ADMINISTRATIVE
REPORT NO. 5

POLICIES AND PROCEDURES FOR PREPARATION OF RESEARCH PROPOSALS

UNIVERSITY
OF ILLINOIS
WATER RESOURCES
CENTER

AUGUST 1971

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POLICIES AND PROCEDURES FOR PREPARATION OF RESEARCH PROPOSALS

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WATER RESOURCES CENTER
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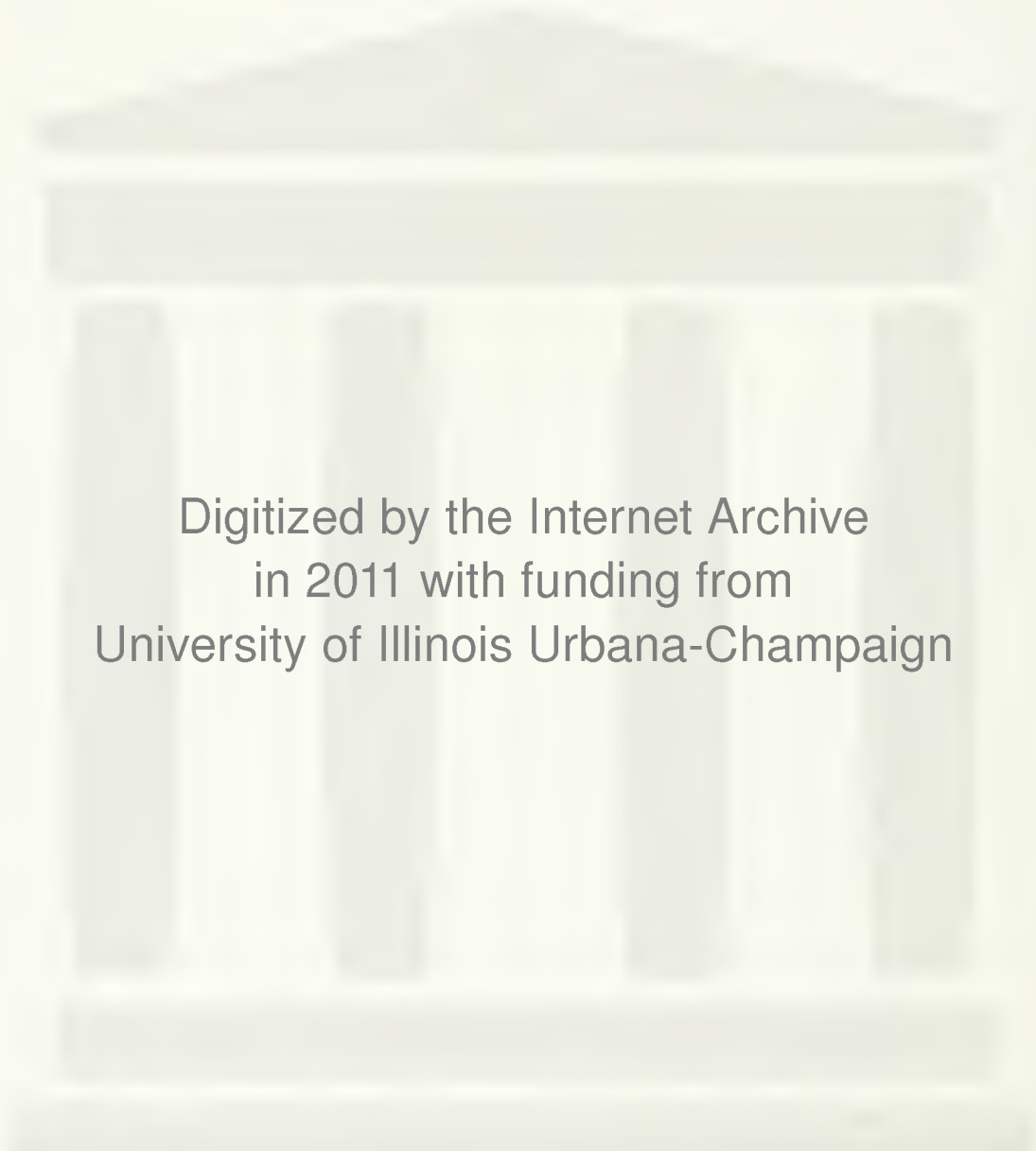
August 15, 1971



2535 HYDROSYSTEMS LABORATORY, URBANA, ILLINOIS 61801 (217) 333-0536

August 15, 1971

To: Prospective Principal Investigators
Research Coordinators
Water Resources Center Committee Members

This booklet has been assembled to aid investigators in preparing proposals for support from the Water Resources Center and the Office of Water Resources Research. Although the quantity of funds available is modest, it is stable and should provide support for quality research by Illinois scientists well into the future.

Proposed research may be in any of the many areas related to water resources development, use, control, and protection. It may deal with economic, legal, recreational, engineering, biological, geographic, ecological, social, aesthetic or other aspects of water problems. There are undoubtedly many investigators whose work has not been directed primarily toward water problems, but which is, nevertheless, related to them. Proposals by such people to undertake studies which are water-oriented will be welcome.

The Center has the responsibility to encourage and coordinate water resources research on a state-wide basis. Thus, it is particularly anxious to draw on the abilities and the interest of investigators at other universities within the state.

Many water resources research investigations are best conducted as a joint project by people of different scientific disciplines. Proposals for cooperative research by investigators from different departments or from different schools or scientific surveys are therefore encouraged.

I suggest that staff members who wish to submit proposals contact me as soon as possible. It will be helpful to discuss the proposed research and specific aspects of the proposal before it is submitted to the Center.

Further details on Center policies, procedures and format requirements are given in the following text. Your attention is especially directed

to the schedule for submission of proposals to the Center. This schedule is shown on page ix. If you have any questions concerning the Center's program I will be happy to answer them.

Sincerely,

Ben B. Ewing
Director

BBE:bb

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CALENDAR FOR FISCAL YEAR 1973 PROGRAM

TYPE OF PROGRAM	INTEREST in Submitting A Proposal	DELIVERY of Completed Proposal to Center	DEADLINE to Submit Requests to OWRR	APPROVAL Notification from OWRR
TITLE II			Monday January 10, 1972	about June 18, 1972 *October 18, 1972
MATCHING GRANT	Wednesday September 1, 1971	Monday October 11, 1971	Monday November 1, 1971	Wednesday March 1, 1972
ANNUAL ALLOTMENT	Saturday January 8, 1972	Thursday February 10, 1972	Saturday April 1, 1972	Thursday June 1, 1972

*If the President's Fiscal 1973 budget contains an increase in Title II funding a second group of proposals will be selected.

Figure 1. Hydrosystems Laboratory, Home of the Water Resources Center

GENERAL INFORMATION

CENTER BACKGROUND

The University of Illinois Water Resources Center was established as an agency of the Graduate College by the Board of Trustees in 1963. Its primary purpose was to "encourage and coordinate university-wide planning and implementation of interdisciplinary programs for research and graduate education in water resources."

Less than a year later the Water Resources Research Act of 1964 (P.L. 88-379) was passed by Congress. The act provided for the establishment of water resources research institutes in the various states in order to promote a more adequate national program of water research. The University of Illinois Water Resources Center was designated as the institute for Illinois by Governor Kerner. The designation was subsequently accepted by the University and approved by the Secretary of the Interior who administers the program on the federal level through the Office of Water Resources Research.

ANNUAL ALLOTMENT SUPPORT

To finance the programs of these state centers, the act authorized an annual allotment for each institute to plan and conduct or arrange for conduction of competent research in relation to water resources and to provide for the training of scientists. The annual allotment, which is currently $100,000, is thus used to partly cover the administrative expenses in the Center and to support the Center's annual allotment research program. The program is selected by the Executive Committee of the Center and approved

by the Office of Water Resources Research.

MATCHING GRANT SUPPORT

Under Section 101, the act authorizes the appropriation of further funds for water research which are to be matched at least dollar for dollar by non-federal funds made available to the institutes. These federal funds must be used to support specific water resources research projects selected from throughout the nation on the basis of the merit of the project, the need for the knowledge it seeks, and the opportunity it provides for the training of scientists.

The currently authorized national level of federal funds for these projects is $5,000,000 per year. Appropriations, however, have been below the authorized level; fiscal years 1971 and 1972 being $3,000,000. Illinois projects successful in this intense annual competition comprise the matching grant research program of the Center.

TITLE II SUPPORT

The above programs, which were authorized under Title I of the act are oriented primarily toward university research within each state. To allow for the encouragement of research by other organizations, Congress authorized further appropriations under Title II. These funds are awarded for support of specific water resources research projects after national competition of proposals from education institutions, private foundations or other institutions, private firms or individuals, and local, state and federal governmental agencies. Although proposals in any water research area are eligible, OWRR does establish subject area priorities for Title II support.

The fiscal year 1973 authorization for these projects is $10,000,000. Although $9,000,000 were authorized in the act for fiscal year 1971, only

$3,500,000 were appropriated by Congress. OWRR selected 33 projects across the nation for $2,000,000 of this program. Additional projects are being selected for this program.

STATE SUPPORT

The State of Illinois has contributed very significantly in the past to the research program of the Water Resources Center in the form of foregone indirect costs and in those portions of academic year salaries which represent the principal investigators' time contributed to projects. Until the fiscal year 1968, the only direct support of the Water Resources Center made from state funds consisted of a small amount for administrative expenses. The budget for the University of Illinois for the biennium 1967-1969 included an item for new program development which was to be used by the Center to provide matching funds for federal matching grant projects and to support other worthwhile water resources research. The current level of the budget is $75,000 per year.

The majority of state funds is used to provide assurance of non-federal funds in proposals submitted for matching support and this is the priority use for them. Sometimes projects may be supported entirely from state funds, however.

RESEARCH EMPHASIS

The Executive Committee of the Center has designated three broad areas of research which can be used to classify the research program. These are (1) fundamental hydrology including hydrogeology, (2) water quality and pollution and the mechanics of pollution transport and dispersion, and (3) fundamental research in planning for water resources management including economic, legal, geographic, recreational and social aspects. The Executive Committee attempts to maintain a desirable balance between these three areas.

The members currently feel that the highest priority should be placed on the area of water resources planning. Especially important in this field is further research on (1) economic and social aspects of water resource development, use, control and protection, (2) application of modern scientific planning techniques to water resources planning, expecially emphasizing the consideration of a large number of alternatives and the development of plans which provide diversity and choice to future users and decision-makers, and (3) institutional arrangements for water resources management.

It is the Executive Committee's feeling that second priority should currently be given to the area of water quality and pollution control. Especially important is further research on (1) aquatic biology and ecology, (2) sources and fates of pollution in surface and ground waters, (3) effects of pollution on the environment and on beneficial uses of water, and (4) means of controlling pollution both through advanced waste treatment and through organized enforcement.

Further study of the hydrologic system is also vital to a well-rounded approach to water resources management. It is felt, however, that except in the area of urban hydrology, this is not in such desperate need of further research as are the other areas mentioned above.

SELECTION CRITERIA

The first desire of the Executive Committee is to have the Center support high quality research. Each proposal is closely reviewed with regard to (1) the merit of the project, (2) the project's importance to the proper managment of water resources in the State of Illinois and in the nation, (3) the qualifications of the principal investigator, (4) the compatibility of the research with the above outlined areas of emphasis, and (5) the potential contribution to graduate education in the water resources field.

After this appraisal, special consideration is given to projects which involve new people in research pertinent to water resources. This consideration is extended both to young investigators who have not previously developed a research reputation and to investigators who have demonstrated research capabilities, but who have not heretofore worked on water-related problems in their fields of specialization. Special consideration is also given to distribution of projects among various Illinois colleges or universities. Projects which are interdisciplinary in nature and which would result in the development of a new spirit of cooperation between investigators from diverse fields are also encouraged.

Further details concerning the preparation of each type of proposal are given in the following sections. If consideration of a proposal in more than one Center program is desired, a separate proposal must be submitted for each type of support.

ANNUAL ALLOTMENT PROPOSALS

ANNUAL ALLOTMENT SPECIAL CRITERIA

Because of the limited funds available in the annual allotment, the Executive Committee feels that the Center's annual allotment research program is most appropriately used to support as many meritous projects as possible which also contribute to the secondary goals of the Center. For this reason projects most frequently selected are one year in duration and have a budget between four and seven thousand dollars. This money is all used for direct costs of research. The projects usually contribute significantly to graduate education, often by supporting a doctoral condidate's dissertation research. The program is also used extensively to draw on the interest of new investigators, new departments and new universities.

Some projects which are selected for support do have durations of two or three years or annual budgets as high as ten thousand dollars. The Executive Committee is hesitant, however, to commit more than a small portion of future allotments or to use sizable portions of the allotment in support of only a few projects.

Although the Center encourages interdisciplinary projects, budgetary restrictions usually preclude their inclusion in the annual allotment research program.

Prospective investigators are encouraged to contact the Director of the Center as early as possible concerning proposal preparation. He will be happy to give his reaction to your idea, discuss probable budget limitations, and give you the advantage of his insight regarding which

aspects of the proposed research will receive the most favorable reactions from the Executive Committee and from OWRR. The Center's telephone number is Area Code 217: 333-0536.

ANNUAL ALLOTMENT TIME TABLE

1.	Although not mandatory, the Director of the Water Resources Center would like to be notified of interest in submitting an allotment proposal by	Friday, January 7, 1972
2.	Deadline for delivery of completed proposal to the Center	Thursday, February 10, 1972
3.	Deadline for submission of allotment request to OWRR	Saturday, April 1, 1972
4.	Expected date for OWRR notification of approval or disapproval	Thursday, June 1, 1972

ANNUAL ALLOTMENT PROPOSAL STYLE

Much effort can be conserved by using a format and typing style that allows approved proposals to be incorporated directly into the Water Resources Center's annual allotment request to OWRR without retyping. Hence, uniform adherence to the following style will be appreciated.

1. Type: IBM twelve point Artisan type is preferred. If this is unavailable, any clear, block-style, elite type is acceptable.

2. Spacing: The proposal is to be double-spaced except as noted below.

3. Capitalization:
   a. Project Title: ALL CAPS
   b. Principal Investigator(s): Last name(s) -- ALL CAPS
   c. Project to be Conducted at: Name of institution -- ALL CAPS

4. Headings: The paragraph headings used should be those given below in the format. They are to be left justified, and underscored with the first letter of principal words capitalized.

5. Indenting: The first word in a paragraph should be indented 10 spaces.

6. Page Numbers: Numbers should appear centered at the bottom of each page.

7. Margins: Left margin - 1 1/4 in.; right, top and bottom margins - 1 in.

ANNUAL ALLOTMENT FORMAT

Each annual allotment proposal should be presented in the format explained below and shown by example on page 65. Please note the double spacing before each heading in the preliminary information and the triple spacing before each paragraph heading beginning with "Objective(s)."

Project Title: The project title must be concise and descriptive of project content. It also should show some obvious relationship to water or a water resources problem. If the proposed research is an extension of a project previously supported by OWRR and the same title is still applicable, the term "Phase II" should be added and consistently used when referring to the new project. (Completely capitalize the project title.)

FCST Research Category: See page 49 to select the Roman numeral and letter which represent the category most closely containing the proposed research.

Project to be Conducted at: Name, address and zip code of institution (Completely capitalize the name.)

Scheduled Beginning: Month Year (THIS SPAN SHOULD ALLOW TIME FOR DATA ANALYSIS AND FOR COMPOSITION OF THE PROJECT COMPLETION REPORT.)

Scheduled Completion: Month Year

Principal Investigator(s): Name, Title, Department (Completely capitalize last name(s) of the principal investigator(s).)

Other Professional Personnel: Name, Title, Department

Graduate Research Assistant(s): Name, seeking the (degree) degree in (major-field) , or the number in each major field to be assigned later, or "None" if none are to participate.

Objective(s):

A concise statement of the specific project objectives must be given. The statement should not generally exceed half of a page.

Background:

This is an optional section in which it is anticipated many investigators will want to set the stage for discussion of procedure.

Scope:

This section is also optional. It is anticipated, however, that many investigators will want to define the scope of the research before outlining the procedure.

Procedure:

A concise statement of the principal steps to be followed in attaining each research objective must be given in this section.

Discussion:

Further information may be given in this optional section as is necessary for full understanding of the proposed project. This might include explanation of pertinent theories or empirical evidence and their relationship to the proposal research. Any other information which is considered by the investigator to be essential in review of the proposal and which is not appropriate under other headings should be included here. Investigators are asked to take special care to avoid jargon which is specific to their field so that people who are familiar with water

Problems, but who are unfamiliar with the particular research topic will be able to understand the proposal.

Relation to Other Research:

The relationship of the proposed project to completed or ongoing research by the proposed investigator or others must be given in this section. If the proposal is an extension of research previously supported by OWRR or the Center, the project should be referenced by project number and title.

The Science Information Exchange is recommended as a source of information concerning ongoing research. You may avail yourself of this service by consulting the latest volume of the *Water Resources Research Catalog* which is available through the Water Resources Center, all current principal investigators and many campus libraries.

The proposal should show in this section how the project is expected to fill gaps in the current collection of knowledge and research relative to the subject, and how it will be coordinated with ongoing re-rearch at the investigator's institution and elsewhere. Every effort should be made to avoid duplication of any existing knowledge or ongoing research.

Relation to Water Resources Problems:

The importance of this section cannot be over-emphasized. Congress is constantly asking OWRR for evidence that its sponsored research is making contributions to the solution of water resources problems such as those

listed in the FCST *Ten-Year Program of Federal Water Resources Research*. Any investigator seriously hoping for proposal support must show in non-technical terms at least some potential way in which his research might be practically applied to a current water problem in the nation or in Illinois.

References:

List references in the order of appearance within the text of the proposal. Number them and refer to them from the text by use of super-script numerals. Individual references should be single-spaced with double-spacing between items. The reference section should not ordinarily exceed one page (approximately 15 items) in volume.

NOTE: The proposal length to this point should be about eight (8) pages

Project Personnel Qualifications:

For each member of the professional staff, excluding student assistants, give biographical data, education, professional experience, societies, honors and awards, and recent significant publications. Any standard vita format is acceptable for this purpose. Individual's qualifications should not exceed one single-spaced page.

Budget:

Complete one copy of forms A-1 and A-1a (non-federal) for each year, and form A-1b (quarterly) for the first fiscal year of the project operation. Also complete form A-1 showing amounts for the total duration of the project. Examples of the forms are found on pages 66 through 68.

Blank budget sheets are available from the Water Resources Center. THE BUDGET SHOULD BE REVIEWED WITH THE DIRECTOR, ASSISTANT DIRECTOR OR ACCOUNTANT OF THE WATER RESOURCES CENTER BEFORE SUBMITTING THE PROPOSAL IN FINAL FORM.

NRP Form:

Supply the requested information on the NRP form in accordance with the instructions presented on pages 57 through 61. The keywords should preferably be chosen from those included as descriptors in the *Water Resources Thesaurus*. This publication is available at the Water Resources Center.

Letter of Transmittal:

Each proposal should be covered by a dated letter of transmittal signed by the principal investigator(s) and containing the approval of the appropriate department head(s) or other authorities.

Proposal Submission:

Submit one (1) copy (the original) of the complete proposal, typed clearly on bond paper, no later than Thursday, February 10, 1972 to the

WATER RESOURCES CENTER
2535 Hydrosystems Laboratory
University of Illinois
Urbana, Illinois

MATCHING GRANT PROPOSALS

MATCHING GRANT SPECIAL CRITERIA

The Executive Committee feels that the matching grant research program should most appropriately support well-conceived, high-quality research projects which are highly relevant to water resources management in the nation and in Illinois. Thus, the decision on whether to approve the submission of a proposal to OWRR is made almost entirely on the basis of proposal merit, qualifications of the investigator, and compatibility of the project with the previously discussed areas of emphasis.

Most matching grant projects are two or three years in duration and have total federal budgets of between fifteen and forty thousand dollars. OWRR may hesitate to approve projects requiring more than about fifty thousand dollars in federal money. Non-federal contributions must exceed the federal portion. The Center may consider the allocation of a portion of its state funds to satisfy part of the matching requirements.

It is generally found that interdisciplinary proposals are appropriate for submission to OWRR as part of the Center's proposed matching grant research program.

OWRR has indicated that it will continue its past practice of awarding matching grants to meritous projects which pertain to the most neglected areas of water resources research or which are responsive to areal or regional problems of critical importance. The OWRR opinion of which research areas are neglected is well-represented by the Federal Council for Science and Technology publication *A Ten-Year Program of Federal Water Resources Research* and also by the priorities given for

Title II research on page 27. The Executive Committee does not currently feel that there are significant differences between state and national research needs.

Prospective investigators are encouraged to contact the Director of the Center as early as possible concerning proposal preparation. He will be happy to give his reaction to your idea, discuss probable budget limitations and give you the advantage of his insight on which aspects of the proposed research will receive the most favorable reactions from the Executive Committee and from OWRR. This is especially important if you will need Water Resources Center state funds in order to satisfy the matching requirement. The Center's telephone number is Area Code 217: 333-0536.

A request for support for a "second phase" or "third phase" of a multi-phase project currently being supported by OWRR should provide all information required by this letter. Essentially, therefore, such a request will be similar to a new, previously unfunded matching grant proposal; however, reference should be made to the fact that the request is for an additional "phase" of a project already being supported with OWRR funds. The wording "--Phase 1" or "--Phase 2", etc., as appropriate, should be included as part of the project title.

Also, the approval of the additional "phase" of the project for which additional OWRR funds are requested may be dependent upon results achieved in the "phase" already funded by OWRR. If so, a project completion report relating to the already funded and completed "phase" should be prepared and submitted to OWRR pursuant to OWRR's September 1966 project "Reporting Guidelines" in order for OWRR to consider approving a subsequent phase of the project. If such completion report is not yet available, a concise informative project accomplishment status report should be provided.

MATCHING GRANT TIME TABLE

1. Although not mandatory, the Director of the Water Resources Center would like to be notified of interest in submitting a matching grant proposal by ..... Wednesday, Sept. 1, 1971

2. Deadline for delivery of completed proposal to the Center ..... Monday, October 11, 1971

3. Deadline for submission of matching grant proposals to OWRR ..... Monday, November 1, 1971

4. Expected Date of OWRR notification of approval or disapproval ..... Wednesday, March 1, 1972

MATCHING GRANT FORMAT

Each matching grant proposal must be covered by a title page of the format shown on page 71. Please note the double spacing before each heading. It should include the information explained on the next page.

REQUEST FOR MATCHING GRANT SUPPORT

To: OFFICE OF WATER RESOURCES RESEARCH, U.S. Department of the Interior, Washington, D.C. 20240

From: WATER RESOURCES CENTER, University of Illinois, Urbana, Illinois 61801

Project Title: The project title must be concise and descriptive of project content. It also should show some obvious relationship to water or a water resources problem. If the proposed research is an extension of a project previously supported by OWRR and the same title is still applicable, the term "Phase II" should be added and consistently used when referring to the new project. (Completely capitalize the project title.)

FCST Research Category: See page 49 to select the Roman numeral and letter which represent the single category most closely containing the proposed research.

Project to be Conducted at: Name, address and zip code of institution (Completely capitalize the name.)

Scheduled Beginning: Month Year (THIS SPAN SHOULD ALLOW TIME FOR DATA ANALYSIS AND FOR COMPOSITION OF THE PROJECT COMPLETION REPORT.)

Scheduled Completion: Month Year

Principal Investigator(s): Name, Title, Department (Completely capitalize the last name(s) of the principal investigator(s).)

This Request is Approved by: Signature space should be provided for the Principal Investigator(s), their Department Head(s), the Director of the Center, the Graduate College of the U of I in Urbana, the Business Office of the U of I in Urbana, and any other appropriate authorities. An example of a possible layout is given on page 71.

The proposal itself should be presented in the format described on the next page. Please note the triple spacing before each paragraph heading.

1. Project Description:

Objective(s): A concise statement of the specific project objectives must be given.

Background: This is an optional section in which it is anticipated many investigators will want to set the stage for discussion of procedure.

Scope: This section is also optional. It is anticipated, however, that many investigators will want to define the scope of the research before outlining the procedure.

Procedure: A concise statement of the principal steps to be followed in attaining each research objective must be given in this section.

Discussion: Further information may be given in this optional section as is necessary for full understanding of the proposed project. This might include explanation of pertinent theories or empirical evidence and their relationship to the proposal research. Any other information which is considered by the investigator to be essential in review of the proposal and which is not appropriate under other headings should be included here. Investigators are asked to take special care to avoid jargon which is specific to their field so that people who are familiar with water problems, but who are unfamiliar with the particular research topic will be able to understand the proposal.

References: List references in the order of appearance within the

text of the proposal. Number them and refer to them from the text by use of superscript numerals. Individual references should be single-spaced with double-spacing between items. They should not usually exceed one page (approximately 15 items) in volume.

2. Qualifications of Principal Investigator(s):

For each individual give biographical data, education, professional experience, societies, honors and awards, and recent significant publications. Any standard vita format is acceptable for this purpose. Qualifications should not exceed one single-spaced page for each individual.

3. Qualifications of Other Professional Staff:

Show similar evidence of qualifications for each other professional staff member in this section. It is not necessary to include student assistants. If appropriate indicate that "No other professional personnel will be involved with the project."

4. Relation to Water Resources Problems:

The importance of this section cannot be over-emphasized. Congress is constantly asking OWRR for evidence that its sponsored research is making contributions to the solution of water resources problems such as those listed in the FSCT *Ten-Year Program of Federal Water Resources Research*. Any investigator seriously hoping for proposal support must show at least some potential way in which his research might be practically applied to a current water problem of the nation or of Illinois.

5. Relation to Institute Program:

The University of Illinois Water Resources Center attempts to encourage research in three principal areas at the present time. These areas have been selected by the Executive Committee, and staff members associated with the Center are encouraged to develop specific research programs in one of these three areas. These are listed on pages 3 and 4. The proposal should discuss the relation of the proposed project to one of these areas of research. The Director of the Center will be happy to discuss this aspect with anyone who is preparing a proposal.

6. Relation to Other Research:

The relationship of the proposed project to completed or ongoing research by the proposed investigator or others must be given in this section. If the proposal is an extension of research previously supported by OWRR or the Center, the earlier project should be referenced by project number and title.

The Science Information Exchange (SIE) is recommended as a source of information concerning ongoing research. You may avail yourself of this service either by consulting the latest volume of the *Water Resources Research Catalog* or by submitting a completed NRP form to SIE for a files search. The catalog is available through the Water Resources Center, all current principal investigators and many campus libraries. There is now a charge for SIE files searches, and thus they are by no means mandatory.

The proposal should show in this section how the project is

expected to fill gaps in the current collection of knowledge and research relative to the subject, and how it will be coordinated with ongoing research at the investigator's institution and elsewhere. Every effort should be made to avoid duplication of any existing knowledge or ongoing research.

7. Training Opportunity Provided:

One important criterion in the selection of matching grant projects is the potential of the proposed research to provide for the education of water scientists. Accordingly, numbers of graduate and undergraduate students to participate in the research should be indicated.

8. Budget:

Complete one copy of form B-1 for each fiscal year of project operation and one copy of form B-2 showing amounts for the total duration of the project. Examples of the forms are shown on pages 72 and 73. Blank budget sheets are available at the Water Resources Center.

Information pertaining to some special budgetary requirements which apply to computation of indirect costs and non-federal contribution to the research may be obtained from the Water Resources Center. A statement of justification for unusual costs should be included. THE BUDGET SHOULD BE REVIEWED WITH THE DIRECTOR, ASSISTANT DIRECTOR OR ACCOUNTANT OF THE WATER RESOURCES CENTER BEFORE SUBMITTING THE PROPOSAL IN FINAL FORM.

9. Facilities:

Describe the major facilities to be used in the research pointing out special items which would make your department especially suitable for conduction of the proposed research.

10. Publication:

A project completion report is required. The Water Resources Center has established a series for publication of all research results. It also encourages publication in the technical scientific or scholarly literature. Therefore, please insert a statement to the effect that a completion report will be submitted and also give your intentions regarding other publications.

11. Need for Grant:

The Office of Water Resources Research requires that evidence be given that the project could not be undertaken without the grant.

12. Submission of Previous Reports:

Insert a statement to the effect that "All reports required from the Water Resources Center under Part 506 of the "Rules and Regulations" have been submitted."

13. Cooperation with Other Universities:

In the case of projects proposed by investigators in departments at the University of Illinois at Urbana-Champaign, a statement should be included to the effect that, "It is not expected that other universities in Illinois will be associated with the proposed project. The project will be carried our under the direction of the principal investigator and the graduate students employed by the project will be graduate students from the University of Illinois."

In the case of projects proposed by other universities in Illinois, which only involve personnel at that university, a statement should be included to the effect that, "The project will be carried out at _____ University at _____, Illinois under the direction of the principal investigator and the graduate students employed on the project will be graduate students at _____ University. The Water Resources Center of the University of Illinois at Urbana-Champaign agrees to assume administrative responsibility for the project and a memorandum of understanding will be executed between the University of Illinois at Urbana-Champaign and _____ University for the project in accordance with the provisions of the proposal."

If the project will involve more than one university in the execution of the research, the nature of this cooperation should also be fully explained.

14. Availability of Matching Funds:

Assurance must be given that the required matching funds are available from non-Federal sources. The source of funds should be cited if possible.

15. Other Submissions:

Submission of the proposal to other funding agencies is not discouraged and does not bias its consideration under the matching grant program. Please list other agencies to which the proposal has been submitted or will be submitted, however, together with the status of each submission

if it is known. If the proposal has been turned down by an agency, the reasons and the efforts which have been made by the principal investigator to improve the proposal relative to these reasons should be given.

16. NRP Form:

Supply the required information in accordance with the directions given on pages 57 through 61. The keywords should preferably be chosen from those included in the *Water Resources Thesaurus*. This publication is available at the Water Resources Center.

Transmittal Form:

Proposals originating on the Urbana-Champaign Campus should be covered by the standard University proposal transmittal form (see example, page 87) with the signatures of the principal investigator(s), department head(s) and college dean(s).

Submission:

Submit one (1) copy (the original) of the proposal, typed clearly on bond paper, no later than Monday, October 11, 1971 to the

WATER RESOURCES CENTER
2535 Hydrosystems Laboratory
University of Illinois
Urbana, Illinois 61801

TITLE II PROPOSALS

TITLE II SPECIAL CRITERIA

It is not necessary for Title II proposals to be submitted to OWRR through the Water Resources Center unless they are being developed by a department of the University of Illinois, Urbana-Champaign Campus, or by a state scientific survey in Champaign or Urbana. Other investigators throughout the state are encouraged to submit Title II proposals directly to OWRR with an information to the Center, so that the maximum possible coordination of water research efforts in the state can be achieved. The Director of the Center will be pleased to aid in any way possible in proposal development and will forward proposals to OWRR with the strongest possible endorsement.

Information pertaining to some special budgetary requirements which apply to computation of indirect costs and non-federal contribution to the research may be obtained from the Water Resources Center.

Although any water related research subject is eligible for Title II support, OWRR has established a list of priorities for fiscal year 1973 grants. This list of priorities is reproduced on pages 31-39. Other Title II policies announced by OWRR are reproduced on pages 41-45.

It should be noted that the competition for Title II funds is extremely intense. Some statistics on the fiscal year 1972 competition are given on pages 2 and 3. Unless your proposed topic is related very closely to a priority area, it will have small probability of funding.

TITLE II TIME TABLE

Proposals must be in the mail to OWRR and postmarked by midnight January 10, 1972. If a proposal from another university is to be submitted through the Center, a few days should be allowed for review and comment. Proposals submitted by departments at the University of Illinois, Urbana-Champaign Campus, require a similar period for review and for obtaining the necessary approvals. Proposals should therefore be received by the Center no later than Monday, January 3, 1972.

TITLE II FORMAT

The Office of Water Resources Research has released the following guidelines for proposal composition. Proposals submitted directly to OWRR should be in eight (8) copies. Proposals submitted through the Center by persons not associated with the Urbana-Champaign Campus of the University of Illinois should be accompanied by one extra copy (total of nine) for the Center's files. An acceptable alternative is for the eight copies to be send directly to OWRR and for only one copy to be sent to the Center. The Director will then mail his endorsement to OWRR upon review of the proposal. Proposals from personnel associated with the University of Illinois, Urbana-Champaign Campus must be submitted through the Center and should include an additional extra copy (total of ten) for the Business Office files. These U of I proposals should also be covered with a title page allowing for required signatures (see example on page 77) and the standard university proposal transmittal form (see example, page 87).

OFFICE OF WATER RESOURCES RESEARCH

EXAMPLES OF PRIORITY RESEARCH SUBJECTS FOR TITLE II SUPPORT

FISCAL YEAR 1973

The Office of Water Resources Research has identified the following major subject areas for priority research support in the fiscal year 1973 program. Some examples of specific research topics within these major subject areas are presented to indicate the range of problems needing research. A given research proposal may deal with limited aspects of an identified problem, or it may deal with several of these problems. The problems are listed simply as examples of subjects to which research proposals may be related. In preparing the proposal, the principal subject or problem on which the proposed research is to focus should be identified by number and title as used herein. No significance should be attached to the order of appearance of the subject areas on the priority list.

OWRR will consider funding subject areas of research not included on this priority list if the research proposal provides convincing reasons that the subject area of research is of high priority, and within the purview of Title II of the Water Resources Research Act of 1964, as amended.

Because certain important and urgent water resource problems require research involving a number of technical disciplines in the physical, life, or social sciences, law, or public administration, significant progress toward their solution may require relatively high level of effort. For that reason, OWRR is prepared, as appropriate, to consider a limited number of proposals with corresponding funding levels as determined by sound research design and prudent management.

1. Analysis of Planning, Managerial, Financial, Operating and Regulatory Policies of Water Resources Institutions. The analysis of water rights doctrines especially as they affect the process of decision-making, user attitudes and water management practices and policies requires further study. Research and perhaps case history studies are needed on the problems associated with multiple jurisdictions and conflicting objectives in metropolitan and regional water resources planning and management. Also, technological tools for planning water resource development on a regional or basin-wide basis may have advanced beyond our institutional capabilities for implementing the plans. While the many conflicts, discussions, and negotiation involved in finding acceptable plans are truly part of the democratic process, further understanding of the mechanisms of the process could serve to expedite the implementation phase, thus benefiting all parties concerned. Research goals should be to provide a basis for establishment of improved mechanisms including evaluation of alternative means of augmenting and conserving supply, for water

resources planning, implementation of plans, and to improve management effectiveness through lessening of conflicts, uncertainties, and confusion among claimants to the resource. Research is needed to investigate the institutional and political restraints on shifting water from agricultural to municipal-industrial uses, and other uses of potential or actual greater priority. In addition, determinations ought to be made as to just what is the participation of the general public in water resources planning and development. Furthermore, does that portion of the public which is being heard from actually provide a true consensus of the Nation's population?

2. Water Resources Policy and Political Institutions. Understanding of policy and institutional problems is indispensable to sound water resources management by both the public and private sectors of the Nation. Research is needed on how institutional policy is measured and formulated and what policies and institutional arrangements are conducive to sound water management. Among the questions to which research could be directed are those involving current policies and institutions. The river basin as a water management unit needs further evaluation with respect to the compatibility of water resources management objectives and the needs of regional economic development. How institutional arrangements affect the role of the private sector in water resources development needs to be researched. A very large segment of water resources needs are fulfilled via the activities of the private sector. Comprehensive analysis of the socio-economic water system requires understanding of how the private sector responds to alternative water management institutions. How have Federal policies and alternative state tax and regulatory policies affected the private role in the several functional areas of water service? How have Federal and state grant programs influenced the use of private investment capital in the financing of local water development? What would be the most effective means to evaluate the changes taking place in our society toward interest in other than strictly economic and technological factors of water resources development, e.g., such important policy-related elements as quality of life, aesthetics, and similar humanistic aspects?

3. Hydrologic Systems Analysis. The application of operations research tools such as mathematical modeling and simulation, optimization and design theory need to be assessed and further explored in relation to hydrologic events and to planning of surface and ground water resources development. Research of a hydrologic nature should be initially designed so that physical results obtained are in a form that is suitable for economic analysis. Research needs in the area of optimization include a better definition of benefit functions to portray the economic losses incurred during shortages in agricultural, municipal, and industrial water supplies. Rainfall-runoff models applicable to large watersheds and using both deterministic and stochastic approaches are needed. Correlation of mean annual or seasonal runoff with precipitation,

evapotranspiration, physiographic and vegetal parameters would be useful in application to similar areas of sparse hydrologic data. Operations research and information theory techniques should be examined for potential application to inflow-outflow problems in hydrology, to flood routing, reservoir operation, data network design, automatic control and monitoring of water distribution systems, etc.

4. Urban and Metropolitan Water Resources Problems. Research is needed on urban hydrology and the effect of man's activities on water. Such research should include evaluation of the impact of urbanization on the frequency and magnitude of flood peaks, reduction of low flows, decrease in natural ground water accretion, impairment of water quality, erosion, etc., and development of methodology and technology to cope with such problems. Knowledge of the effects of urbanization on drainage, water quality, stream regimen, water yield and flooding are essential to intelligent development and utilization of metropolitan water resources. A study of public acceptance of alternative sources of municipal water supply should be encouraged. Research is needed to define and quantify social, esthetic, and recreational use of metropolitan water supply reservoirs, and preservation, protection, and beneficial uses of marshland, estuaries and other waters in close proximity to urban regions. Research is needed on the effects of urban encroachment on rural watersheds, the effects of changing land use patterns, the economic consequences of the conversion of irrigated land to urban uses and the conversion of irrigation water and water rights to municipal and industrial use. Innovative approaches to water-related recreation, attractive waterfront development, and open space in the urban environment are needed. Research is needed on methods to reduce the cost of providing water and sewerage service. The use of "withdrawals" as a measure of water demand can be misleading when the demand-supply balance in water management and planning becomes critical. A new, rigorous definition of "water requirements" (residential, industrial, commercial and public uses) is needed which will take into account the factors of usage, withdrawal, consumption, recycle, returns and dilution, as well as new and future technologies having an impact on water usages. Consideration must also be given to the economic dimensions of water use practices.

Alternative procedures for determining municipal and industrial water prices need to be developed. The possibility of refinements in classifying consumers into different groups with differential price schedules should be undertaken.

Studies on non-structural alternatives to urban flood-plain zoning are needed.

Intergovernmental and metropolitan organizational devices for supplying urban water should be analyzed, and the kinds of financing employed, institutional arrangements used, success or failure of meeting specified objectives should be studied. There are probably hundreds of arrangements

nationally, running across and through all units and levels of government. Knowledge of how one unit of government compares with another in the adequacy and cost of services being provided could lead to improved urban water management practices.

Contemporary water resource plans are being formulated for river basins and states. How can these plans be maximally sensitive to urban water resource needs and vice versa, how can urban water resource plans best fit into river basin and state water resource plans?

5. Environmental Considerations in Water Resources Planning and Management. Flowing and standing water in urban areas can contribute significantly to a quality environment. This may include streams and waters. What is meant by a quality environment? What constitutes the esthetic and amenity values?

Urbanization has affected most of these uses and values. How can research help to restore and enhance degraded environments, protect what is still left, and do these things in a way compatible with a growing population and an expanding economy.

There is a need to develop systematic interdisciplinary approaches to insure integrated use of natural and social sciences and the environmental design arts in planning and decisionmaking with regard to the management of water and related land resources.

In addition, studies are needed to suggest effective organizational arrangements among regional civil jurisdictions to implement and finance solutions to environmental problems. These studies should identify appropriate incentive programs, cost-sharing and other financial arrangements to deal with water resource environmental problems.

The National Environmental Policy Act of 1969 requires that all Federal agencies identify and develop methods and procedures which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations. To this end, environmental impact statements are required as a part of water resources project evaluations. For this purpose, "environmental impact" means the probable impact on the environment of a proposed action by man. Research can be employed as a valuable tool in the better understanding of what is the most meaningful content of such an impact statement. Also, what are its data needs, how may it best be developed and used, what is its significance and relationship to the objectives of future water resources development?

6. Evaluation of Economic Importance of Various Uses of Water, Cost Allocation, Cost Sharing, Pricing and Repayment. Methodologies are needed for estimating future demands in time and place with full consideration given to the economic relationships between supply and demand as well as the impact of new technologies.

Study is needed of methods allocating costs among the various functions of multiple-purpose water resource projects. This is made difficult because market pricing techniques customarily do not reflect certain values which are recognized by the public. Research is needed to develop alternatives to market pricing for quantifying esthetic, recreation, fish and wildlife benefits, and water quality.

Research is needed for improving the methods used in evaluating primary and secondary benefits of water resources projects. Also, research is needed to identify costs and reimbursement possibilities associated with esthetic, amenity, recreation, and other benefits, to establish methods for determining attitudes and public preferences with respect to competing demands on the water resource, and the ability and willingness to pay for such benefits. Meaningful comparative studies on cost of water importation versus water reuse are needed.

Research dealing with adequate treatment of risk and uncertainty in the design of water resource systems is needed. The question of risk involves the adequacy of forecasts as a means of reducing hydrologic risk. Research is needed to define functional relations between derived benefits and adequacy of forecasts for selected projects. This should involve a fundamental searching examination of the nature and significance of risk and uncertainty. The research should produce usable methodologies for incorporating such risk and uncertainty concepts into planning and design of water resource systems.

Analyses are needed to determine the effects of costs of water supply and water quality upon production costs of industries, business, and agricultural activities.

7. Analysis and Evaluation of Water Resources Projects with Special Emphasis on Identification and Evaluation of Benefits Derived. Post-audit studies of existing water resource projects for irrigation, water supply, flood control, and multiple purposes should be made with a view to identifying the full range of benefits, effects, and social values on the economy of the project area. The studies should be wide-ranging in analyzing planned and unplanned effects, as well as considering projects in the light of National economic efficiency benefits and alternative objectives such as environmental quality, regional and local economic development, and social well-being. Where benefits cannot be set forth in monetary terms, an attempt should be made to provide descriptive measures.

Benefit-cost analysis has been the principal tool for evaluation of public investment programs, including watershed and water resources programs. It has ranked projects and programs in terms of the objective of economic efficiency only. Research is needed to determine appropriate alternatives and multi-objectives which will insure that presently unquantified environmental amenities and values may be given appropriate considerations. Evaluation of methods to quantify values in terms of appropriate objectives and assigning weights to these values is needed so that alternative objectives and/or combinations of objectives can be compared. This would include a diversity of objectives such as alleviation of poverty, improved distribution of income, environmental quality, and other social values.

Studies are needed to examine possible competition between objectives of water resource developments such as industrial and domestic demand for water versus agricultural use and/or recreational use. Research might be carried out, for example, to determine regional economic and social impacts of the various utilitarian, recreational, and/or amenity uses of water.

8. Ground Water Management and Protection. Research is needed on management methods and techniques to protect the ground-water resource from degradation and to insure its availability and safety for domestic and municipal purposes. In many areas, nationwide, productive aquifers find limited use because the quality of the ground water is unacceptable. Many constituents or properties imparting objectionable tastes, odors, or esthetic traits exceed allowable limits.

Water management agencies are becoming more and more informed and interested in artificial ground-water recharge as a means of conserving surface runoff for future use. Artificial recharge of water spreading is now practiced in many areas, particularly California, by delaying runoff over permeable alluvial fans, thus permitting more time for the water to infiltrate. Better techniques should be researched as to feasibility of water spreading and well injection in various geologic terranes. Similarly, recharge pits can be used to harvest storm and other high water runoff for replenishment of ground water reservoirs. Research is particularly applicable in regions where the surficial materials are of low permeability.

Sanitary landfills, a common means of solid waste disposal, can become sources of pollution to both ground water and surface water if these sites are not carefully located and monitored as to the character of the leachates and other fill materials. More attention involving research as to hydrologic and geologic criteria for site selection will be required.

In many areas throughout the United States, storage of certain peak streamflow might be accomplished by recharge into saline or brackish

aquifers. The problem in this procedure is the degree of mixing that will result between the fresh recharge water and the salty water of the aquifer. Municipalities faced with conjunctive use of surface and ground waters would stand to benefit by the development of a predictive model which would permit adequate planning of the recharge-withdrawal operations. Such a mathematical model could reduce, for selected situations, the loss of high quality recharge made marginal in quality by dispersive mixing at the interface.

9. Protection and Rehabilitation of Estuarine Resources. Research is needed to develop criteria, standards and guidelines for including ecological effects in planning for water resource development of estuaries and coastal bays, such as: dredging, filling, dams, diversions, land-cut canals, hurricane barriers, and finger-type developments. These studies should attempt among other things to assess the biological effects of these developments by changing temperature, salinity, flow regimes, circulation, flushing and sedimentation, and destruction of vegetation.

Studies designed to develop information or techniques useful to planners are indicated, also, in the areas of socio-economics, political science, institutional arrangements and law. Assessment of human factors, constraints, and public attitudes regarding optimum use of estuarine areas is needed to integrate with technical physico-chemical and biologic information.

10. Thermal Loading Problems. With the expected increase in number of electric generating plants and the consequent thermal loading of rivers, lakes, and estuaries, increased research attention is needed in physical mixing and thermodynamics of the heated discharges; in development of economically competitive alternatives to use of once-through water as a heat-transfer medium; on biologic, ecologic and environmental impacts; on types and quantities of data required to properly evaluate facility sites and to choose among alternative sites; on adequacy of regulations and procedures for site selection with respect to water use and management; and on possible ways of utilizing the heat for man's advantage.

11. Water Demand Considerations. In regions where water supply is unable to keep up with the demand, the value of water for specific purposes will increase. Further research is needed on the effect of price on demand with specific attention to the value of water for irrigated agriculture, recreation, industry, urban use and other purposes.

In addition to the economic factors controlling water demand it is clear that other factors will control demand in the future. It is contended that water should be viewed as a facilitative resource for economic development. In opposition to that view is the suggestion that water development projects be used as a mechanism for regulating growth and/or maintaining a status quo environment. The consequence of either

course of action, the measurement of the benefits derived, the benefits derived, the affects of such policy on GNP, the regional economy, quality of life, etc., needs to be determined if intelligent water resource policy is to be developed. Research is needed to determine appropriate alternative objectives and to develop methods to evaluate the benefits in relation to costs for the different objectives, such as, improved distribution of population, environmental quality, and other social values.

To: Director
Office of Water Resources Research
Department of the Interior
Washington, D.C. 20240

Subject: Title II Mailing List -- Notice relating to the submittal of Title II water resources research project proposals for consideration for fiscal year 1973 funding beginning July 1, 1972

Relating to the above subject, although we may reconsider the matter at a later date we do not now plan to submit a research proposal for consideration for fiscal year 1973 funding. However, we would like to receive your subsequent-year notification. Therefore, please keep us on your Title II mailing list, using the address set forth below.

Name and/or title, organizational identification, street address, city, state, and zip code are as follows:

UNITED STATES DEPARTMENT OF THE INTERIOR

OFFICE OF WATER RESOURCES RESEARCH

Washington, D. C. 20240

June, 1970

GUIDES FOR SUBMISSION OF RESEARCH PROPOSALS TO THE OFFICE OF WATER RESOURCES RESEARCH (OWRR) PURSUANT TO TITLE II OF THE WATER RESOURCES RESEARCH ACT OF 1964, AS AMENDED

Where to Submit. Research proposals should be addressed to the Director, Office of Water Resources Research, U. S. Department of the Interior, Washington, D. C. 20240. (Telephone: AC-202--343-5975)

Number of Copies. All proposals must be submitted in 8 copies.

Proposal Content. The formal proposal is a detailed official document which must be signed by the individual or official authorized to commit the applicant. The proposal document forms the basis both for scientific evaluation and for research agreement negotiations. The proposal may be submitted in any form best suited to the specific topic but the following information must be included in the proposal:

(a) A summary and cover sheet - see Form C-1 attached;

(b) Narrative Information - see numbered paragraphs below;

(c) Financial Plan Information - see Forms C-2, 3, 4, and 5 attached; and

(d) Notice of Research Project (NRP) - see numbered paragraph 14 of Narrative Information below and related attached instructions contained in Exhibit 1 attached.

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Water Resources Research Proposal

Narrative Information

1. Project Title: The title of the proposed research project should be brief, but properly descriptive, using keywords suitable for indexing and retrieval. The title should relate to water resources research.

2. Organization of Applicant: All applicants must furnish the following information:

   (a) Legal name and address of applicant.

   (b) Type or kind of applicant (e.g., academic institution, non-profit institution, corporation, partnership, individual, etc.), including, as applicable, statements as to its nature, officers, and principal business.

   (c) Name, title, and address of the individual authorized to commit the applicant. The proposal must be signed by this individual.

   (d) Name, title, and address of the individual accountable for receipt and disbursement of funds obtained for Title II research.

   (e) Name, title, and address of principal investigator(s) responsible for the performance of the proposed research.

3. Evidence of Applicant's Qualifications: Except for academic institutions submitting a proposal that requests Federal funds in the amount of $100,000 or less, applicants should furnish information relating to:

   (a) Adequacy of the organization and financial resources for performance of the proposal;

   (b) Experience, skills, and special qualifications held by the applicant for performance of the research project;

   (c) Record of performance in conducting Federally-supported and other research in the past five years;

   (d) Ability of the applicant to adhere to the proposed time schedule of performance as stated in the proposal; and

   (e) Equipment, space, and other facilities that are available for use in the conduct and support of the proposed research.

4. Objectives of Proposed Research: There must be a statement of specific objectives showing the scientific results expected to be achieved through performance of the proposed research.

5. Research Plans: Information on research procedures must be submitted in sufficient detail so that those who perform the technical review of the proposal can appraise the adequacy of procedures and the likelihood of successful attainment of objectives. The scope and plan of the proposed research should be a definite statement of what the applicant proposes to do during the period of performance of the research project.

6. Period of Research Performance: The desired starting date (on or after July 1) and the planned completion date of the research must be shown in the proposal. Project duration shall include the time necessary for the preparation and submission to OWRR of draft copies of a project technical completion report. Research agreements may be for any period of time, but normally will not exceed 3 years in duration.

7. Relevancy of the Proposed Research to Water Resources Problems: One of the important factors that may be used by the Department of the Interior, the Office of Science and Technology, the Congress, and others in appraising the effectiveness of the Office of Water Resources Research program is the extent to which programs supported under the Water Resources Research Act of 1964 relate to important local, regional, and national water problems. Therefore, an appropriate "relevancy" statement should be included in the proposal. In this connection, it is suggested that you refer to the "TITLE II POLICIES" statement as well as the statement setting forth "Examples of Priority Research Subjects for Title II Support," both of which are enclosed herewith. Priority areas identified in those two documents, plus others that may occur to you, are suggested as a basis for identification of the problems associated with your proposed research project.

   Indicate (spaces are provided on Form C-1): (a) the FCST research category number -- see "FCST Water Resources Research Categories", copy of which is attached to Exhibit 1 enclosed herewith; and (b) the OWRR priority research subject number -- see "Examples of Priority Research Subjects for Title II Support," enclosed herewith.

8. Background Information and Related Ongoing Research: The proposed research should not involve undesirable duplication of completed or ongoing research work.

   The proposal document should contain: (a) concise information as to previous research related to the proposed project with citations of the technical literature on the subject; (b) citations of related ongoing research projects and a statement pointing out the relationship of the proposed research to such similar ongoing research; and (c) a statement of how the proposed project is expected to fill gaps in available knowledge on the subject.

   In connection with other related ongoing research, attention of each principal investigator is called to two methods that exist to obtain information regarding related research projects in progress prior to submittal of a proposal to the Office of Water Resources Research. One method is to request the Science Information Exchange (SIE) to provide copies of Notices of Research Projects (NRP's) related to the specific subject matter of your proposal. (Note: SIE has Federal Government responsibility for cataloging information regarding water resources research projects in progress.) SIE makes a charge for providing this service. Inquiries should be directed to:

Director, Science Information Exchange
Suite 300, Madison National Bank Building
1730 M Street, N. W.
Washington, D. C. 20036

Telephone: 381-5511 - Area Code 202

A second method is to consult Volume 5 of the Water Resources Research Catalog which contains abstracts of over 5,000 ongoing research projects indexed by subject, investigator, contractor, and supporting agency. A copy of Volume 5 of the catalog may be obtained, for $9.50, by writing to: (specify catalog No. I. 1.94:5)

Superintendent of Documents
Government Printing Office
Washington, D. C. 20401

9. Qualifications of Principal Investigator(s): The number and qualifications of the personnel who will conduct the proposed research, with the name, education, experience, and accomplishments of the principal scientists must be included in the proposal.

10. Time and Effort of the Principal Investigator(s): The proposal must show:

    (a) What other research will be conducted by the principal investigator(s) coincidentally with this proposed research; and

    (b) What portion of the principal investigator(s) time will be devoted to this project.

11. Project Proposed Financial Plan: A time and cost estimate must be provided, similar to that shown by Forms C-2, C-3, C-4, and C-5 attached. The provisions of Federal Procurement Regulations (Part 1-15) relating to general cost principles and procedures will serve as a guide in the determination and allowance of research project costs.

12. Cost and Pricing Data: As provided by Part 1-3.807 of Federal Procurement Regulations, all applicants excepting educational institutions must furnish a Certificate of Cost and Pricing Data in connection with a proposal which exceeds $100,000 in amount.

13. Indirect Costs and Employee Benefits: If indirect costs are included in the project financial plan, there should be a statement as to how such costs are determined. If indirect cost rates (or rate) are involved, advice should be furnished as to whether they are under audit by a Federal agency and, if so, the name and address of the agency. If employee benefits are included in the financial plan as costs, the components and method of computation should be explained.

14. Notice of Research Project (NRP): An original and three copies of an NRP are required. A separate statement provides instructions for the preparation of an NRP. (See Exhibit 1 attached)

15. Training: If the training of water resources scientists will be a by-product of research project activity, the proposal should include appropriate statements describing the extent and type of training to be provided, including the number of trainees participating.

16. Publication of Research Results: The intended method of making the research results generally available on a timely basis must be included in the proposal.

17. Non-Federal Contribution to the Research Effort: If the project proposal (financial plan) indicates that non-Federal contributions are to be applied to the accomplishment of the proposed research, written assurance must be provided that the non-Federal contributions stated in the research proposal will be forthcoming if the proposal is approved for funding by OWRR. Cost participation, with identification of its source and of all of its terms and conditions shall be fully disclosed in the research project proposal. (Note: Grants to academic institutions are subject to the provisions of Bureau of the Budget Circular A-74.)

18. Submittal of Proposal to Other Funding Sources: The proposal must state whether the project has been or will be submitted to organizations other than OWRR for the purpose of obtaining funding support, with the names of any such organizations. Similar information, with the part (or parts) of the project similarly identified, should be provided when only a part (or parts) of the project proposal has been or will be submitted to another organization.

19. Research Time Period: The proposal must show the time period during which this proposal is valid.

20. Proprietary Information: Any aspects of the proposal for which the applicant claims a proprietary interest should be clearly marked or identified. OWRR will respect such proprietary interests.

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Terms and Conditions Desired by Applicant: The research proposal may be accompanied by the applicant's statement of the terms and conditions desired in the contract or agreement controlling the performance of the proposed research.

Notification of Selection or Non-selection: OWRR's intent is to notify proposing organizations as early as possible, perhaps about May 15, of the selection of proposals for support beginning July 1 or after of a new fiscal year. Such notification may need to be made contingent upon appropriation, by the Congress, of moneys required for support of selected projects. At the earliest feasible date, proposing organizations will also be notified of the non-selection of proposals.

APPENDIX I

Federal Council for Science and Technology Listing

of

WATER RESOURCES RESEARCH CATEGORIES

--FCST--
LISTING OF

Water Resources Research Categories

I. Nature of Water

Category I deals with fundamental research on the water substance.

A. Properties of water

Study of the physical and chemical properties of pure water and its thermodynamic behavior in its various states.

B. Aqueous solutions and suspensions

Study of the effects of various solutes on the properties of water; surface interactions; colloidal suspensions.

II. Water Cycle

Category II covers generally research on the natural processes involving water. It is an essential supporting effort to applied problems in later categories.

A. General

Studies involving two or more phases of the water cycle such as hydrologic models; rainfall-runoff relations; surface and ground-water relationships; watershed studies, etc.

B. Precipitation

Investigation of spatial and temporal variations of precipitation; physiographic effects; time trends; extremes; probable maximum precipitation; structure of storms, etc.

C. Snow, ice, and frost

Studies of the occurrence and thermodynamics of water in the solid state in nature; spatial variations of snow and frost; formation of ice and frost; breakup of river and lake ice; glaciers, permafrost, etc.

D. Evaporation and transpiration

Investigation of the process of evaporation from lakes, soil, and snow and of the transpiration process in plants; methods of estimating actual evapotranspiration; energy balance; etc.

E. Streamflow

Mechanics of flow in streams; flood routing; bank storage; space and time variations (includes high- and low-flow frequency); droughts; floods; etc.

F. Ground water

Study of the mechanics of ground-water movement; multiphase systems; sources of natural recharge; mechanics of flow to wells and drains; subsidence; properties of aquifers; etc.

G. Water in soils

Infiltration, movement, and storage of water in the zone of aeration, including soil.

H. Lakes

Hydrologic, hydrochemical, and thermal regimes of lakes; water level fluctuations; currents and waves.

I. Water and plants

Role of plants in hydrologic cycle; water requirements of plants; interception.

J. Erosion and sedimentation

Studies of the erosion process; prediction of sediment yield; sedimentation in lakes and reservoirs; stream erosion; sediment transport, etc.

K. Chemical processes

Chemical interactions between water and its natural environment; chemistry of precipitation.

L. Estuarine problems

Special problems of the estuarine environment; effect of tides on flow and stage; deposition of sediment; sea water intrusion in estuaries.

III. Water Supply Augmentation and Conservation

As water use increases we must pay increasing attention to methods for augmenting and conserving available supplies. Research in category III is largely applied research devoted to this problem area.

A. Saline water conversion

Research and development related to methods of desalting sea water and brackish water.

B. Water yield improvement

Increasing streamflow or improving its distribution through land management; water harvesting from impervious areas; phreatophyte control; reservoir evaporation suppression.

C. Use of water of impaired quality

Research on methods of agricultural use of water of high salinity; use of poor quality water in industry, crop tolerance to salinity.

D. Conservation in domestic use

Methods for reducing domestic water needs without impairment of service.

E. Conservation in industry

Reduction in both consumption and diversion requirements for industry.

F. Conservation in agriculture

More efficient irrigation practices. Chemical control of evaporation and transpiration; lower water use plants; etc.

IV. Water Quantity Management and Control

Category IV includes research directed to the management of water, exclusive of conservation, and the effects of related activities on water.

A. Control of water on the land

Effects of land management on runoff; land drainage; potholes; etc.

B. Groundwater management

Artificial recharge; conjunctive operation; relation to irrigation.

C. Effects of man's related activities on water

Impact of urbanization, highways, logging, etc., on water yields and flow rates.

D. Watershed protection

Methods of controlling erosion to reduce sediment load of streams and conserve soil.

V. Water Quality Management and Protection

An increasing population increases the wastes and other pollutants entering our water supplies. Category V deals with methods of identifying, describing, and controlling this pollution.

A. Identification of pollutants

Techniques of identification of physical, chemical, and biologic pollutants; rational measures of character and strength of wastes.

B. Sources of pollution

Determination of the sources of pollutants in water; the nature of the pollution from various sources; path of pollutant from sources to stream or ground water.

C. Effects of pollution

Definition of the effect of pollutants, singly and in combination, on man, aquatic life, agriculture, and industry under conditions of sustained use; eutrophication.

D. Waste treatment processes

Research to improve conventional treatment methods to gain efficiency or reduce cost; processes to treat new types of waste; advanced treatment methods for more complete removal of pollutants including purification for direct reuse.

E. Ultimate disposal of wastes

Disposal of residual material removed from water and sewage during the treatment process; disposal of waste brines.

F. Water treatment

Development of more efficient and economical methods of making water suitable for domestic or industrial use.

G. Water quality control

Research on methods to control steam and reservoir water quality such as flow augmentation; stream and reservoir aeration; control of natural pollution; control of pollution from pesticides and agricultural chemicals; control of acid mine drainage; etc.

VI. Water Resources Planning

The problems of achieving an optimal plan of water development are becoming increasingly complex. Category VI covers research devoted to determining the best way to plan, the appropriate criteria for planning and the nature of the economic, legal and institutional aspects of the planning process.

A. Techniques of planning

Application of systems analysis to project planning; treatment of uncertainty; probability studies.

B. Evaluation process

Development of methods, concepts, and criteria for evaluating project benefits; discount rate; project life; methods for economic, social, and technological projections; reliability of projections; research on the value of water in various uses.

C. Cost allocation, cost sharing, pricing, and repayment

Research on methods of calculating repayment and establishing prices for vendible products; techniques of cost allocation; cost sharing; pricing and repayment policy.

D. Water demand

Research on the water quantity and quality requirements of various uses, both diversion and consumption.

E. Water law

A study of State and Federal water law looking to changes and additions which will encourage greater efficiency in use; investigation of institutional structures and constraints which influence decisions on water at all levels of government.

F. Nonstructural alternatives

Exploration of methods to achieve water development aims by nonstructural methods such as flood plain zoning.

G. Ecologic impact of water development

Effects of water management operations on the overall ecology of the area. Excludes effect of pollution under V.C.

VII. Resources Data

Planning and mangement of our water resources require information. Category VII includes research oriented to data needs and the most efficient methods of meeting these needs.

A. Network design

Studies of data requirements and of the most effective methods of collecting the data.

B. Data acquisition

Research on new and improved instruments and techniques for collection of water resources data; telemetering equipment.

C. Evaluation, processing, and publication

Studies of effective methods of processing data; form and nature of published data; maps of data.

VIII. Engineering Works

To implement water development plans requires engineering works. Category VIII describes research on design, materials, and construction which is generally useful to all aspects of water management. Works relevant to a single specific goal, such as water treatment or desalination, are included elsewhere if an appropriate category exists.

A. Design

Research leading to improved design of dams, canals, pipelines, locks, fishways, and other works required for water resource development.

B. Materials

Research to improve existing structual materials and to develop new materials; subsurface exploration of foundations; corrosion; etc.

C. Construction and operation

Research on efficient construction methods, operating systems, and maintenance procedures.

IX. Manpower, Grants and Facilities

Trained manpower is an essential ingredient of research on water resources and the planning and design of water development projects. Category IX describes plans for support of education and training. It also includes grant and contract programs for which advance distribution to specific categories is impossible.

A. Education—extramural

Support of education in water resources at universities (not including research support under other categories).

B. Education—in-house

Government employee training programs.

C. Research facilities

Laboratories, field stations, etc.

D. Grants, contracts, and research act allotments

Allotments to university water resources research institutes under Public Law 88–379; OWRR, HEW, NSF, CSRS and other grants which cannot be distributed to categories in advance.

X. Scientific and technical information

Development of adequate procedures for storing, locating, and exchanging scientific and technical information is vital to the success of a research program. Category X includes efforts directed toward the planning and performance of the functions involved in acquiring, processing, and communicating scientific and technical information. The category does not include data acquisition or the handling of unprocessed data.

A. Publication

Includes reproduction and distribution of recorded scientific and technical information.

B. Bibliographic Services

Acquisition, abstracting, translating, and other services associated with storage and retrieval of scientific information.

C. Direct Communication

Support of technical meetings, symposiums, and other forums for oral exchange of scientific information.

D. Research and Development in Information Science

Research on new methods, techniques, and systems for improving scientific and technical information services in the areas of water management and water research.

APPENDIX II

PREPARATION OF

NOTICE OF RESEARCH PROJECT

Exhibit 1

UNITED STATES DEPARTMENT OF THE INTERIOR
Office of Water Resources Research
Washington, D. C. 20240

June 1970

PROJECT PROPOSALS: PREPARATION AND PROCESSING OF NOTICES OF RESEARCH PROJECTS (NRP'S)

A. Each project proposal submitted to OWRR should include four clean copies of a completed Notice of Research Project (NRP) form, including a suggested FCST category and subcategory number (See attachment hereto), and suggested keywords. It should be understood that in submitting a project proposal, the researcher agrees to permit dissemination and publication of the NRP in a water resources research catalog or other document if the project is approved for support with Federal funds.

B. The Science Information Exchange (SIE) has Federal Government responsibility for cataloging information regarding water resources research projects in progress. After a proposal has been approved for funding by OWRR (which office will notify SIE), the proposing organization or the principal project investigator may be contacted by SIE or OWRR and asked for an updated version of the Notice of Research Project (NRP) for inclusion in a catalog of water resources research. This may be necessary to ensure that such catalog reflects accurately the research underway which may have been changed from the original concept as a result of negotiations with OWRR. Requests for an updated NRP should be complied with promptly.

C. The enclosed NRP for the Science Information Exchange asks for the six different items of information mentioned below. Each principal investigator can make a contribution to improved communications among researchers by carefully considering each of these items in preparing his NRP.

1. Supporting Agency or Who Is Paying for It

   All projects submitted for support by the Office of Water Resources Research should show: Department of the Interior, Office of Water Resources Research.

2. Title

   The selection of a title for a research proposal is an important responsibility of the principal investigator. A well-written title is one of the simplest and most effective devices for announcement

and retrieval of information. We suggest that it be prepared after the proposal and descriptive summary have been written.

Authors should use specific, informative words that will be helpful to a person trying to judge the content of the research from its title. Keep the title short. Avoid superfluous phrases, such as "A Study of the Factors Affecting..." Writing a short title, yet one that conveys specific information on the research, is a challenge. By eliminating all unnecessary introductory words and leaving the detail to the descriptive summary, a title of less than one hundred characters, covering not more than one typed line on the NRP, should be sufficiently informative. In many cases, a title only half that length is adequate and desirable.

3. Who

All investigators and other professional personnel responsible for the project should be listed on the Notice along with their schools, titles, department affiliations, or other organizations. The principal investigator on each project should be so identified and his complete mailing address, including zip code, should be shown on the NRP to facilitate direct communication.

4. Where

For all OWRR projects, the name of the research organization and its complete mailing address, including zip code, should be provided. In the case of Title I projects, if the project is located at an institution other than where the State institute is located, the name and complete address of such institution should be shown also.

5. Summary of Proposed Work (What, Why, and How Is It Being Done)

The summary of the project as written may appear in a water resources research catalog. Therefore, it should be as informative and specific as possible without divulging information on potential patents. It should clearly describe the problem, the objectives, the relationship of the project to aspects of broader areas of research, and how the principal investigator plans to go about conducting the research. The summary should not exceed 200 words. Immediately following the summary, the principal investigator should suggest the FCST Category and Subcategory in which his research is best placed. The latest list of categories and subcategories is attached hereto.

In addition to suggesting the FCST Categories, the principal investigator should suggest keywords that describe the subject areas of his research from several points of view; both very specific and broader

terms can be used. The most important terms should be denoted by an asterisk preceding the word (see enclosed example).

(Note: OWRR has published a "Water Resources Thesaurus - A Vocabulary for Indexing and Retrieving the Literature of Water Resources Research and Development." Keyword selection will be facilitated by referring to that document. The "Water Resources Thesaurus" is available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. The price is $2.00.)

6. Duration and Cost

The anticipated duration of the proposed project should be indicated in terms of month/year to month/year. The level of support for the period shown should be given at the bottom of the NRP. For matching grants, the Federal and non-Federal contributions should be shown separately. Each non-Federal contributor should be identified so that proper acknowledgment can be made in water resources research catalogs.

NOTICE OF RESEARCH PROJECT
SCIENCE INFORMATION EXCHANGE
SMITHSONIAN INSTITUTION

NOT FOR PUBLICATION OR PUBLICATION REFERENCE

SIE NO.

AGENCY NO.

SUPPORTING AGENCY: WHO IS PAYING FOR IT

TITLE OF PROJECT:

TITLE

Give names, departments, and official titles of PRINCIPAL INVESTIGATORS and ALL OTHER PROFESSIONAL PERSONNEL engaged on the project.

WHO

NAME AND ADDRESS OF INSTITUTION:

WHERE

SUMMARY OF PROPOSED WORK — (200 words or less.) — In the Science Information Exchange summaries of work in progress are exchanged with government and private agencies supporting research, and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

WHAT,

WHY,

and

HOW IS IT BEING DONE

SIGNATURE OF
PRINCIPAL INVESTIGATOR _____

PROFESSIONAL SCHOOL
(medical, graduate, etc.) _____

WHEN

COST

NOTICE OF RESEARCH PROJECT
SCIENCE INFORMATION EXCHANGE
SMITHSONIAN INSTITUTION

NOT FOR PUBLICATION OR PUBLICATION REFERENCE

SIE NO.

AGENCY NO.

SUPPORTING AGENCY: OFFICE OF WATER RESOURCES RESEARCH
DEPARTMENT OF THE INTERIOR

TITLE OF PROJECT:

Fate of Nitrogen in Subsoils as Related to Groundwater Contamination

Give names, departments, and official titles of PRINCIPAL INVESTIGATORS and ALL OTHER PROFESSIONAL PERSONNEL engaged on the project

John J. Doe (Principal Investigator) - Department of Civil Engineering
University of Minnesota
Minneapolis, Minnesota 55414

Richard L. Roe - Department of Civil Engineering

EXAMPLE

NAME AND ADDRESS OF INSTITUTION:

University of Minnesota
Minneapolis, Minnesota 55414

SUMMARY OF PROPOSED WORK – (200 words or less.) – In the Science Information Exchange summaries of work in progress are exchanged with government and private agencies supporting research, and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The proposed research plan involves laboratory and field investigations directed at the determination of the fate of nitrogen in subsoils as related to ground water contamination. The main approach in the investigations is to observe and to analyze the physical, chemical and microbiological actions resulting from the passage of nitrogen contaminated waters through soils under various conditions.

Laboratory investigations would employ the following methods:
1. Small scale experiments on intimately mixed contaminated waters and soils.
2. Experiments using soil columns and lysimeters under continuous and intermittent flow conditions.

Field investigations would include ground water observations obtained with the following systems:
1. Wells for injection of contaminated waters in fields of sampling wells.
2. Sampling wells in the vicinity of septic tank leaching systems and waste stabilization ponds.

Laboratory and field data would be correlated for practical application in the location of waste water systems with respect to ground water supplies.

Keywords: *Nitrogen, *Soils, *Groundwater, *Water Pollution, Waste Water Systems, Injection Wells .

FCST Category VB

SIGNATURE OF PRINCIPAL INVESTIGATOR John J. Doe

PROFESSIONAL SCHOOL (medical, graduate, etc.) Graduate School

Period of Operation - 7/68 - 12/69

Funding: $000,000 Federal
$000,000 State
$000,000 XYZ Corporation

APPENDIX III

ANNUAL ALLOTMENT TITLE PAGE AND BUDGET FORMS

EXAMPLE

Project Title: THE IDENTIFICATION AND CRITICAL ANALYSIS OF SELECTED LITERATURE DEALING WITH THE RECREATIONAL ASPECTS OF WATER RESOURCES USE, PLANNING, AND DEVELOPMENT

FCST Research Category: II-D

Project to be Conducted at: SOUTHERN ILLINOIS UNIVERSITY, Carbondale, Illinois 62901

Scheduled Beginning: July 1968

Scheduled Completion: June 1971

Principal Investigators: Richard H. Smyth, Professor, Recreation and Park Administration
Edward J. Jackson, Associate Professor, Agronomy

Other Professional Personnel: George R. Perish, Research Soil Scientist, Agricultural Research Service, U.S.D.A.

Graduate Research Assistants: Roger B. Dexter, seeking the Ph.D. in Recreation and Park Administration
Jack A. Roberts, seeking the Ph.D. in Recreation and Park Administration
Elizabeth S. Allen, seeking the M.S. in Recreation and Park Administration
Two (2) others in Agronomy to be assigned

Objective(s):

The research is to be aimed at development of a practical procedure by which the stochastic behavior of the hydrologic....

Background:

The principal investigators have shown previously that hydrologic phenomena are characteristically stochastic rather than deterministic or purely probabilistic....

FORM A-1
Rev. 10-68

Financial Plan -- Annual Allotment Program Project

RESEARCH PROJECT PROPOSED FOR INCLUSION IN ANNUAL ALLOTMENT PROGRAM - F.Y. 19___

[_] Continuing from the prior year
[_] New Allotment Program Proposal

OWRR Project Number: (If this is a new project the number will be assigned by OWRR) A-_____

Actual/Proposed Starting Date: _____ (Month-Year)

Scheduled Ending Date: _____ (Month-Year)

FCST Research Category No. _____

Principal Investigator(s): _____

Project Title: _____

COST CATEGORY ITEMS	FY 19___ Estimates 1/
A. Salaries and Wages:	
Principal Investigator(s) - - - - - - - No._____ -- Man-yrs._____ --	$_____
Other Professional Staff - - - - - - - No._____ -- Man-yrs._____ --	_____
Student Research Assistants - - - - - No._____ -- Man-yrs._____ --	_____
Others (Clerks, Technicians, etc.)- - No._____ -- Man-yrs._____ --	_____
Sub-total (A) - - - - - - - - - - - -	(_____)
B. Non-Expendable Equipment Items:	
Total of Items Costing Less Than $1,000 each - - - - - - - - - - - -	_____
List Items Over $1,000 Each & Attach Concise Narrative Justifications for each such item:	
Sub-total (B) - - - - - - - - - - - -	(_____)
C. Expendable Materials & Supplies: Sub-total (C) - - - - - - - - - - - -	(_____)
D. Other Costs: (Specify costs - Such as Travel, ADP, Publication, etc.)	
Sub-total (D) - - - - - - - - - - - -	(_____)
TOTAL FISCAL YEAR BUDGET FOR PROPOSED PROJECT - - - - - - - - - - - -	$_____

1/ Overhead costs (indirect and employee fringe benefits) are excluded from these estimates.

ESTIMATE OF NON-FEDERAL CONTRIBUTIONS TO THE P.L. 88-379

ANNUAL ALLOTMENT PROGRAM -- FISCAL YEAR 197__

This information is not necessary for proposal evaluation, but is needed by the Center in preparing the overall allotment request. Please supply the information requested below on a separate form for each fiscal year of the proposed project.

Type of Non-Federal Contribution	Estimated Dollar Amount
a) Salaries and wages to be paid by department for participation in the proposed project	
b) Indirect costs (@ 58% of total salaries and wages at U of I as shown on both this sheet and form A-1)	
c) Workman's compensation (@ 0.6% of total salaries and wages at U of I as shown on both this sheet and form A-1)	
d) Retirement (@10.9%of participants' salaries at U of I)	
TOTAL:	

PROPOSED RATE OF EXPENDITURE FOR FY 1973

First Quarter (July 1 - September 30) ..... $_____

Second Quarter (October 1 - December 31) ..... $_____

Third Quarter (January 1 - March 31) ..... $_____

Fourth Quarter (April 1 - June 30) ..... $_____

TOTAL FOR FY 1973 ..... $_____

APPENDIX IV

MATCHING GRANT TITLE PAGE AND BUDGET FORMS

EXAMPLE

REQUEST FOR MATCHING GRANT SUPPORT

To: OFFICE OF WATER RESOURCES RESEARCH, U.S. Department of the Interior
Washington, D.C. 20240

From: WATER RESOURCES CENTER, University of Illinois, Urbana, Illinois 61801

Project Title: THE IDENTIFICATION AND CRITICAL ANALYSIS OF SELECTED LITERATURE DEALING WITH THE RECREATIONAL ASPECTS OF WATER RESOURCES USE, PLANNING, AND DEVELOPMENT

FCST Research Category: II-D

Project to be Conducted at: SOUTHERN ILLINOIS UNIVERSITY, Carbondale, Illinois 62901

Scheduled Beginning: July 1968

Scheduled Completion: June 1971

Principal Investigator(s): Richard H. Smyth, Professor, Recreation and Park Administration
Edward J. Jackson, Associate Professor, Agronomy

This Request is Approved by:

Richard H. Smyth Principal Investigator Date	Ben B. Ewing, Director Water Resources Center Date
Edward J. Jackson Principal Investigator Date	Graduate College Date
John D. Doe, Head Department of Recreation and Park Administration Date	W. M. Griffith Assistant Bursar Date
Jack K. Smith, Head Department of Agronomy Date	

(9-67) FISCAL YEAR 197__ Form B-1

FINANCIAL PLAN - TIME & COST ESTIMATE - SEC. 104 MATCHING GRANT PROJECT

☐ New Proj.	☐ A prior "phase" of proj. has rec'd OWRR support	Prin. Inves. _____ (Name)

Project Title: _____ FCST Cat.:

Project No. Assigned by OWRR: B-

Proposed Project Starting Date: _____ Duration of Project

Proposed Project Completion Date: _____ ___ Yrs., Plus ___ Months

TOTAL PROJECT COST ESTIMATE - FEDERAL & NON-FEDERAL FUNDS

Cost Category Items	Federal Funds	Non-Fed. Funds	Total
A. Salaries and Wages:			
Prin. Investigator(s)--No.___--Man-yrs.___ -			
Other Prof. Staff------No.___--Man-yrs.___ -			
Student Res. Asst(s)---No.___--Man-yrs.___ -			
Other(Clerks-Tech.)----No.___--Man-yrs.___ -			
Sub-total (A) - - - - - -			
B. Non-Expendable Equipment Items:			
Total of Items Costing Less Than $1,000 Each- List Items Over $1,000 Each & Attach Concise Narrative Justifications for such items: - -			
_____			
_____			
_____			
Sub-total (B) - - - - - -			
C. Expendable Material & Supplies-Sub-total(C)- -			
D. Other Costs (Specify): (Travel, Printing, etc.)			
_____ -			
_____ -			
_____ -			
_____ -			
Indirect Costs[1] (___% of _____) - (Excluding permanent building costs)	///////		
Employee Benefits[1] - - - - - - - - - - - - - - -	///////		
Sub-total (D) - - - - - -			
TOTAL COST OF PROJECT - - - - - - - - -			

[1] May be applied only as contributions supplied from non-Federal sources to match Federal funds.

Use supplementary sheets as may be necessary.

(9-67)

Form B-2

SUMMARY FINANCIAL PLAN - SEC. 101 MATCHING GRANT PROJECT

(Showing Times When Funds Are To Be Applied)

Form B-1, "Financial Plan - Time & Cost Estimate - Sec. 101 Matching Grant Project" sets forth total project cost estimates. This form, B-2, indicates estimated requirements for Federal funds for each quarter of the first year the project is in progress and for each subsequent year that the project is in progress. For these same time-periods, it also indicates the amounts of non-Federal matching funds that will be applied.

Year	Federal Funds	Non-Federal Funds	Total
1. First Year Total - - - - - - - -			
1st Quarter of 1st Year - - - -	( )	( )	( )
2nd Quarter of 1st Year - - - -	( )	( )	( )
3rd Quarter of 1st Year - - - -	( )	( )	( )
4th Quarter of 1st Year - - - -	( )	( )	( )
2. Second Year Total - - - - - - - -			
3. Third Year Total - - - - - - - -			
4. Fourth Year Total - - - - - - - -			
TOTAL ESTIMATED PROJECT COST - - -			

APPENDIX V

TITLE II TITLE PAGE

(only for projects from University
of Illinois at Urbana-Champaign)

AND

BUDGET FORMS

EXAMPLE

REQUEST FOR TITLE II SUPPORT

To: OFFICE OF WATER RESOURCES RESEARCH, U.S. Department of the Interior
Washington, D.C. 20240

From: WATER RESOURCES CENTER, University of Illinois, Urbana, Illinois 61801

Project Title: THE IDENTIFICATION AND CRITICAL ANALYSIS OF SELECTED LITERATURE DEALING WITH THE RECREATIONAL ASPECTS OF WATER RESOURCES USE, PLANNING, AND DEVELOPMENT

FCST Research Category: II-D

Project to be Conducted at: SOUTHERN ILLINOIS UNIVERSITY, Carbondale, Illinois 62901

Scheduled Beginning: July 1968

Scheduled Completion: June 1971

Principal Investigator(s): Richard H. Smyth, Professor, Recreation and Park Administration
Edward J. Jackson, Associate Professor, Agronomy

This Request is Approved by:

Richard H. Smyth Principal Investigator Date	Ben B. Ewing, Director Water Resources Center Date
Edward J. Jackson Principal Investigator Date	Graduate College Date
John D. Doe, Head Department of Recreation and Park Administration Date	W. M. Griffith Assistant Bursar Date
Jack K. Smith, Head Department of Agronomy Date	

Form C-1

WATER RESOURCES RESEARCH PROPOSAL - TITLE II
(Summary Sheet)

Summary information relating to a proposal submitted to the Office of Water Resources Research for consideration pursuant to Title II of the Water Resources Research Act

C-
Proposal Number (Assigned by OWRR)

Name and Address of Applicant Organization or Individual:

FCST Category: _____
OWRR Priority Research Subject No. _____
(Refer to "Guides")

Type (Non-Profit, Academic, Corporation, etc.): _____

Title of Proposed Research Project:

Name(s) of Principal Investigator(s):

Proposed Starting Date: _____

Proposed Completion Date: _____

Duration of Project

_____ Years, Plus _____ Mo.

If this research proposal has a relationship to a proposal previously submitted to OWRR, indicate the OWRR number of previous proposal: _____

Time period (from--to dates) during which OWRR should regard the proposal as being valid for consideration: _____

Federal Funds Requested for Project: $_____. Dollar value of Non-Federal Contributions (if any) to be Applied to Project Accomplishment: $_____

Estimate, by Years, of Proposed Disbursement of Funds to Defray Project Costs

	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	Totals
Federal Funds------					
Non-Fed. Contributions (if any)--					
Totals----------					

Name, Title, and Address of Individual Submitting Proposal:

TIME AND COST ESTIMATE
FOR
WATER RESOURCES RESEARCH PROPOSAL -- TITLE II - (FOR FEDERAL FUND REQUESTED)

This form indicates, by cost categories, the amounts of FEDERAL FUNDS REQUESTED AND REQUIRED to carry out the research project identified below and described in other descriptive proposal information submitted to the Office of Water Resources Research.

If applicant's method of cost distribution is incompatible with this form, cost estimate information may be set forth in a format of the applicant's choice; provided, however, that all information as requested by this form is fully and adequately shown.

Project Title:

Principal Investigator:

Time Period Covered by this Time and Cost Estimate: _____ Years plus _____ Months

Cost Categories	Federal Funds Requested
A. Direct Salaries and Wages: 2/	
Principal Investigator(s)- - - - - - - No.___; Man-Years:____	- $_____
Other Professional Research Staff- - - No.___; Man-Years:____	- _____
Research Assistants:	
University Students: - - - - - - - - - No.___; Man-Years:____	- _____
Others:- - - - - - - - - - - - - - - - - No.___; Man-Years:____	- _____
Others (technical) - - - - - - - - - - - No.___; Man-Years:____	- _____
Others (non-technical) - - - - - - - - - No.___; Man-Years:____	- _____
Total Direct Salaries and Wages: - - - - - - - - - - - - - - - -	$_____
B. Employee Benefits (if not included elsewhere):- - - - - - - - - - - -	$_____
C. Use, Rental or Depreciation Costs Included as Direct Charges: - - - (Describe fully the basis used to arrive at these costs.)	$_____
D. Non-expendable Equipment Items: 1/ (List items and attach concise narrative justifications for any items costing over $1,000)	
_____	- $_____
_____	- _____
_____	- _____
_____	- _____
_____	- _____
Total Non-expendable Equipment Items:- - - - - - - - - - - - - -	$_____

1/ Concerning items D and E of this form, in lieu of procurement from commercial sources, Federal excess and surplus sources should be used to obtain required equipment, material, and supplies whenever possible.

2/ Estimated.

(Continue on page 2)

(Attach additional sheets as may be necessary)

TIME AND COST ESTIMATE - Relating to Federal Funds Required
(Continued from Page 1 of 2)

Cost Categories	Federal Funds Requested

E. Expendable Equipment, Material, and Supplies:[2/]

_____ - $_____
_____ - _____
_____ - _____
_____ - _____

Total Expendable Equipment, Material and Supplies: - - - - -$_____

F. Travel Costs Included as Direct Charges: (Identify and specify purposes of travel)

_____ - $_____
_____ - _____
_____ - _____
_____ - _____
_____ - _____

Total Travel Costs Included as Direct Charges: - - - - - -$_____

G. Other Direct Charges: (Specify--printing, shipping, etc.)

_____ - $_____
_____ - _____
_____ - _____
_____ - _____
_____ - _____

Total Other Direct Charges:- - - - - - - - - - - - - - - -$_____

H. Indirect Costs: (Explain basis of computation)- - - - - - - - - - -$_____

I. Fee or Estimated Profit: (Explain basis of computation) - - - - - -$_____

TOTAL AMOUNT OF PROJECT COSTS proposed to be paid from Federal funds under provisions of P.L. 88-379 as amended- - - - - -$_____

2/ See Footnote 1/, page 1.

As may be necessary, use additional sheets to supplement this form.

TIME AND COST ESTIMATE FOR

WATER RESOURCES RESEARCH PROPOSAL - TITLE II - (NON-FEDERAL CONTRIBUTIONS)

This form indicates, by cost categories, the dollar value of NON-FEDERAL CONTRIBUTIONS that will be expended to accomplish the research project identified below, and described in other project proposal descriptive information, if such project is approved for Federal participation by the Office of Water Resources Research.

Reference is made to Budget (BOB) Circular A-74 which requires that institutions receiving Federal research grants must share in the research costs on more than a token basis.

If applicant's method of cost distribution is incompatible with this form, cost estimate information may be set forth in a format of the applicant's choice; provided, however, that all information as requested by this form is fully and adequately shown.

Project Title:

Principal Investigator:

Time Period Covered by this Time and Cost Estimate: _____ Years, plus _____ Months

Cost Categories	Non-Federal Contributions
A. Direct Salaries and Wages: 1/	
Principal Investigator(s)- - - - - - No.____; Man-Yrs:____	- $_____
Other Professional Research Staff- - No.____; Man-Yrs:____	- _____
Research Assistants:	
University Students: - - - - - - - - No.____; Man-Yrs:____	- _____
Others:- - - - - - - - - - - - - - - - No.____; Man-Yrs:____	- _____
Others (Technical) - - - - - - - - - - No.____; Man-Yrs:____	- _____
Others (Non-technical) - - - - - - - - No.____; Man-Yrs:____	- _____
TOTAL Direct Salaries and Wages: - - - - - - - - - - - - - - - - -	$_____
B. Employee Benefits (if not included elsewhere):- - - - - - - - - - - - -	$_____
C. Use, Rental, or Depreciation Costs Included as Direct Charges:- - - - (Describe fully the basis used to arrive at these costs.)	$_____
D. Non-expendable Equipment Items: -	$ //////////

1/ Estimated. (Continue on page 2. Attach additional sheets as may be necessary)

TIME AND COST ESTIMATE -- Relating to Non-Federal Contributions

(Continued from Page 1 of 2)

Cost Category	Non-Federal Contributions
E. Expendable Equipment, Material, and Supplies: 2/	
_____	- $_____
_____	- _____
_____	- _____
_____	- _____
_____	- _____
TOTAL Expendable Equipment, Materials and Supplies- - - - - -	$_____
F. Travel Costs Included as Direct Charges: (Identify and specify purposes of travel)	
_____	- $_____
_____	- _____
_____	- _____
_____	- _____
_____	- _____
TOTAL Travel Costs Included as Direct Charges- - - - - - - -	$_____
G. Other Direct Charges: (Specify--printing, shipping, etc.)	
_____	- $_____
_____	- _____
_____	- _____
_____	- _____
_____	- _____
_____	- _____
TOTAL Other Direct Charges- - - - - - - - - - - - - - - - - -	$_____
H. Indirect Costs: (Explain basis of computation)- - - - - - - - - - - - -	$_____

TOTAL AMOUNT OF PROJECT COSTS Proposed to be Paid for by Using Contributions from Non-Federal Sources - - - - - - - - - - - - - $_____

2/ In lieu of procurement from commercial cources, Federal excess and surplus sources should be used to obtain required expendable equipment, material and supplies wherever possible.

(Attach additional sheets as may be necessary)

Form C-4

SUMMARIZED FINANCIAL PLAN - TITLE II RESEARCH PROPOSAL

Project Title:

Principal Investigator:

Summarized below, by cost categories, are the estimated total project costs which are set forth, in more detail, on Forms C-2 and C-3.

Cost Categories	Federal Funds Requested	Non-Federal Contributions (If Any)
A. Direct Salaries and Wages:	$	$
B. Employee Benefits (if not included elsewhere):	$	$
C. Use, Rental, or Depreciation Costs Included as Direct Charges:	$	$
D. Non-expendable Equipment Items:	$	$ ////////
E. Expendable Equipment, Material, and Supplies:	$	$
F. Travel Costs Included as Direct Charges:	$	$
G. Other Direct Charges:	$	$
H. Indirect Costs:	$	$
I. Fee or Estimated Profit:	$	$
TOTAL PROJECT COSTS:	$	$

Form C-5

ESTIMATED TIMING FOR THE EXPENDITURE OF SPECIFIED AMOUNTS OF FEDERAL FUNDS, AND FOR THE EXPENDITURE OF NON-FEDERAL CONTRIBUTIONS, TO MEET PROJECT COSTS, DURING TIME PERIOD THAT THE PROJECT IS IN PROGRESS

In the space below, estimate the times (such as: 1st quarter, 2nd quarter, etc.) when Federal funds will be required to meet project costs, and the amounts of such Federal funds. Also estimate the times and amounts for expenditure of non-Federal contributions, if any. (Educational institutions and non-profit organizations may obtain quarterly advance payments of Federal funds pursuant to properly prepared vouchers submitted to OWRR.)

--Time Periods or Dates--	Federal Funds	Non-Federal Contributions (If Any)
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____

APPENDIX VI

UNIVERSITY OF ILLINOIS
Urbana-Champaign Campus

PROPOSAL TRANSMITTAL FORM

Proposal Transmittal Form UNIVERSITY OF ILLINOIS Urbana-Champaign Campus

The accompanying proposal is for the support of a program of ☐ research, ☐ building, ☐ instruction, ☐ equipment, ☐ summer institute, ☐ academic-year institute, ☐ international activity or study[1], of ☐ other entitled[2] _____ _____. This proposal is ☐ a new project, ☐ a renewal, ☐ a continuation, ☐ a revised proposal and/or budget. For renewal or continuation proposals please give previous grant number _____.

Initiated by _____ of the department of _____

for submission to _____

for direct costs in the amount of.....$_____

plus indirect costs of.....$_____

total amount requested.....$_____

The program, to start on _____ and terminate on _____, will ☐ will not ☐ require an allocation of University funds (in the amount of $_____). The need for these additional funds is explained on the attachment. Any other items listed in the proposal as University contributions are available from the sponsoring department's own resources for the period indicated.

Acceptance of the proposal will ☐ will not ☐ require that additional space be made available to the department or that existing space be renovated. Arrangements to meet this need have been made and are described on the attachment.

This proposal will require approximately ___ hours of computer time at the Digital Computer Laboratory; number of hours provided for in proposed budget ___.

The sums listed in the budget for consumable supplies, equipment, travel, personnel, and for any special purposes appear to be adequate.

It is understood that if a grant or contract results from this application, the principal investigator will perform the administrative duties normally associated with the project.

FOR USPHS PROPOSALS ONLY. The investigator is familiar with USPHS requirements concerning human subjects of research; the work to be pursued under this proposal will ☐ will not ☐ make use of human research subjects.

_____ Date	_____ Principal Investigator or Initiator of Proposal
_____ Date	_____ Executive Officer of Department
Approved by _____ Dean or Director[3]	_____ for the Research Board
_____ Assistant Bursar	_____ Vice Chancellor for Academic Affairs[4]

[1] All international programs and studies are to be approved by the Director of International Programs and Studies.

[2] If the complete title requires more than 34 typewriter spaces, please also supply, in the top margin, an abbreviated title within that limit for use in machine tabulation.

[3] Proposals which will require facilities or staff of several colleges are to be approved by the dean of each college concerned.

[4] Required if proposal is for a summer or academic year institute or if acceptance will require additional University funds, additional space as noted above, the construction of a building, or approval by Board of Trustees or by the Illinois Board of Higher Education.