

524-104 52401043
 REPORT U-48
 PD-2AF-754-01
 5240104001001

PROJECT APPRAISAL REPORT (PAR)

PAGE 1

1. PROJECT NO. 524-11-755-104	2. PAR FOR PERIOD: 11/3/73 TO 12/31/74	3. COUNTRY Nicaragua	4. PAR SERIAL NO. 75/1 107
5. PROJECT TITLE			

CENTER FOR EARTHQUAKE HAZARDS REDUCTION (CEHR)

6. PROJECT DURATION: Begon FY 74 Ends FY 77	7. DATE LATEST PROP 11/74	8. DATE LATEST PIP NA	9. DATE PRIOR PAR NA
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10. U.S. FUNDING	a. Cumulative Obligation Thru Prior FY: \$ 171,000	b. Current FY Estimated Budget: \$ 33,000	c. Estimated Budget to completion After Current FY: \$ 32,000
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11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME	b. CONTRACT, PASA OR VOL. AG. NO.
1. Inter American Geodetic Survey (IAGS)	PASA No. IA (DP) 11-74
2. United States Geological Survey (USGS)	PASA No. IA (IC) 10-74

I. KEY ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
USAID	AID/W	HOST		
X			Issuance of Pro-Ag and PIO/Ts having FY 75 funding	12/20/74
X			Forwarding of Contractor Performance Evaluation Reports (U-1423/1) to AID/W in conjunction with PAR after reproduction	12/30/74
	X		Issuance of PASAs with IAGS and USGS	1/31/75
X		X	Assist the CEHR in convincing the cooperating country in increasing the CY 75 funding level of the CEHR, thus enabling it to fulfill those additional technical, support personnel, and equipment/material needs not contemplated in the original project design	3/31/75

D. REPLANNING REQUIRES	E. DATE OF MISSION REVIEW
REVISED OR NEW: <input type="checkbox"/> PROP <input type="checkbox"/> PIP <input checked="" type="checkbox"/> PRO AG <input checked="" type="checkbox"/> PIO/T <input type="checkbox"/> PIO/C <input type="checkbox"/> PIO/P	12/20/74

PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE Roberto León de Vivero <i>[Signature]</i> 12/20/74	MISSION DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE Robert E. Culbertson <i>[Signature]</i> 12/20/74
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AID 1020-28 (10-70) PAGE 2 PAR	PROJECT NO. 524-11-755-104	PAR FOR PERIOD: TO 11/3/73-12/31/74	COUNTRY Nicaragua	PAR SERIAL NO. 75-1
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II. PERFORMANCE OF KEY INPUTS AND ACTION AGENTS

A. INPUT OR ACTION AGENT CONTRACTOR, PARTICIPATING AGENCY OR VOLUNTARY AGENCY	B. PERFORMANCE AGAINST PLAN							C. IMPORTANCE FOR ACHIEVING PROJECT PURPOSE (X)					
	UNSATISFACTORY		SATISFACTORY			OUTSTANDING		LOW		MEDIUM		HIGH	
	1	2	3	4	5	6	7	1	2	3	4	5	
1. IAGS						X							X
2. USGS						X							X
3.													

Comment on key factors determining rating

Both the IAGS project monitor and the USGS technicians have demonstrated to be highly qualified, as well as to have been highly dedicated and personally concerned with the successful implementation of the project. In the case of the IAGS project monitor, at no extra expense to AID, has contributed time and effort beyond that specified in the PASA. All of the technicians have gained the respect and confidence of the CEHR technicians and personnel, as well as of the GON Minister of Public Works, under who the CEHR is directly responsible.

4. PARTICIPANT TRAINING					X									X
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Comment on key factors determining rating

The top three CEHR technicians received training in several areas in the United States in areas including teleseism reading in Denver, Cal., strong motion instrument methodology and data analysis in San Francisco, Calif., and equipment operation and data processing in Merlo Park, Calif.

5. COMMODITIES			X											X
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Comment on key factors determining rating

All test and strong motion equipment, materials and supplies purchased by USGS under the PASA arrived as planned. Late delivery and defects of the field vehicles purchased by AID caused considerable delay in selecting the seismographic sites and thus the installation of the accelographs and seismoscopes.

6. COOPERATING COUNTRY	a. PERSONNEL					X								X
	b. OTHER Financial Contributions													X

Comment on key factors determining rating

The personnel of the CEHR have been hard working, dedicated young technicians. Progress of implementation of the project has been slightly delayed as a result of initial non-define-ment of levels of responsibility by the cooperating country, which now appear to be resolved at the ministerial level.

The cooperating country has more than fulfilled its counterpart contribution financing responsibility for CY 74, and has approved a funding level for CY 75 which also above the level contemplated in the PROP. However, the CEHR is requesting an additional increase of funds for CY 75 to defray the cost of additional technician support, personnel and equipment/supply needs unforeseen in the original project design.

7. OTHER DONORS	N.A.													
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(See next Page for Comments on Other Donors)

AID 1020-25(10-70)	PROJECT NO. 524-11-755-104	PAR FOR PERIOD: 11/3/73-12/31/74	COUNTRY Nicaragua	PAR SERIAL NO. 75-1
PAGE 3 PAR				

II. 7. Continued: Comment on key factors determining rating of Other Donors

N.A.

III. KEY OUTPUT INDICATORS AND TARGETS ^{1/}

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					END OF PROJECT
		CUMULATIVE PRIOR FY	CURRENT FY 75		FY 76	FY	
			TO DATE	TO END			
No. of earth scientists and/or engineer who will be trained in part and assisted by USGS specialists	PLANNED	4	4	4	4+		4+
	ACTUAL PERFORMANCE	3	3				
	REPLANNED						
No. of seismographic sites in full/partial operation	PLANNED	50	14	150	150		150
	ACTUAL PERFORMANCE	50	10				
	REPLANNED						
No. of strong motion accelerographs/seismoscopes installed and in operation	PLANNED	50	230	320	320		320
	ACTUAL PERFORMANCE	90	90				
	REPLANNED						
1/ Figures are cumulative 2/ In-existence prior to project 3/ Four sites existing prior to project are being dismantled. Outdated equipment.	PLANNED						
	ACTUAL PERFORMANCE						
	REPLANNED						
B. QUALITATIVE INDICATORS FOR MAJOR OUTPUTS	COMMENT:						
1. Compilation of existing seismic data and correlation with new data gathered by network of seismic stations.	Seismic sites still in process of physical construction. 95% of seismic sites now complete in regard to all basic requirements. Final adjustments by USGS personnel to be accomplished January 1975.						
2. Establish continuous monitoring of the seismic activity of volcanoes in Nicaragua as a possible means of providing early warning of eruptions.	COMMENT: This information should be available prior to July 1, 1975.						
3. Installation of seismographs to determine local building responses to earthquake strong ground motion from moderate earthquakes.	COMMENT: This phase of work in process with 10 accelerographs of the 23 already installed and functioning						

AID 1020-28 (10-70) PAGE 4 PAR	PROJECT NO. 524-11-755-104	PAR FOR PERIOD: 11/3/74-12/31/74	COUNTRY Nicaragua	PAR SERIAL NO. 75-1
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IV. PROJECT PURPOSE

- A. 1. Statement of purpose as currently envisaged. 2. Same as in PROP? YES NO
 To create, equip, staff, and train an organization including a modern seismograph network for applied seismic and related geological research in Nicaragua with the capability of predicting (within the state of the art) the potential frequency, location, and destructiveness of seismic and volcanic events.

B. 1. Conditions which will exist when above purpose is achieved.	2. Evidence to date of progress toward these conditions.
<p>1. The Earthquake Center, including the network of seismographs, strong motion accelerographs and seismoscopes, will be a functioning entity having adequate local funding.</p> <p>2. Preliminary maps of seismicity and seismic risk, geological hazards, etc., will have been prepared and distributed to appropriate agencies in the public and private sectors for use in planning and design, and in preparation and revision of a realistic building code.</p> <p>3. Information about strong ground motion is being systematically gathered for use in zoning and building design.</p>	<p>1. Programmed work has to date been on schedule. New building constructed by Nic. Govt. at a cost of \$24,000 is completed. Instrumentation from USGS in-country and presently being installed. USGS technicians scheduled in January for final installation and adjustment of CEHR Center.</p> <p>2. This will be accomplished to a greater extent when Center is fully operational.</p> <p>3. Ten of the planned 23 accelerographs have been installed.</p> <p style="text-align: right;">(Cont'd)</p>

V. PROGRAMMING GOAL

- A. Statement of Programming Goal
 To minimize death, damage, and disruption of public services caused by earthquake and volcanic events in Nicaragua by incorporating the best possible seismic information in locational and design decisions.

- B. Will the achievement of the project purpose make a significant contribution to the programming goal, given the magnitude of the national problem? Cite evidence.
 The achievement of the project purpose will make a significant contribution towards achieving the programming goal. At this early stage of the project such GON agencies as the Vice Ministry of Urban Planning are issuing building permits strictly in accordance with the building code and fault maps which will make for a safer future Managua, and in turn a safer future Nicaragua as the CEHR provides the necessary seismic data for the development of zoning plans, public work locational decision, etc. on a national scale.

AID 1020-28 (10-70) PAGE 4 PAR	PROJECT NO. 524-11-755-104	PAR FOR PERIOD: 11/3/74-12/31/74	COUNTRY Nicaragua	PAR SERIAL NO. 75-1
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5. PROJECT TITLE			

CENTER FOR EARTHQUAKE HAZARD REDUCTION (CEHR)

6. PROJECT DURATION: Began FY <u>74</u> Ends FY <u>77</u>	7. DATE LATEST PROP <u>11/74</u>	8. DATE LATEST PIP <u>NA</u>	9. DATE PRIOR PAR <u>NA</u>
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10. U.S. FUNDING	a. Cumulative Obligation Through Prior FY: \$ <u>171,000</u>	b. Current FY Estimated Budget: \$ <u>31,000</u>	c. Estimated Budget to completion After Current FY: \$ <u>31,000</u>
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11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME	b. CONTRACT, PASA OR VOL. AG. NO.
1. Inter American Geodetic Survey (IAGS)	IASA No. IA (DF) 11-74
2. United States Geological Survey (USGS)	PASA No. IA (IC) 10-74

I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
USAID	AID/W	HOST		
X			Issuance of Iro-Ag and PIO/Ts having FY 75 funding	12/30/74
X			Forwarding of Contractor Performance Evaluation Reports (U-1423/1) to AID/W in conjunction with PAR after reproduction	12/30/74
	X		Issuance of PASAs with IAGS and USGS	1/31/75
X		X	Assist the CEHR in convincing the cooperating country in increasing the CY 75 funding level of the CEHR, thus enabling it to fulfill those additional technical, support personnel, and equipment/material needs not contemplated in the original project design	3/31/75

RECORD COPY

D. REPLANNING REQUIRES							E. DATE OF MISSION REVIEW	
REVISED OR NEW:	<input type="checkbox"/> PROP	<input type="checkbox"/> PIP	<input type="checkbox"/> PRO AG	<input type="checkbox"/> PIO/T	<input type="checkbox"/> PIO/C	<input type="checkbox"/> PIO/P	12/20/74	
PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE				MISSION DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE				
Roberto León de Vivero 12/20/74				Robert E. Culbertson 12/20/74				

AID 1020-28 (10-70) PAGE 2 PAR	PROJECT NO. 524-11-755-104	PAR FOR PERIOD: TO 11/3/73-12/31/74	COUNTRY Nicaragua	PAR SERIAL NO. 75-1
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A. INPUT OR ACTION AGENT CONTRACTOR, PARTICIPATING AGENCY OR VOLUNTARY AGENCY	B. PERFORMANCE AGAINST PLAN							C. IMPORTANCE FOR ACHIEVING PROJECT PURPOSE (X)					
	UNSATISFACTORY		SATISFACTORY			OUTSTANDING		LOW		MEDIUM		HIGH	
	1	2	3	4	5	6	7	1	2	3	4	5	
1. IAGS						X							X
2. USGS						X							X
3.													

Comment on key factors determining rating

Both the IAGS project monitor and the USGS technicians have demonstrated to be highly qualified, as well as to have been highly dedicated and personally concerned with the successful implementation of the project. In the case of the IAGS project monitor, at no extra expense to AID, has contributed time and effort beyond that specified in the PASA. All of the technicians have gained the respect and confidence of the CEHR technicians and personnel, as well as of the GON Minister of Public Works, under who the CEHR is directly responsible.

4. PARTICIPANT TRAINING					X									X
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Comment on factors determining rating

The top three CEHR technicians received training in several areas in the United States in areas including teleseism reading in Denver, Col., strong motion instrument methodology and data analysis in San Francisco, Calif., and equipment operation and data processing in Merlo Park, Calif.

5. COMMODITIES			X											X
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Comment on key factors determining rating

All test and strong motion equipment, materials and supplies purchased by USGS under the PASA arrived as planned. Late delivery and defects of the field vehicles purchased by AID caused considerable delay in selecting the seismographic sites and thus the installation of the accelerographs and seismoscopes.

6. COOPERATING COUNTRY	a. PERSONNEL					X								X
	b. OTHER Financial Contributions													X

Comment on key factors determining rating

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The cooperating country has more than fulfilled its counterpart contribution financing responsibility for CY 74, and has approved a funding level for CY 75 which also above the level contemplated in the FROP. However, the CEHR is requesting an additional increase of funds for CY 75 to defray the cost of additional technician support, personnel and equipment/supply needs unforeseen in the original project design.

7. OTHER DONORS	N.A.													
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(See Next Page for Comments on Other Donors)

AID 1020-25(10-71) PAGE 3 PAR	PROJECT NO. 524-11-755-104	PAR FOR PERIOD: 11/3/73-12/31/74	COUNTRY Nicaragua	PAR SERIAL NO. 75-1
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II. 7. Continued: Comment on key factors determining rating of Other Donors

N.A.

III. KEY OUTPUT INDICATORS AND TARGETS ^{1/}

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					END OF PROJECT
		CUMULATIVE PRIOR FY	CURRENT FY 75		FY 76	FY ____	
			TO DATE	TO END			
No. of earth scientists and/or engineer who will be trained in part and assisted by USGS specialists	PLANNED	4	4 ^{2/}	4	4+		4+
	ACTUAL PERFORMANCE	3	3				
	REPLANNED		3 ^{1/}				
No. of seismographic sites in full/partial operation	PLANNED	5 ₀	1 ₄	15 ₀	15 ₀		15 ₀
	ACTUAL PERFORMANCE	5 ₀	1 ₀				
	REPLANNED						
No. of strong motion accelerographs/seismoscopes installed and in operation	PLANNED	5 ₀	23 ₀	32 ₀	32 ₀		32 ₀
	ACTUAL PERFORMANCE	5 ₀	9 ₀				
	REPLANNED						
^{1/} Figures are cumulative ^{2/} In existence prior to project ^{3/} Four sites existing prior to project are being dismantled. Outdated equipment.	PLANNED						
	ACTUAL PERFORMANCE						
	REPLANNED						
B. QUALITATIVE INDICATORS FOR MAJOR OUTPUTS	COMMENT:						
1. Compilation of existing seismic data and correlation with new data gathered by network of seismic stations.	Seismic sites still in process of physical construction. 93% of seismic sites now complete in regard to all basic requirements. Final adjustments by USGS personnel to be accomplished January 1975.						
2. Establish continuous monitoring of the seismic activity of volcanoes in Nicaragua as a possible means of providing early warning of eruptions.	COMMENT: This information should be available prior to July 1, 1975.						
3. Installation of seismographs to determine local building responses to earthquake strong ground motion from moderate earthquakes.	COMMENT: This phase of work in process with 10 accelerographs of the 23 already installed and functioning						

CONTINUATION
SHEETFORM SYMBOL
AID 1020-25
(10-70) pages
PARDEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

TITLE OF FORM

PAR Serial No. 75-1
BAR for period: 11/3/73-
12/31/74 Worksheet Issuance

PAGE 5 OF 5 PAGES

1. Cooperating Country
Nicaragua

2.a. Code No.

2.b. Effective Date

2.c. Amendment
 Original OR No:3. Project/Activity No. and Title
524-11-755-104Indicate block
numbers.

Use this form to complete the information required in any block of a PIO or PAA form.

IV. B.

1. Conditions which will exist when above purpose is achieved.
2. Evidence to date of progress towards these conditions.

4. Monitoring of seismic activity of Nicaragua's most important volcanoes has been established on a continued basis.

4. There are four (4) volcanoes that are being monitored and will continue to be monitored, namely San Cristobal, Telica, Cerro Negro and Mina del Limón.

5. The Center will have the research capability and be contributing to the knowledge of the relationship between earthquakes and regional geologic features in Central America. The Center will be sharing its knowledge in world forums and keeping abreast of information developed in other areas about world tectonics and the causes and effects of earthquakes and volcanic eruptions.

5. Plans have been made to maintain a close national and international liaison. Future university study has been assured by OAS scholarships for 1975 use.

III. B.

4. Detailed geologic work to locate faults will be carried out to develop a regional understanding of the pattern of faults and other structure, and to locate regions of potential hazards such as landslides.

Comment:

To a great extent this policy has been a primary function of the CEHR geologist, especially in the Managua and Masaya areas. This will be amplified to include the rest of Nicaragua as time permits.

DEPARTMENT OF STATE
AGENCY FOR
INTERNATIONAL DEVELOPMENT

 Worksheet Issuance

PAGE 1 OF 5 PAGES

CONTINUATION SHEET

1. Cooperating Country
Nicaragua

2.a. Code No.

2.b. Effective Date

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 Original OR No.3. Project/Activity No. and Title
524-11-755-104

FORM SYMBOL
AID 1020-25
(10-70) pages
PAR

TITLE OF FORM

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