwater lake having a surface area of more than 50 sq km (about 12,000 acres) and a depth of more than 50 meters (about 160 ft)?
   (1) Yes
   (2) No
   (3) No new areas and no increase

9. Measuring distances downstream or downslope, is any newly used area, or any area having increased field activity or support use less than 8000 meters (about 5 miles) from any ocean beach, estuary, salt marsh, or tidal flat?
   (1) Yes
   (2) No
   (3) No new areas and no increase

10. Is hunting upland game (birds and small mammals) permitted by law at any time in any area which touches the installation’s perimeter or is hunting for these species permitted anywhere on the installation?
    (1) Yes
    (2) No

11. Is hunting big game (deer, bear, elk, etc.) permitted by law in any area within 2500 meters (about 1.5 miles) of the installation’s perimeter, or is hunting for these species allowed anywhere on the installation?
    (1) Yes
    (2) No

Figure 4. Ecology filter questions for the mission change functional area of FICS.
12. Are migratory waterfowl (ducks and geese) hunted in any area within 2500 meters (about 1.5 miles) of the installation’s perimeter, or may they be hunted at any time on the installation, or are they known to congregate in groups of more than one dozen at any time of year within the area described here?

(1) Yes
(2) No

13. Which of the following responses best characterizes any area in which activities associated with mission change may take place, and which has not previously been used for training or support activities?

(1) Tundra-type grasses, sedges, mosses, and dwarf shrubs
(2) Sparse but relatively undisturbed desert-type shrubs and grasses
(3) Ground cover or mostly lawn grasses, mowed several times per year, or a majority of area occupied by buildings, or area is presently paved or graveled

(4) Ground cover mostly of tall grasses or weeds
(5) Frequent but scattered shrubs or small trees (less than 10 cm or 4 in. in diameter)
(6) Continuous cover of shrubs or of larger trees (more than 10 cm or 4 in.)
(7) Most typical plants are marsh grasses, reeds, cattails, etc.
(8) Relatively recently farmed, grazed, or otherwise disturbed, having more than 25 percent bare soil
(9) No new areas

14. How far is any newly or occupied area from regularly used buildings, bivouac areas, maintenance yards, firing points, airfields, drop zones, etc.? (If more than one area is involved, choose the shortest measured distance from any area.)

(1) Less than 1000 meters (about 6/10 mile)
(2) More than 1000 meters
(3) No new areas

Figure 4. (cont’d).

For example, the Sunny Point user receives the impact matrices shown in Figures 5 and 6. The Sunny Point logistics orientation review level matrix is used as the example in Chapter 3. These matrices have encoded lists of basic Army activities on the vertical axis and environmental attributes (in this case, from the Ecology Technical Specialty) on the horizontal axis. The numbers in the right-hand column of the matrix relate directly to the numbers in the Ramifications and Mitigations text shown in Figure 4. In this example, we have separated the Review-Level outputs (Figure 5) from the Detailed-Level outputs (Figure 5) to show the striking difference between them. A matrix has also been included (Figures 5a and 5b) for which no filter questions were answered. Note that the unfiltered matrices (Figures 5a and 6a) differ in many ways from the filtered matrices in presenting impacts needing consideration. The projected environmental impact of unit training on the ecology of Sunny Point (Figures 5b and 6b) is far more severe than that of the logistics orientation training (Figures 5c and 6c). Also, the Review-Level matrices in Figure 5 are much more general and brief than the detailed matrices in Figure 6. This level of output is primarily designed for reviewing EISs and for rapidly determining the best environmental alternatives.

The key to efficient matrix analysis is developing a systematic means of focusing on the primary impacting activities and the most often impacted attributes (and associated problems) as quickly as possible; the user should not analyze every intersection in detail. The first step in a preliminary analysis is always to confirm the existence of the impacting activities and the environmental attributes for the site being studied. Chapter 4 of CERL Technical Report N-43 contains instructions for matrix analysis and application of EIS analyses to the environmental assessment process. These instructions supersede those of CERL Technical Report E-50.

f. Environmental Impact/Problem Confirmation and Measurement. Once the impacts are initially identified, they must be confirmed and explained in as specific and/or quantitative terms as possible. Therefore, the user may need to acquire installation-specific information by performing field surveys and preparing scopes of work for architect/engineer consulting firms. When the major potential impacts are identified, the user can employ EISs and CELDS when appropriate.

g. EIA/EIS Preparation. Once the environmental impact analysis and information acquisition is complete, the user is ready to prepare an EIA or EIS.
**FUNCTIONAL AREA: mission change**

**TECHNICAL SPECIALTY: ecology**

**ATTRIBUTES**

1. Natural setting
2. Game fish
3. Increase in undesirable species
4. Impact on natural habitats

*preceded attributes are CONTROVERSIAL*

**MATRIX**

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**ACTIVITIES**

| 131 | Increase number of troops in movement
| 150 | Change time of troop movement
| 141 | Change to more destructive weapons
| 147 | Change time of firing
| 151 | Increase time of hazardous weapons/missiles
| 167 | Change time of vehicle operations
| 177 | Add fixed-wing aircraft
| 178 | Increase operational air space
| 182 | Change time of flight
| 191 | Add airborne/surface operations
| 248 | Increase refuse disposal usage
| 291 | Construct new facilities

| 133 | Conduct troop operations in new areas
| 156 | Increase frequency/duration of troop movement
| 143 | Change to new impact area or firing range
| 152 | Change frequency/duration of firing
| 161 | Change to more destructive vehicles
| 165 | Increase number of vehicles
| 168 | Increase frequency/duration of vehicle operation
| 173 | Add rotary-wing aircraft
| 179 | Increase number of flights
| 183 | Increase frequency/duration of flights
| 244 | Increase sewer usage
| 245 | Increase refuse disposal usage
| 292 | Demolish facilities

**Figure 5. EICS review-level matrices.**
**MATRICES**

| attributes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 |
| b 111      | C | B | B | C | B | B | C | C | C | B | C | B | C | B | B | C | B | B | C | B | C | B | C | B | B | C | B | B | C | B |
| a 111      | A | A | A | A | C | B | B | B | C | C | B | C | C | B | B | B | C | B | C | B | C | B | B | C | B | B | C | B | B | B |
| 135        | A | A | C | A | C | C | B | B | C | C | B | B | B | C | C | B | B | C | B | C | B | B | C | B | B | C | B | B | B | B |
| 141        | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |

**a. Unmodified matrix (for comparative purposes).**

| attributes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 |
| b 131      | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| a 131      | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| 141        | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |

**b. Unit training alternative matrix.**

| attributes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 4 | 5 |
| b 244      | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| a 244      | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |

**c. Logistics orientation alternative matrix.**

**Figure 6. EICS detailed-level matrices.**
FUNCTIONAL AREA: mission change

TECHNICAL SPECIALTY: ecology

ATTRIBUTES

1. large mammals
2. small mammals
3. birds
4. fish
5. reptiles
6. amphibians
7. insects
8. herbs
9. lichens
10. endangered plant species
11. food webs
12. seasonal aspect
13. stratiﬁcation
14. small game hunting
15. big game hunting
16. waterfowl hunting
17. bottom life
18. coastal water fishing
19. disease vectors
20. endangered plant species
21. other undesirable species
22. encroachment on natural habitats

* proceeded attributes are CONTROVERSIAL

ACTIVITIES

113. Increase number of troops in movement
114. Increase number of troops movement
115. Change time of troop movement
116. Change time of firing
117. Change time of hazardous weapons/materiel
118. Operate vehicles in new areas
119. Change time of vehicle operations
120. Add ﬁxed-winged aircraft
121. Increase operational air space
122. Change time of ﬂights
123. Increase number of ﬂights
124. Increase number of airborne/airmobile operations
125. Increase refuse disposal usage
126. Increase refuse disposal usage
127. Conduct troop operations in new areas
128. Increase number of weapons fired
129. Increase frequency/duration of vehicle operation
130. Add rotary-wing aircraft
131. Increase number of ﬂights
132. Increase frequency/duration of ﬂights
133. Increase sewer usage
134. Increase water usage
135. Construct new facilities

d. Decoded list of ecology attributes and mission change activities matrix.

Figure 6. (cont’d).
CERL Technical Report N-43 and DA Pamphlet 200-I address the process of responding to AR 200-I and the original Council on Environmental Quality (CEQ) requirements for document preparation. Recently issued CEQ regulations on implementing NEPA indicate some modifications to the FIS content suggested by earlier guidelines. Some of these modifications are simply a matter of re-ordering or re-emphasizing topics that preparers were previously required to address in FISs.

Other topics of consideration are more substantial. Since these additions are not addressed in CERL Technical Report N-43 and DA Pamphlet 200-I, users must be sure not to overlook them when preparing an EIS. All such changes will be addressed in future issues of AR 200-I and DA Pamphlet 200-I, and in future EICS documents. In the interim, CERL or your MACOM can provide guidance.

3 USER INSTRUCTIONS FOR INTERACTIVE EICS

If a user decides to access EICS after interactively entering ETIS, he/she need only transfer into the EICS terminal by following the directions in

CERL Technical Reports E-781 and N-212 (DA Pamphlet 200-2), 13 and N-43.14 After acquiring a remote terminal and a telephone, the user should dial the system's number (217/333-1587, FTS 957-1587). If there is no answer, the entire system is down for maintenance. Upon hearing a steady tone, plug the phone into the terminal, making sure that the earpiece and the speaker are in the proper openings, and log into the system. After logging in with the correct name and password, the user will receive system messages. If the system indicates "NO DIRECTORY" or a similar designation, access to the ETIS is probably closed down and the user should try again later. If the system is in operation, output similar to that shown in Figure 7 will appear on the screen or terminal. (The text on the right-hand side of the figure is explanatory and is not part of the output.)

The user should keep several things in mind when using the system. The symbol <CR> used in some instructions means to depress the carriage return button. The instruction to type CTRL-d means to simultaneously depress the button marked CTRL and the letter d. An input error can be corrected by typing CTRL-h (hitting the CTRL and h buttons simultaneously) if the return button has not yet been depressed. This procedure will back the carriage up one space each time it is repeated. This can be done as many times as necessary. Every symbol which has been backspaced over has been removed from the terminal memory. Therefore, if the first digit of a six-digit number has been mistyped, the user must depress CTRL-h six times and then retype all six digits. The corrected symbols will be overprinted on the paper. To stop a logical listing, depress the button marked DEL (delete).

---

7Handbook for Environmental Impact Analysis, DA PAM 200-1 (Department of the Army, April 1975).
8Environmental Protection and Enhancement, AR 200-I (Department of the Army, July 1973).
13The Economic Impact Forecast System Description and User’s Instructions, DA Pamphlet 200-2 (Department of the Army, December 1976).
GENERAL ACCESS TO THE ENVIRONMENTAL TECHNICAL INFORMATION SYSTEM (ETIS)

CSO Network Unix System
Login: novak
Password: 
Last login Wed May 31 08:04:06 1978
% ETIS

Welcome to CERL's Environmental Technical Information System

What program? (Type <cr> to see list)

Type:

1 or intro for introduction to Environmental Technical Information System
2 or eics for the Environmental Impact Computer System
3 or eics for the Computer-Aided Environmental Legislative Data System
4 or eifs for the Economic Impact Forecast System
5 or aimod for the Air Model
6 or chis for the Clearinghouse Information System
7 or afeics for the Air Force Environmental Impact Computer System
8 or blis for the Baseline Information System
f mail to see your mail
crtl-d or bye to exit

ACCESS TO EICS

What program? (Type <cr> to see list) 2

Welcome to EICS

Functional area (type CR to see list):
1 — construction
2 — mission change
3 — operation, maintenance, and repair
4 — training
5 — industrial
6 — procurement
7 — research, development, testing, and evaluation
8 — real estate

The user gets a dial tone and logs in; in this case, the log-in is “Novak.” He/she types in the password which will not appear on the printed page.

The system responds by saying when the last log-in was and enters a percent sign. The user now enters the letters “ETIS,” and the system responds by saying “What Program?” The user then asks the system to list the programs by pressing the carriage return (CR) key without entering any characters.

The computer responds with a line of available subprograms under ETIS.

The user chooses to run EICS to retrieve the Review Level logistics orientation matrix. Therefore the user types “2”. (“EICS” could also have been typed.)

The user chooses to run EICS. Therefore, the user types “2”. (“EICS” could also have been typed.)

The user wishes to see the list of Functional Areas available in EICS; therefore, he/she depressed the carriage return. The system responds by listing the Functional Areas available.

Figure 7. Example EICS instructions and explanation.
functional area (type - to leave the program): 2

functional area chosen: mission change

Technical specialty (type CR to see list):
1 — ecology
2 — health science
3 — air quality
4 — surface water
5 — groundwater
6 — sociology
7 — economics
8 — earth science
9 — land use
10 — noise
11 — transportation
12 — aesthetics
13 — energy and resources

technical specialty (type CR to see list): 1
you have chosen ecology

detail (type d) or review (type r): r

Program number (type ‘_’ if none, CR to see list):
1 MISSION CHANGE RESPONSES

program number (type ‘_’ if none): 1

Since the user is interested in a mission change at Sunny Point, the key number 2 is depressed.

The computer responds by indicating which Functional Area was chosen; in this case, Mission Change.

The computer then needs to know what Technical Specialty the user is interested in. In this case the user depressed the carriage return key to see the list of Technical Specialties.

Since the user is interested in the Ecology Technical Specialty he/she depresses the key number 1. The computer then explains that the user has chosen the Ecology Technical Specialty.

The user is now asked whether he/she wants detail or review level output. In this case the user then depressed r to indicate review level.

The next two requests for information from the user specify input of a “program number” and a “subprogram number.” These two numbers are used to indicate responses to a set of programs, subprograms, or “prefilter” questions printed in the text of the User Manual. The input forms may call this section the “BAAP Filtering Mechanism.” The user’s responses are shown on p 10.

But how did these questions tie in with the interactive request for a program number? Since early publication of the Mission Change User Manual does not give any further help, the user depresses the return button to get a list of available programs. (The “BAAP Filter Questions” reduce the numbers of activities listed on the matrix with all activities listed; if he/she had pressed the hyphen, he/she would have been directed immediately to the QUESTION AND ANSWER session for Technical Specialty filter questions.)

Since only one program exists, the user depresses the key number 1.

Figure 7. (cont’d).
The computer now asks for a subprogram number, and
again the user presses the carriage return. The computer
prints a list of subprograms and the user finds that each
subprogram lists question responses associated with it.

For the Mission Change Functional Area, the list of
answers corresponds with answers to the BAAP Filtering
Mechanism, item 5 on the input form (p 10). The
questions summarized on p 9 are printed in full in the

Since the user answered question 1 with response “A,”
question 2 with response “B,” and question 3 with
response “C,” he/she would find that set of answers in
the list and then enter the associated program number,
“7” in this case.

So the user depresses the key number 7.
The user now starts the filter question and answer
session.

The computer then asks if the user would like some
directions. Since this is the first time the user has used
the system he/she responds yes.

After giving directions on how to answer, the com-
puter needs input for the filter questions. The com-
puter asks for these answers. Note: a “string” is a row
of a question’s printout, of characters followed by a carriage return.

Enter 14 answer(s) to ecology question(s): 2 2 ? 4 3 3 3 3 1 1 3 3

The user then inputs all the answers for ecology. All of
the answers are on the same line, separated by at least
one space. For this example, we have answered ques-
tion 4 with a ? mark.

The computer has then printed out question 4.
enter answer again for question 4: 1

The system then asks for the answer to question 4. If the user did not know the answer to this question, he/she could have entered a zero.

Please wait.

The user is now asked to wait while the system compiles the answer. This wait is only a matter of several seconds.

ATTRIBUTES

List of Attributes

1 natural setting
2 game animals
3 game fish
4 rare or endangered species
5 increase in undesirable species
*10 impacts on game animals
*11 encroachment on natural habitats
*12 threatened species

* preceding attributes are CONTROVERSIAL

ACTIVITIES

List of Activities

167 change time of vehicle operations
244 increase sewer usage
245 increase refuse disposal usage
255 decrease refuse disposal usage
292 demolish facilities

***MATRIX***

attributes

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b 167 B A C B B A 2135
a 244 B A B A C B C 2244
a 245 B C C A C B C 2245
p 255 C 2255
s 292 C 2292

What program? (Type <cr> to see list)

Since the user is now finishing, he/she depressed the control and d key at the same time.
(usually abbreviated as ctrl-d)

Figure 7. (cont’d).
4 SUMMARY AND RECOMMENDATIONS

This report has provided detailed information on accessing EISs interactively. All necessary commands and accession instructions are included. A typical example was provided to illustrate system usage.

It is recommended that interactive EISs be used as an aid for preparing EAs/EISs when information must be obtained quickly, and that the instructions provided in this report be used to insure the most efficient use of the system.

REFERENCES


Environmental Protection and Enhancement, AR 200-1 (Department of the Army, 7 December 1973).

Handbook for Environmental Impact Analysis, DA Pam 200-1 (Department of the Army, April 1975).


The Economic Impact Forecast System—Description and User's Instructions, DA Pam 200-2 (Department of the Army, December 1976).


Chief of Engineers
ATTN: DBRFR-NL (2)
ATTN: DAHC (2)
ATTN: DAHC-1P (3)
ATTN: DBRFR-NL (2)
ATTN: DBRFR-1P (2)
ATTN: DBRFR-MIL (10)
ATTN: DBRFR-3N (2)
ATTN: DBRFR-I (5)
ATTN: DBRFR-10
ATTN: DBRFR-ICM
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ATTN: Unit of Mechanics
ATTN: Library
West Point, NY 10996

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US Army Engineer School
ATTN: ASREC-UTL (2)
ATTN: Archives Section/ldig 270
ATTN: Kingman Rd, Library
ATTN: Mail Stations (4)
Ft Belvoir, VA 20160

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ATTN: SA-10/DC
Ft Leonard Wood, MO 65523

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Dept of the Army
ATTN: DAD AE (10)
Pentagon, Room 1567R
WASH DC 20310

The Army Library (AWRL-A)
ATTN: Army Studies Section
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New York, Norfolk, Alaska,
Mobile, Savannah, Los Angeles,
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132 S. Clarke St
Chicago, IL 60605

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Engineering Laboratory
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Hanover, NH 03755

Director, USAO-ENG
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Army Logistics Mgmt Center
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Ft Lee, VA 23116

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ATTN: DLAW (2)
امية للنظام الاستراتيجي وال материалов
ATTN: Alexandria, VA 22314

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Commander
Ft Richardson, AK 99522

Commander
Ft Shafter, HI 96558

Commander
APO Seattle, WA 98173

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APO New York, NY 10403

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Commander
Ft Irwin, CA 92301

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USAF
WASH DC 20330

Aviation R&D Command
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St Louis, MO 63166

Depot System Command
ATTN: DBSPE-1
Chambersburg, PA 17201

Commander
Ft Huachuca, AZ 85613

Communications and Electronics
Material Readiness Command
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Ft Monmouth, NJ 07703

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2500 Power Mill Rd
Adelphi, MD 20783

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Rock Island, IL 61201

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Redstone Arsenal, AL 35809

Missile R&D Command
ATTN: DMR-1
Redstone Arsenal, AL 35809

Mobility Equipment R&D Command
ATTN: DMR-1
Ft Belvoir, VA 20160

National R&D Command
ATTN: DRNRC
Kanata, ON
Kanata, ON 17206

Tank-Automotive Material Readiness Command
ATTN: DBTAC-SP
Warren, MI 48090

Tank-Automotive R&D Command
ATTN: DBTAC-SP
Warren, MI 48090

Test and Evaluation Command
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Aberdeen Proving Ground, MD 21005

Trop Support and Aviation Material
Readiness Command
ATTN: DBRFR-1
4300 Goddard Blvd
St Louis, MO 63120

Dupuy Proving Ground
ATTN: STEP-PG
Dupuy, UT 84022

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Air Force Weapons Lab
ATTN: AFWL
Kirtland AFB, NM 87117

Commander
ATTN: AEGC-DEV (3)
ATTN: AEU/PSO
Sydell AFB, FL 32043

HQ USAF
ATTN: PREX
ATTN: NHT
Pentagon
WASH DC 20330

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ATTN: The Library
Of the Navy
WASH DC 20360

US Naval Academy
Political Science Dept
ATTN: Prof Saxe
ATTN: Prof Cannon
Annapolis, MD 21402

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Standards Branch, ARS-SUR
Federal Aviation Administration
WASH DC 20591

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Commander
HQ, XVIII Airborne Corps and Fort Bragg
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Fort Bragg, NC 28307

Commander
HQ, 7th Army Training Command
ATTN: ARFA-DEH (9)
APO New York 09114

Commander
HQ USAREUR and 7th Army
COCSE, Engineer
ATTN: AHEA-EN (4)
APO New York 09407

Commander
7th Army Combined Arms Training Center
ATTN: ALTMA-HRD-EN
APO New York 09407

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VII Corps
ATTN: ALTVEH
APO New York 0975

Commander
IX Corps
ATTN: ALTVEH
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Commander
III Corps
ATTN: ALTVEH
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Commander
V Corps
ATTN: ALTVEH
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Commander
XII Support Command
ATTN: ARFA-EN
APO New York 09114

Commander
US Army Berlin
ATTN: ABEA-EB
APO New York 09114

Commander
US Army Southern European Task Force
ATTN: AESS-ENG
APO New York 09114

Commander
US Army Installation Support Activity, Europe
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