

PD-ABL-107
94296



U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

MAY 13 1993

University of California at Berkeley
Attn: Professor Hugh D. McNiven
Earthquake Engineering Research Center
1301 South 46th Street
Richmond, California 94804

Subject: Grant No. HRN-5542-G-00-3005-00

Dear Professor McNiven:

Pursuant to the authority contained in the Foreign Assistance Act of 1961 and the Federal Grant and Cooperative Agreement Act of 1982, as amended, the Agency for International Development (hereinafter referred to as "A.I.D.") hereby provides to the University of California at Berkeley (hereinafter referred to as "Grantee") the sum set forth in Section 1C.2. of Attachment 1 of this Grant to provide financial support for the program described in Attachment 2 of this Grant entitled "Program Description."

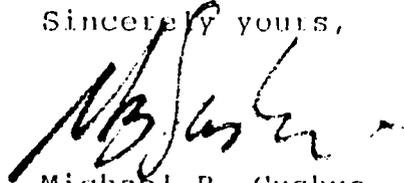
This Grant is effective as of the date of this letter and funds obligated hereunder shall be used to reimburse the Grantee for allowable program expenditures for the period set forth in Section 1B. of Attachment 1 of this Grant.

This Grant is made to the Grantee on the condition that the funds will be administered in accordance with the terms and conditions as set forth in the attachments listed under my signature below, which together constitute the entire Grant document and have been agreed to by your organization.

BEST AVAILABLE DOCUMENT

Please acknowledge receipt and acceptance of this Grant by signing all copies of this Cover Letter, retaining one copy for your files, and returning the remaining copies to the undersigned.

Sincerely yours,



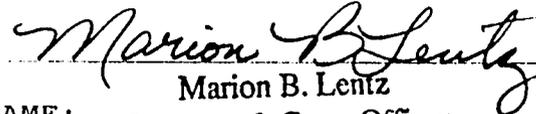
Michael B. Gushue
Grant Officer
Chief, HRN Branch
Office of Procurement

Attachments:

1. Schedule
2. Program Description
3. Standard Provisions
4. ~~Special Provision entitled "Restrictions on Lobbying"~~

ACKNOWLEDGED:

University of California at Berkeley

BY: 
Marion B. Lentz

TYPED NAME: Contract & Grant Officer

TITLE:

DATE: 7/9/93

BEST AVAILABLE DOCUMENT

FISCAL DATAA. GENERAL

- A.1. Total Estimated A.I.D. Amount: \$112,390
- A.2. Total Obligated A.I.D. Amount: \$112,390
- A.3. Cost-Sharing Amount (Non-Federal): \$0
- A.4. Other Contributions (Federal): \$0
- A.5. Project No.: 936-5542
- A.6. A.I.D. Project Office: R&D/Research, W. Ching
- A.7. Funding Source: A.I.D./W
- A.8. Tax I.D. No.: 94-6002123W
- A.9. CEC No.: 19384712G

B. SPECIFIC

- B.1.(a) PIO/T No.:936-5600-3692370
- B.1.(b) Project No.: 936-5542
- B.1.(c) Appropriation:72-1131021.1
- B.1.(d) Allotment: 341-36-099-00-19-31
- B.1.(e) BPC: DDVA-93-16950-KG11
- B.1.(f) Amount: \$112,390
- B.1.(g) Proposal No.: 9.089

ATTACHMENT 1SCHEDULE1A. PURPOSE OF GRANT

The purpose of this Grant is to provide financial support for the program described in Attachment 2 of this Grant entitled "Program Description."

1B. PERIOD OF GRANT

The effective date of this Grant is the date of the Cover Letter and the estimated completion date is April 30, 1995. Funds obligated hereunder (see Section 1C.2. below) shall be used to reimburse the Grantee for allowable program expenditures incurred by the Grantee in pursuit of program objectives during such period. Funds obligated hereunder are anticipated to be sufficient for completion by the Grantee of the program described in Attachment 2 of this Grant by the estimated completion date.

1C. AMOUNT OF GRANT AND PAYMENT

1C.1. The total estimated amount of this Grant for its full period, as set forth in Section 1B. above, is \$112,390.

1C.2. A.I.D. hereby obligates the amount of \$112,390 for the purposes of this Grant during the indicated period set forth in Section 1B. above, thereby fulfilling A.I.D.'s funding requirements. A.I.D. shall not be liable for reimbursing the Grantee for any costs in excess of the obligated amount, except as specified in paragraph (f) of the Standard Provision of this Grant entitled "Revision of Grant Budget."

1C.3. Payment shall be made to the Grantee in accordance with procedures set forth in the Standard Provision of this Grant entitled "Payment -Cost Reimbursement," as shown in Attachment 3.

1D. GRANT BUDGET

1D.1. The following is the Budget for the total estimated amount of this Grant (see Section 1C.1. above) for its full period (see Section 1B. above). The Grantee may not exceed the total estimated amount or the obligated amount of this Grant, whichever is less (see Sections 1C.1. and 1C.2., respectively,

above). Except as specified in the Standard Provision of this Grant entitled "Revision of Grant Budget," as shown in Attachment 3, the Grantee may adjust line item amounts as may be reasonably necessary for the attainment of program objectives.

1D.2. Estimated Budget

<u>Cost Element</u>	<u>Total</u>
Salaries	\$ 31,644
Travel	\$ 9,000
Other Direct Costs	\$ 34,552
Indirect Costs	<u>\$ 37,194</u>
Total	\$112,390

1D.3. Inclusion of any cost in the budget of this Grant does not obviate the requirement for prior approval by the Grant Officer of cost items designated as requiring prior approval by the applicable cost principles (see the Standard Provision of this Grant set forth in Attachment 3 entitled "Allowable Costs") and other terms and conditions of this Grant, unless specifically stated in Section 1I. below.

1E. REPORTING

1E.1. Financial Reporting

1E.1.(a) Financial reporting requirements shall be in accordance with the Standard Provision of this Grant entitled "Payment - Cost Reimbursement," as shown in Attachment 3.

1E.1.(b) All financial reports shall be submitted to A.I.D., Office of Financial Management, FA/FM/CMPD/DCB, Room 700 SA-2, Washington, D.C. 20523-0209. In addition, three copies of all financial reports shall be submitted to the A.I.D. Project Office specified in the Cover Letter of this Grant, concurrently with submission of the Quarterly Technical Reports (See Section 1E.2. below).

1E.1.(c) The frequency of financial reporting and the due dates of reports shall be as specified in the Standard Provision of this Grant referred to in Section 1E.1.(a) above.

1E.2. // Program Performance Planning and Reporting

1E.2.(a) Project Implementation Plan

Not later than sixty (60) days from the effective date of this

Grant (see Section 1B. above), the Grantee shall prepare and submit to the A.I.D. Project Officer specified in the Cover Letter of this Grant five (5) copies of a project implementation plan, with critical path indicators (as described in Appendix A of A.I.D. Handbook 3), for the full term of this Grant.

1E.2.(b) Annual Workplans

1E.2.(b)(1) Not later than sixty (60) days following the effective date of this Grant (see Section 1B. above), the Grantee shall prepare and submit to the A.I.D. Project Officer specified in the cover letter of this Grant five (5) copies of a draft workplan which outlines the schedule of activities under the first year of this Grant. Thereafter, the Grantee shall submit five (5) copies of a draft annual workplan covering each successive year of this Grant not later than sixty (60) days prior to the start of the second and each subsequent year. Based on collaborative review, a final annual workplan will be approved by the A.I.D. Project Officer within thirty (30) days of the submission of the draft annual workplan.

1E.2.(b)(2) The annual workplan shall include the following information:

1E.2.(b)(2)(A) A list of activities to be undertaken during the workplan period, including the various locations in which performance is expected.

1E.2.(b)(2)(B) A statement of how the activities relate to the outputs.

1E.2.(b)(2)(C) A projected beginning timeframe for the initiation of activities.

1E.2.(b)(2)(D) A projected ending timeframe for the completion of the specific activities.

1E.2.(b)(2)(E) A projected expenditure of person-months of input for each activity.

1E.2.(b)(2)(F) The projected outputs at the end of the annual workplan.

1E.2.(c) Quarterly Reports

The Grantee shall submit five (5) copies of brief quarterly program performance reports, which coincide with the financial

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reporting periods described in Section 1E.1. above, to the A.I.D. Project Office specified in the Cover Letter of this Grant. In addition, two copies shall be submitted to A.I.D., POL/CDIE/DI, Washington, DC 20523-1802. These reports shall be submitted within 30 days following the end of the reporting period, and shall briefly present the following information:

1E.2.(c)(1) A comparison of actual accomplishments with the goals established for the period, the findings of the investigator, or both. If the output of programs can be readily quantified, such quantitative data should be related to cost data for computation of unit costs.

1E.2.(c)(2) Reasons why established goals were not met, if applicable.

1E.2.(c)(3) Other pertinent information including the status of finances and expenditures and, when appropriate, analysis and explanation of cost overruns or high unit costs.

1E.2.(d) Special Reports

Between the required program performance reporting dates, events may occur that have significant impact upon the program. In such instances, the Grantee shall inform the A.I.D. Project Officer as soon as the following types of conditions become known:

1E.2.(d)(1) Problems, delays, or adverse conditions that will materially affect the ability to attain program objectives, prevent the meeting of time schedules and goals, or preclude the attainment of work units by established time periods. This disclosure shall be accompanied by a statement of the action taken, or contemplated, and any A.I.D. assistance needed to resolve the situation.

1E.2.(d)(2) Favorable developments or events that enable time schedules to be met sooner than anticipated or more work units to be produced than originally projected.

1E.2.(d)(3) If any performance review conducted by the Grantee discloses the need for change in the budget estimates in accordance with the criteria established in the Standard Provision of this Grant entitled "Revision of Grant Budget," the Grantee shall submit a request for budget revision to the Grant Officer and the A.I.D. Project Officer specified in the Cover Letter of this Grant.

1E.2.(e) Annual Activity Reports

Within thirty (30) days following the annual anniversary date of this Grant, the Grantee shall submit to the A.I.D. Project Office specified in the cover letter of this Grant five (5) copies of an annual technical progress report which will be a description of the past year's activities, including technical, scientific, managerial, and fiscal information. The report shall include, both for each field site or subcontractor/subrecipient individually and for project activities as a whole, a review of program and problems to date, and a discussion of technical and managerial issues significant to the success or failure of this Grant. The report will also address regulatory issues related to the project. Although principally a technical document, it nevertheless must include pertinent statistics or quantitative information regarding the project and its activities. The Annual Activity Report shall also include an annual expenditure report corresponding to each annual workplan (see Section 1E.2.[b] above). These expenditure reports will cover A.I.D. and, if applicable, cost-sharing amounts by budget line item (see Section 1D.2. above) and by estimated distribution amongst project components, e.g., research, training, technical assistance, technology transfer, information dissemination, or networking.

1E.2.(f) Trip Reports

Within 30 days following the completion of each international trip, the Grantee shall submit 3 copies of a trip report summarizing the accomplishments of the trip to the A.I.D. Project Officer specified in the cover letter of this Grant. If several individuals are travelling together to one site, a single report representing the group will suffice. The report shall include the purpose of the trip, technical observations, suggestions and recommendations, overall impressions of the site situation (if appropriate), and a list of persons visited with their title and organization affiliation.

1E.2.(g) Final Report

Within 90 days following the estimated completion date of this Grant (see Section 1B. above), the Grantee shall submit five (5) copies of a final report to the A.I.D. Project Office specified in the cover letter of this Grant. In addition, two copies shall be submitted to A.I.D., POL/CDIE/DI, Washington, DC 20523-1802. It will cover the entire period of the Grant and include all information shown in Sections 1E.2.(b) through 1E.2.(f), above.

1E.3. Collaborating Institution

For the purposes of this Grant, a collaborating institution is as follows:

Cukurova University
Attn: Prof. Yalcin Mengi
Engineering College
P.K. 7, Balcali
Adana, Turkey

1F. TITLE TO PROPERTY

Title to property acquired hereunder shall vest in the Grantee, subject to the requirements of the Standard Provision of this Grant entitled "Title To and Use of Property (Grantee Title)" regarding use, accountability, and disposition of such property, except to the extent that disposition of property may be specified in Section 1I. below.

1G. PROCUREMENT AND (SUB)CONTRACTING

1G.1. Applicability

This Section 1G. applies to the procurement of goods and services by the Grantee (i.e., contracts, purchase orders, etc.) from a supplier of goods and services (see the Standard Provisions of this Grant entitled "Procurement of Goods and Services" and "AID Eligibility Rules for Goods and Services"), and not to assistance provided by the Grantee (i.e., a subgrant or [sub]agreement) to a subrecipient (see the Standard Provision of this Grant entitled "Subagreements").

1G.2. Requirements

In addition to other applicable provisions of this Grant, the Grantee shall comply with paragraph (b)(1) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services," concerning total procurement value of less than \$250,000 under this Grant. If, under the order of preference set forth in paragraph (b)(1)(i) of said Standard Provision, the Grantee procures goods or services from cooperating country sources, the Standard Provision of this Grant entitled "Local Cost Financing" shall also apply. However, paragraph (b)(1) of the Standard Provision entitled "AID Eligibility Rules for Goods and Services" does not apply to: the restricted goods listed in paragraph (a)(3) of said Standard Provision and paragraph (e) of the Standard Provision entitled "Local Cost Financing," which

must be specifically approved by the Grant Officer in all cases, except to the extent that such approval may be provided in Section II. below; or to paragraph (d) of said Standard Provision pertaining to air and ocean transportation, to which the Standard Provisions entitled "Air Travel and Transportation" and "Ocean Shipment of Goods" apply, respectively. Paragraph (b)(2) of the Standard Provision entitled "AID Eligibility Rules for Goods and Services" does not apply.

1G.3. Approvals

Inclusion of costs in the budget of this Grant for the purchase of nonexpendable equipment obviates neither the requirement of Section J.13. of OMB Circular A-21 (for educational institutions) or Section 13 of Attachment B of OMB Circular A-122 (for nonprofit organizations other than educational institutions) for prior approval of such purchases by the Grant Officer, nor any other terms and conditions of this Grant, unless specifically stated in Section II. below.

1G.4. Title to Property

See Section 1F. above.

1H. INDIRECT COST RATES

1H.1. Pursuant to the Standard Provisions of this Grant entitled "Negotiated Indirect Cost Rates - Predetermined" and "Negotiated Indirect Cost Rates - Provisional," a predetermined indirect cost rate or rates shall be established for each of the Grantee's accounting periods which apply to this Grant. Payments on account of allowable indirect costs shall be made on the basis of such predetermined rates. The rate(s) for the initial period and the base(s) to which it is (they are) applied is (are) as follows:

<u>Type</u>	<u>Rate</u>	<u>Base</u>	<u>Period</u>
On-Campus/On-Site	49.0%	1/	07/01/92 - 06/30/93
On-Campus/On-Site	49.5%	1/	07/01/93 - 06/30/95

1/ Base of Application: Total direct costs excluding capital expenditures (buildings, individual items of equipment, and alterations and renovations), that portion of each subaward in excess of \$25,000; hospitalization and other fees associated with patient care whether the services are obtained from an owned, related or third party hospital or other medical facility;

rental/maintenance of off-site activities; student tuition remission and student support costs (e.g., student aid, stipends, dependency allowances, scholarships and fellowships).

1H.2. Rates for subsequent periods shall be established in accordance with the Standard Provision of this Grant entitled "Negotiated Indirect Cost Rates - Predetermined."

II. SPECIAL PROVISIONS

II.1. Limitations on Reimbursement of Costs of Compensation for Personal Services and Professional Service Costs

II.1.(a) Employee Salaries

Except as the Grant Officer may otherwise agree in writing, A.I.D. shall not be liable for reimbursing the Grantee for any costs allocable to the salary portion of direct compensation paid by the Grantee to its employees for personal services which exceed the highest salary level for a Foreign Service Officer, Class 1 (FS-1), as periodically amended.

II.1.(b) Consultant Fees

Compensation for consultants retained by the Grantee hereunder shall not exceed, without specific approval of the rate by the Grant Officer: either the highest rate of annual compensation received by the consultant during any full year of the immediately preceding three years; or the maximum rate of a Foreign Service Officer, Class 1 (FS-1) (as periodically amended), whichever is less. A daily rate is derived by dividing the annual compensation by 2,087 and multiplying the result by 8.

II.2. Publications

II.2.(a) The Grantee agrees to provide one copy of the manuscript of any proposed publication to the A.I.D. Project Officer not later than submission to the publisher, and to give serious consideration to any comments received from the A.I.D. Project Officer.

II.2.(b) In the case of publication of any of the reports described in Section 1E.2. of this Grant, A.I.D. reserves the right to disclaim endorsement of the opinions expressed. For other publications, A.I.D. reserves the right to dissociate itself from sponsorship or publication. In both cases, the Grantee will consult with the A.I.D. Project Officer as to the

nature and extent of any A.I.D. disclaimer of endorsement or dissociation from sponsorship or publication.

11.2.(c) If A.I.D. does not choose to disclaim endorsement or dissociate itself from sponsorship or publication, the Grantee shall, in accordance with the Standard Provision of this Grant entitled "Publications," acknowledge A.I.D. support as follows:

"This publication was made possible through support provided by the Office of Research, Bureau for Research and Development, U.S. Agency for International Development, under Grant No. HRN-5542-G-00-3005-00."

11.2.(d) In addition to providing one copy of all published works and lists of other written work produced under this Grant to the A.I.D. Project Officer, as required by paragraph (b) of the Standard Provision of this Grant entitled "Publications," the Grantee shall also provide two copies of such publications and lists to A.I.D., POL/CDIE/DI, Washington, D.C. 20523-1802.

11.3. Equipment and Other Capital Expenditures

11.3.(a) Requirement for Prior Approval

Pursuant to Sections 1D.3. and 1G.3. above and the Standard Provisions of this Grant entitled "Allowable Costs" and "Revision of Grant Budget," and by extension, Section J.13. of OMB Circular A-21, the Grantee must obtain A.I.D. Grant Officer approval for the following:

11.3.(a)(1) Purchase of General Purpose Equipment, which is defined as an article of nonexpendable tangible personal property, the use of which is not limited only to research, medical, scientific, or other activities [e.g., office equipment and furnishings, air conditioning equipment, reproduction and other equipment, motor vehicles, and automatic data processing equipment, having a useful life of more than two years and an acquisition cost of \$500 or more per unit);

11.3.(a)(2) Purchase of Special Purpose Equipment, which is defined as an article of nonexpendable tangible personal property, which is used only for research, medical, scientific, or other technical activities, and which has a useful life of more than two years and an acquisition cost of \$1,000 or more per unit); and

11.3.(a)(3) Other Capital Expenditures, which is defined as the cost of the asset, including the cost to put it in place).

1I.3.(b) Approvals

In furtherance of the foregoing, the Grant Officer does hereby provide approval for the following purchases, which shall not be construed as authorization to exceed the total estimated amount or the obligated amount of this Grant, whichever is less (see Section 1C. above):

n/a

1I.3.(c) Exception for Automation Equipment

Any approval for the purchase of automation equipment which may be provided in Section 1I.4.(b) above or subsequently provided by the Grant Officer is not valid if the total cost of purchases of automation equipment (e.g., computers, word processors, etc.), software, or related services made hereunder will exceed \$100,000. The Grantee must, under such circumstances, obtain the approval of the Grant Officer for the total planned system of any automation equipment, software, or related services.

1I.3.(d) Compliance with A.I.D. Eligibility Rules

Any approvals provided in Section 1I.4.(b) above or subsequently provided by the Grant Officer shall not serve to waive the A.I.D. eligibility rules described in Section 1G. of this Grant, unless specifically stated.

1I.4. Restricted Goods

Pursuant to Section 1G. above, paragraph (a)(3) of the Standard Provisions of this Grant entitled "AID Eligibility Rules for Goods and Services," and, if applicable (see Section 1K. below for applicability), paragraph (e) of the Standard Provision of this Grant entitled "Local Cost Financing," the Grant Officer's approval is required for purchase of the restricted goods described therein. In furtherance thereof, the Grant Officer does hereby provide such approval to the extent set forth below. The Grant Officer's approval is required for purchases of such restricted goods if all of the conditions set forth below are not met by the Grantee. Any approval provided below or subsequently provided by the Grant Officer shall not serve to waive any terms and conditions of this Grant unless specifically stated.

1I.4.(a) Agricultural Commodities

Agricultural commodities may be purchased provided that they are of U.S. source (generally, the country from which the commodities

are shipped) and origin (generally, the country in which the commodities are mined, grown, or produced) and purchased from a U.S. supplier, except that wheat, rice, corn, soybeans, sorghums, flour, meal, beans, peas, tobacco, hides and skins, cotton, vegetable oils, and animal fats and oils cannot be purchased under any circumstances without the prior written approval of the Grant Officer.

11.4.(b) Motor Vehicles

Motor vehicles, if approved for purchase under Section 11.4.(b) above or subsequently approved by the Grant Officer, must be of U.S. manufacture and must be of at least 51% U.S. componentry. The source of the motor vehicles, and the nationality of the supplier of the vehicles, must be in accordance with Section 1G.2. above. Motor vehicles are defined as self-propelled vehicles with passenger carriage capacity, such as highway trucks, passenger cars and busses, motorcycles, scooters, motorized bicycles, and utility vehicles. Excluded from this definition are industrial vehicles for materials handling and earthmoving, such as lift trucks, tractors, graders, scrapers, and off-the-highway trucks.

11.4.(c) Pharmaceuticals

Pharmaceuticals may be purchased provided that all of the following conditions are met: (1) the pharmaceuticals must be safe and efficacious; (2) the pharmaceuticals must be of U.S. source and origin (see Section 1G. above); (3) the pharmaceuticals must be of at least 51% U.S. componentry (see Section 1G. above); (4) the pharmaceuticals must be purchased from a supplier whose nationality is in the U.S. (see Section 1G. above); (5) the pharmaceuticals must be in compliance with U.S. Food and Drug Administration (FDA) (or other controlling U.S. authority) regulations governing United States interstate shipment of pharmaceuticals; (6) the manufacturer of the pharmaceuticals must not infringe on U.S. patents; and (7) the pharmaceuticals must be competitively procured in accordance with the procurement policies and procedures of the Grantee and the Standard Provision of this Grant entitled "Procurement of Goods and Services."

11.4.(d) Pesticides

Pesticides may only be purchased if the purchase and/or use of such pesticides is for research or limited field evaluation by or under the supervision of project personnel. Pesticides are

defined as substances or mixtures of substances: intended for preventing destroying, repelling, or mitigating any unwanted insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, bacteria, or other micro-organisms (except viruses, bacteria, or other micro-organisms on or living in man or other living animals); or intended for use as a plant regulator, defoliant, or dessicant.

11.4.(e) Rubber Compounding Chemicals and Plasticizers

Rubber compounding chemicals and plasticizers may only be purchased with the prior written approval of the Grant Officer.

11.4.(f) Used Equipment

Used equipment may only be purchased with the prior written approval of the Grant Officer.

11.4.(g) Fertilizer

Fertilizer may be purchased if it is either purchased in the U.S. and used in the U.S., or if it is purchased in the cooperating country with local currency for use in the cooperating country. Any fertilizer purchases which do not comply with these limitations must be approved in advance by the Grant Officer.

11.5. Limitation on Use of Funds

11.5.(a) The Grantee shall not utilize funds provided by A.I.D. for any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference or training in connection with the growth or production in countries other than the United States of an agricultural commodity for export which would compete with a similar commodity grown or produced in the United States.

11.5.(b) The reports described in Section 1E.2: shall contain a statement indicating the projects or activities to which United States funds have been attributed, together with a brief description of the activities adequate to show that United States funds have not been used for the purpose in Section 11.6.(a) above.

11.5.(c) The Grantee agrees to refund to A.I.D. upon request an amount equal to any United States funds used for the purposes prohibited by Section 11.5.(a) above.

11.5.(d) No funds provided by A.I.D. under this Grant shall

be used to provide assistance, either directly or indirectly, to any country ineligible to receive assistance pursuant to the Foreign Assistance Act as amended, related appropriations acts, or other statutes and Executive Orders of the United States (also see the Standard Provision of this Grant entitled "Ineligible Countries").

11.6. Disposition of Property

With reference to Sections 1G.4. and 11.4.(b) above, disposition of nonexpendable property acquired hereunder shall be as follows:

See Optional Standard Provision entitled "Title to and Use of Property (Grantee Title).

11.7 Special Provisions

11.7.(a). Compliance with Federal Guidelines and Regulatory Procedures:

11.7.(a)(i) The Grantee shall implement this research activity, whenever it involves recombinant DNA, in accordance with:

- A. The National Institutes of Health Guidelines for Research Involving Recombinant DNA Molecules;
- B. Procedures issued by the USDA, EPA, or other appropriate Federal agency, regarding testing of genetically engineered organisms;
- C. A.I.D.'s environmental procedures; and
- D. Such other Federal guidelines and procedures as may apply during the course of the research.

11.7.(a)(ii) Additionally, the Grantee and any collaborating institution cannot commence testing in any foreign location until written approval for such testing is obtained from A.I.D. and the Government of the country where testing is planned. Testing shall be conducted in accordance with all applicable regulations of that country.

- 1I.7.(a)(iii) In addition, however, and prior to commencement of any such testing, the Grantee (and any collaborating institution) shall make a judgment and communicate the same to A.I.D. as to whether the regulations, procedures or facilities of the country in question are adequate to ensure testing in an environmentally sound manner. In the event such judgement is that they are not, the Grantee and A.I.D. will consult and agree on the conditions to be applied to the testing which will have such environmental effect.
- 1I.7.(a)(iv) Reports submitted under this activity to A.I.D. will address regulatory issues as above related to the activity.
- 1I.7.(b) Funding is contingent upon certification by appropriate institutional committee (in each country involved) that the research does not present unacceptable environmental hazards. The principal investigator should specify environmental safeguards and provide plans for containment to the Program in Science and Technology Cooperation.
- 1I.7.(c) While in the field, the Grantee will keep the A.I.D. field missions generally apprised of their work, but will not request administrative support except for the usual in-country introductions as may be appropriate. The Grantee will abide by Mission and host government regulations and customs as they apply to A.I.D. - supported in-country activities.
- 1I.7.(d) Project Officer approval required by paragraph (a) of Required as Applicable Standard Provisions 3 of this grant entitled "Air Travel and Transportation" is hereby granted for travel described in the project description and covered in the budget.

1J. Closeout Procedures

1J.1.

This paragraph prescribes uniform closeout procedures for A.I.D. grants and cooperative agreements with recipients.

1J.2.

The following definitions shall apply for the purpose of this paragraph.

1.J.2.(a) Closeout The closeout of a grant or cooperative agreement is the process by which A.I.D determines that all applicable administrative actions and all required work of the grant or cooperative agreement have been completed by the recipient and A.I.D.

1.J.2.(b) Date of completion The date of completion is the date on which all work under grants and cooperative agreements is completed or the date on the award document, or any supplement or amendment thereto, on which A.I.D. sponsorship ends.

1.J.2.(c) Disallowed Costs Disallowed costs are those charges to a grant or cooperative agreement that A.I.D. or its representatives determines to be unallowable, in accordance with the applicable Federal cost principles or other conditions contained in the grant or cooperative agreement.

1.J.3. A.I.D. closeout procedures include the following requirements:

1.J.3.(a) Upon request, A.I.D. shall make prompt payments to a recipient for allowable reimburseable costs under the grant or cooperative agreement.

1.J.3.(b) The recipient shall immediately refund any balance of unobligated (unencumbered) cash that A.I.D. advanced or paid and that is not authorized to be retained by the recipient for use in other grants or cooperative agreements.

1.J.3.(c) A.I.D. shall obtain from the recipient within 90 calendar days after the date of completion of the grant or cooperative agreement all financial, performance, and other reports required as the condition of the grant or cooperative agreement. A.I.D. may grant extensions when requested by the recipient.

1.J.3.(d) When authorized by the grant or cooperative agreement, A.I.D. shall make a settlement for any upward or downward adjustments to A.I.D.'s share of costs after these reports are received.

1.J.3.(e) The recipient shall account for any property acquired with A.I.D. funds, or received from the Government in accordance with the provisions of paragraph 1T of A.I.D. Handbook 13.

1.J.3.(f) In the event a final audit has not been performed prior to the closeout of the grant or cooperative agreement, A.I.D. shall retain the right to recover an appropriate amount after fully considering the recommendations on questioned costs resulting from the final audit.

1K. RESOLUTION OF CONFLICTS

Conflicts between any of the Attachments of this Grant shall be resolved by applying the following descending order of precedence:

- Attachment 1 - Schedule
- Attachment 3 - Standard Provisions
- Attachment 4 - Special Provision entitled "Restrictions on Lobbying"
- Attachment 2 - Program Description

1L. STANDARD PROVISIONS

The Standard Provisions set forth as Attachment 3 of this Grant consist of the following Standard Provisions denoted by an "X" which are attached hereto and made a part of this Grant:

1L.1. Mandatory Standard Provisions For U.S., Nongovernmental Grantees

- (X) Allowable Costs (November 1985)
- (X) Accounting, Audit, and Records (September 1990)
- (X) Refunds (September 1990)
- (X) Revision of Grant Budget (November 1985)
- (X) Termination and Suspension (May 1986)
- (X) Disputes (November 1989)
- (X) Ineligible Countries (May 1986)
- (X) Debarment, Suspension, and Other Responsibility Matters (March 1989)
- (X) Nondiscrimination (May 1986)
- (X) U.S. Officials Not to Benefit (November 1985)
- (X) Nonliability (November 1985)
- (X) Amendment (November 1985)
- (X) Notices (November 1985)

1L.2. Additional Standard Provisions For U.S., Nongovernmental Grantees

- () Payment - Letter of Credit (November 1985)
- () Payment - Periodic Advance (January 1988)
- (X) Payment - Cost Reimbursement (November 1985)

- (X) Air Travel and Transportation (November 1985)
- (X) Ocean Shipment of Goods (May 1986)
- (X) Procurement of Goods and Services (November 1985)
- (X) AID Eligibility Rules for Goods and Services (November 1985)
- (X) Subagreements (November 1985)
- () Local Cost Financing (November 1988)
- (X) Patent Rights (November 1985)
- (X) Publications (November 1985)
- (X) Negotiated Indirect Cost Rates - Predetermined (May 1986)
- () Negotiated Indirect Cost Rates - Provisional (May 1986)
- (X) Regulations Governing Employees (November 1985)
- () Participant Training (May 1986)
- () Voluntary Population Planning (August 1986)
- () Protection of the Individual as a Research Subject (November 1985)
- () Care of Laboratory Animals (November 1985)
- () Government Furnished Excess Personal Property (November 1985)
- (X) Title To and Use of Property (Grantee Title) (November 1985)
- () Title To and Care of Property (U.S. Government Title) (November 1985)
- () Title To and Care of Property (Cooperating Country Title) (November 1985)
- () Cost Sharing (Matching) (November 1985)
- () Use of Pouch Facilities (November 1985)
- () Conversion of United States Dollars to Local Currency (November 1985)
- (X) Public Notices (August 1992)
- (X) Provisions on Rights in Data (August 1992)

ATTACHMENT 2

PROGRAM DESCRIPTION

The Grantee's proposal number 9.089 entitled "Improvement of the Earthquake Resistance of Low Strength Masonry by Means of Bamboo Reinforcements" (Principal Investigator: Professor H.D. McNiven) is attached hereto as the Program Description (Attachment 2) and is made a part of this Grant.

Purpose of Grant

This project will test the resistance of bamboo reinforced adobe buildings against earthquakes. A full size test bamboo reinforced adobe building will be constructed and tested to destruction on the shaking table of the University of California. The results will be compared with those for an unreinforced adobe building of the same design tested to destruction some months ago in the same facility.

Specific Objectives

The project was recommended for approval without any technical provisos. In the panel discussion, however, R&D/Research perceived there were inadequacies in the detail of program discussion and in the size of the budget; provisos were written accordingly. These provisos were satisfactorily met. A clarification was also requested of the relation of this project with one funded by PSTC in 1982; the U.C. Berkeley researchers were stimulated to enter this field by contact with the investigators in the previous project.

Implementation

The following descriptive material is excerpted from the principal investigator's proposal. The research proposal, as revised during the review process, is hereby incorporated by reference.

Background, Rationale and Work Plan

Improvement of the earthquake resistance of low strength masonry (LSM) are investigated by some researchers (see, e.g.,

Refs. 1-10). For improving the earthquake performance of LSM, various techniques, such as, the use of bond beam, wire mesh, etc., are proposed. The shaking table experiments indicated that, among these techniques, the wire mesh (skin coating) technique is the most effective one for both repairing and strengthening LSM structures against earthquakes (Ref. 1); but, unfortunately, this technique has a shortcoming; its application to actual masonry structures is not feasible due to technical and economical reasons.

In this project, we intend to study the possibility of using a new techniques for improving earthquake resistance of LSM structures. The new technique involves reinforcing and prestressing LSM structures by bamboos. For high-grade masonry, the reinforcement technique is not new. In fact, previous research conducted by the authors and other (see, e.g. Refs. 11-18) has shown that clay brick and concrete block masonry structures can be made significantly more earthquake resistant through the use of steel reinforcement. The research has been directed to how to use the steel bars most effectively to improve both the strength and the ductility of the masonry.

Developing countries benefit little from this research because they have available neither the high-grade masonry nor the steel for reinforcement. What we plan in this proposal is to apply our knowledge of reinforcing masonry to the building materials that are available to developing countries. In these countries the major construction material is adobe brick which we will call "Low-Grade Masonry". For reinforcement we will use bamboo, which has many desirable reinforcement properties, is readily available, and is cheap.

We are encouraged to proceed by preliminary results achieved by two Visiting Scholars to the Earthquake Engineering Research Center (EERC), University of California, Berkeley from Peru. Their research has shown that 1) straw in the clay retards shrinkage cracks in the clay; 2) bamboo can sustain large tensile stresses; 3) bamboo can be bent into a right angle by wetting and drying, a necessity for anchorage; and finally 4) bamboo does not deteriorate when in contact with adobe mortar.

The work in the proposed project will be mainly experimental; but, some theoretical work will also be carried out with the objective which will be discussed at the end of this section.

Experimental Work

Experiments will involve subjecting adobe house prototypes to earthquake excitations by using the shaking table available to the laboratories of EERC, University of California, Berkeley. The table is large enough to accommodate a full scale small adobe dwelling.

In the house prototypes we plan to use the bamboo both as reinforcement patterns which have been successful in high-grade masonry, and further to ascertain if it can be used to subject the masonry to a state of compression prestress -- a highly desirable objective. The adobe brick will be hollow.

All of the dwellings will be small with typical door and window openings. The base for each will be concrete. Vertical reinforcements will be anchored in this base and can be used sparingly with reinforcement near the edge of each opening with modest reinforcement between. A "bond beam" will be placed at the top of each wall to distribute the earthquake load from the out-of-plane walls to in-plane walls that are more resistant. We have found that horizontal reinforcement is the most significant contribution to improving the seismic resistance of a wall. For this we will use split bamboo in a horizontal coursing anchored at each end by a right angle bend and grouted in the hollow brick. This reinforcement can be every third or fourth course.

Finally, the prestress. As masonry walls fail in diagonal tension, effort will be made through the bond beam to force the walls into a state of prestress. The simplest and most obvious way would be to thread the top of each vertical bamboo, and use nuts (steel or bamboo) to force the bond beam downward. If the bamboo cannot be threaded, some wedge-type mechanism will have to be devised.

There will probably be three experimental set-ups. The first with a dwelling completely unreinforced, the second reinforced as described, and the third both reinforced and prestressed.

The earthquake excitation which will be used in experiments will be selected from among the available earthquake records, such as, Taft, El Centro, Parkfield, etc., by studying the free vibration frequency of the prototype and the frequency contents of earthquake records. The selected earthquake record should be capable to excite the free vibration frequency of the house. If it becomes necessary, the time scale of the earthquake record will be changed or a sine wave will be superimposed on the earthquake excitation.

In experiments, each prototype will be subjected to a series of horizontal earthquake excitations. The intensity of excitation, starting with a small value, will be increased gradually through the beginning of cracking until the damage is complete. Thus, the collapse load for each prototype will be determined.

The experimental data will be evaluated by taking those of unreinforced prototypes as reference data and comparing them with the results obtained from bamboo reinforced and prestressed adobe dwellings. The influence of reinforcement and prestressing on the strength of adobe houses will be studied.

Theoretical Work

An attempt will be made to predict theoretically the collapse load for unreinforced, bamboo reinforced and prestressed adobe dwellings. The theoretical analysis will involve the development of element equations for i) unreinforced; ii) bamboo reinforced; iii) bamboo reinforced and prestressed adobe wall panels. For the establishment of the constitutive relations which will be used in the development of these element equations, the procedure similar to the one employed in Refs. 19-22 (where a constitutive model is developed for the earthquake shear behavior of brick masonry) will be followed. This procedure will involve carrying out shaking table experiments on adobe panel specimens and performing optimization analysis in frequency space.

Using the element equations thus developed and finite element procedure, the theoretical predictions for the collapse loads will be determined for the adobe house prototypes which are used in shaking table experiments. The theoretical model will be assessed by comparing the collapse loads found experimentally and theoretically. It may be noted that the existence of such a theoretical model will be helpful for the design of bamboo reinforced and prestressed adobe dwellings.

Work Plan

The proposed two years period appears to be sufficient for the completion of the project.

We intend to spend the first six months for the preparations of experiments and planning. During this period, we will do the following.

- a) The geometric dimensions of hollow adobe brick will be selected.

- b) The properties of bamboos with regard to their strength, etc. will be investigated.
- c) Preliminary design of the adobe house prototypes which will be used in shaking table experiments will be prepared. Patterns for reinforcing and prestressing bamboos will be selected. The details for the prestressing mechanism and for the anchorage of reinforcing bamboos will be decided about.
- d) The top weight for the house prototypes will be selected.
- e) Preliminary computations will be carried out to estimate the free vibration frequencies of the prototypes.
- f) The experimental program will be decided about. This program will involve the selection of the types of earthquake excitations and the intensities which will be used in experiments.

The above described phase of the project will be mainly completed at Cukurova University, Adana, Turkey.

In the second six months, the experimental work will be carried out. Experiments will be performed using the shaking table available at the laboratories of EERC, University of California, Berkeley. Experiments will involve testing adobe houses and panels.

In the remaining twelve months, the experimental data will be evaluated; the theoretical work will be carried out; and the recommendations with regard to strengthening adobe dwellings by means of reinforcing and prestressing them using bamboos will be established. In this phase of the project, the work will be completed by using the computer facilities of both EERC, University of California, Berkeley and Cukurova University, Adana, Turkey.

Staff and Resources

Curricula vitae and publications lists of both investigators are appended to the end of the proposal.

For the completion of the project the laboratory and computer facilities of EERC, University of California and of Civil Engineering Department, Cukurova University, Adana, Turkey will be used. Experiments will be performed using the shaking table of EERC, University of California, Berkeley.

Scientific Collaboration

The cooperation will be between the EERC of the University of California at Berkeley and the civil Engineering Department of Cukurova University, Adana, Turkey. Planning the program will be carried out by both investigators in Turkey and the experimental program will be carried out on the shaking table at EERC. Evaluation of experimental data will be performed at both EERC and Adana, Turkey. The plan will require:

- a) two trips (each having one month length) by Prof. H.D. McNiven; one is in the first six months, the second is in the second year;
- b) one trip (of six months) by Prof. Y. Mengi in the second six months (during experiments at EERC).

ATTACHMENT 3

STANDARD PROVISIONS

Note: Only those Standard Provisions indicated in Section 1L. of this Grant apply to this Grant.

ATTACHMENT 3

STANDARD PROVISIONS

Note: Only those Standard Provisions indicated in Section 1L. of this Grant apply to this Grant.

1. Cooperating Country Worldwide	2. PIO/T No. 436-5600 3692370	3. PIO/T Amend No. Original
4. Project/Activity No. and Title R&D/R Project 936-5600, Innovative Scientific Research II, "Improvement of Earthquake Resistance..." (9.089)	5. Appropriation Symbol(s) 72-1131021.1	
7. Pro Ag No. or Project Authorization Date Action Memo Approved March 8, 1989	6. Budget Plan Code(s) DDVA-93-16950-KG11 (341-36-099-00-19-31)	
9. Project Assistance Completion Date (Month, Day, Year) 12/31/99	8. Obligation Status <input checked="" type="checkbox"/> Administrative Reservation <input type="checkbox"/> Implementing Document	
	10. Authorized Agent FA/OP/A/HRN	

11. Type of Action and Governing A.I.D. Handbook A. A.I.D. Contract (HB14) B. A.I.D. Grant or Cooperative Agreement (HB 13)	[B] C. PASA/RSSA (HB 12) D. Other	12. Contract/Grant/Cooperative Agreement/ Reference Number (if this PIO/T is for an order or a modification to an award) TBD
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13. A.I.D. Funding (Attach a detailed budget in support of column (2) as Attachment A.				
	(1) Previous Total	(2) Increase	(3) Decrease	(4) Total to Date
A. Dollars		112,390		112,390
B. U.S.-Owned Local Currency				0

14. Mission References

15. Instructions to Authorized Agent Request that you negotiate a Grant with the University of California in support of its unsolicited research proposal, "Improvement of the Earthquake Resistance of Low Strength Masonry by Means of Bamboo Reinforcement(9.089)". The funds in this PIO/T cover the total cost of the Grant. Voucher Identification: in each instance of voucher (SF-1034) submission for payment hereunder, the following identification data must appear on the face of the voucher:
 Project No. 936-5600, R&D/R Project No. 9.089
 Project Office: R&D/R
 Budget Plan Code: DDVA-93-16950-KG11 Obligation Number: OFFICE OF FINANCIAL MANAGEMENT

FA/FM/A/NPA & PA
 OFFICE OF FINANCIAL MANAGEMENT
 Rose Anderson
 DATE: 4/23/93 INITIALED RA

16. Address of Voucher Paying Office Agency for International Development
 FA/FM/CMP/DC, Room 700, SA-2, Washington, D.C. 20523

17. Clearances - Include typed name, office symbol, and date for all clearances

A. The Project Officer certifies (1) that the specifications in the statement of work or program description are technically adequate, and (2) that (for contract actions only) all program personnel who are defined as procurement officials under 41 U.S.C 423 have signed the Procurement Integrity Certification (OF-333).

Signature R&D/R, Miloslav Rechcigl *MR* Date: 4/23/93 Phone No:

B. The statement of work or program description lies within the purview of the initiating office and approved agency programs

Signature: R&D/R, Wayne W. P. Ching *WPC* Date: 4/23/93 Signature: R&D/PO/AE, G. Standrod *GS* Date: 4/26/93

D. Funds for the services requested are available

Signature: FA/FM/A/NPA, Rose Anderson Date: Signature: Date:

18. For the Cooperating Country: The terms and conditions set forth herein are hereby agreed to:

Signature: Title: Date:

19. For the Agency for International Development:
 Signature: Elizabeth P. Roche *EP Roche* Title: Chief, R&D/PO/PR Date: 4/29/93

FOR CONTRACT ACTIONS ONLY: SOURCE SELECTION INFORMATION--SEE FAR 3.104. THIS DOCUMENT, OR PORTIONS THEREOF, CONTAINS PROPRIETARY OR SOURCE SELECTION INFORMATION RELATED TO THE CONDUCT OF A FEDERAL AGENCY ACQUISITION, THE DISCLOSURE OF WHICH IS RESTRICTED BY LAW (41 U.S.C. 423). UNAUTHORIZED DISCLOSURE OF THIS INFORMATION MAY SUBJECT BOTH THE DISCLOSURER AND RECIPIENT TO CONTRACTUAL, CIVIL, AND/OR CRIMINAL PENALTIES AS PROVIDED BY LAW.
 FOR OTHER ACTIONS: UNAUTHORIZED DISCLOSURE OF PROPRIETARY OR SOURCE SELECTION INFORMATION MAY SUBJECT AN EMPLOYEE TO DISCIPLINARY ACTION.

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