

ISN: 29772

AGENCY FOR INTERNATIONAL DEVELOPMENT <b>PROJECT DATA SHEET</b>	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number _____ DOCUMENT CODE 3
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2. COUNTRY/ENTITY WORLDWIDE	3. PROJECT NUMBER 936-5544
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4. BUREAU/OFFICE Office of the SCIENCE ADVISOR	5. PROJECT TITLE (maximum 40 characters) US-ISRAEL COOP. DEV. RESEARCH PROG
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6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 09 30 93	7. ESTIMATED DATE OF OBLIGATION (Under "B:" below, enter 1, 2, 3, or 4) A. Initial FY 85    B. Quarter 3    C. Final FY 89
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8. COSTS (\$000 OR EQUIVALENT \$1 = )						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total			2,000			19,000
(Grant)	( )	( )	(2,000 )	( )	( )	(19,000 )
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
Host Country						
Other Donor(s)						
<b>TOTALS</b>			2,000			19,000

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) 106	1			0	0	2,000	0	19,000	-0-
(2)									
(3)									
(4)									
<b>TOTALS</b>				0	0	2,000	0	19,000	-0-

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) 958      978	11. SECONDARY PURPOSE COD
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12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each) A. Code      BR      PART	B. Amount
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13. PROJECT PURPOSE (maximum 480 characters)

Facilitate the application of Israeli experience and technical expertise to help solve development problems that confront LDCs.

14. SCHEDULED EVALUATIONS Interim MM YY    MM YY    Final MM YY 0 1 8 7             1 1 8 8	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input checked="" type="checkbox"/> 000 <input type="checkbox"/> 941 <input checked="" type="checkbox"/> Local <input type="checkbox"/> Other (Specify)
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16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a \_\_\_\_\_ page PP Amendment.)

17. APPROVED BY	Signature <i>Howard A. Minners</i> Dr. Howard A. Minners Title _____ Date Signed _____	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY 
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## Project Authorization

Name of Country: Worldwide  
Name of Project: U.S.-Israel Cooperative Development Research Program (CDR)  
Number of Project: 936-5544

1. In furtherance of the provisions of the FY 1985 Continuing Resolution which earmarked \$2 million of FAA Section 106 availabilities "for cooperative projects among the United States, Israel and developing countries," I hereby authorize the centrally funded project, "U.S.-Israel Cooperative Development Research Program," which will involve planned obligations of \$19 million in grant funds over a five year period from FY 1985 through FY 1989, subject to the availability of funds in accordance with the AID OYB/allotment process.

2. Through this project, grants of up to \$150,000 will be provided to Israeli and collaborator institutions in developing countries in financing for each approved research activity. The \$150,000 limit is considered an appropriate level at this time and is specified in guidelines to prospective grantees, but after experience is gained with this funding limitation over the next year, AID/SCI may recommend an increase for individual research activities. Within a set of guidelines given by AID/SCI to research institutions in Israel and other developing countries, these institutions prepare cooperative research proposals on topics relevant to less-developed country (LDC) development problems.

This project has as its basic purpose to facilitate the application of Israeli experience and technical expertise to help solve problems that confront LDCs. It will provide AID funding for Israeli and LDC scientists to cooperate in research on significant LDC development problems, and thereby strengthen the capability of LDC scientists to do and continue such types of research.

3. The grant agreements which will be negotiated and executed by the AID offices to whom such authority is delegated (in accordance with AID regulations and delegations of authority) shall be subject to the following terms and conditions together with such other terms and conditions as AID may deem appropriate.

4. Source and Origin of Commodities, Nationality of Services

- (a) Commodities that may be financed by AID under this project shall have their source and origin in the United States or the cooperating LDC unless AID otherwise agrees in writing.\* The suppliers of commodities or services shall have the United States or the cooperating LDC as their place of nationality, except as AID may otherwise agree in writing.\*
- (b) The aggregate funding for each research grant shall not exceed \$150,000 (under current guidelines) unless special circumstances and conditions make it appropriate, in AID's judgment, to exceed this limitation; in which latter case, AID must agree in writing to any exception to the \$150,000 limitation for an individual research grant.
- (c) Ocean shipping financed by AID under this project shall, except as AID may otherwise agree in writing, be financed only on flag vessels of United States registry.
- (d) Air travel required to meet research needs shall be financed by AID only on U.S. carriers except as AID may otherwise agree in writing.

*N. C. Brady* \*

Nyle C. Brady  
Senior Assistant Administrator  
Bureau for Science and Technology

6/27/85  
Date

Clearances:

SCI:HAMinners *A.G. Zinn* Date *19 June 1985*  
 GC/CP:CStephenson *CS.* Date *6.14.85*  
 S&T/PO:GTEaton \_\_\_\_\_ Date \_\_\_\_\_

SCI:GEShivers:GRamsey:js:vso:06/14/85:235-3666:0186S

Agreed in accordance with AID Handbook 13 to include for source/origin and nationality Israel and other Code 99 countries pursuant to ... of ... to ...

AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D C 20523

18 June 1985

ACTION MEMORANDUM FOR THE SENIOR ASSISTANT ADMINISTRATOR,  
BUREAU FOR SCIENCE AND TECHNOLOGY

FROM: *H. A. Minners*  
SCI, Dr. Howard A. Minners

SUBJECT: Authorization of the New Project and Approval of  
Research Proposals for FY 1985 Funding Under the New  
U.S.-Israel Cooperative Development Research Program  
(CDR)

Problem: In the FY 1985 Continuing Resolution, Congress earmarked \$2 million under Section 106 of the FAA to finance "cooperative projects among the United States, Israel and developing countries." Mr. McPherson approved the initiation of the CDR on November 2, 1984 -- a copy of the approval memo is enclosed (Tab A).

The Office of the Science Advisor (SCI) has now received, reviewed and processed fifteen (15) research proposals under this program. Total funding required to finance these proposals is \$2,198,150, which is \$198,150 above the \$2 million earmarked for this purpose. We have programmed funds in excess of the earmarked amount. There may be downward refinements in budgets during agreement negotiations. Any unfunded approved proposals will become early FY 1986 obligations.

The Science Attache, U.S. Embassy, Tel Aviv, will provide management for all projects except those in Thailand, which will be managed by USAID/Bangkok. SCI will arrange for technical backstopping on an as-required basis.

Each of the following 15 projects involves direct Israel-LDC scientific cooperation:

- The Double Stranded RNA Viruses of Fungi and the Regulation of Virulence of Plant Pathogens (C5-002)
- Development of Integrated Management Methods for the Control of Bemisia tabaci (C5-004)
- Transfer and Incorporation of Alien Genetic Material for Resistance to Take-All Into Wheat Genomes (C5-039)
- Evaluation of Autosomal and Chromosomal Influence on Tilapias (C5-065)
- Biochemical Control of Plant Diseases Using Microorganisms Grown on Agricultural and Forestry Wastes (C5-107)

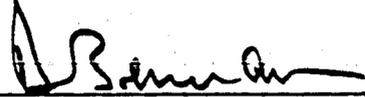
- Biological Control of Mosquitos by Bacillus Sphaericus (C5-141)
- The Development of a Drought Resistant Wheat Germplasm (C5-038)
- Enhancing Genetic Variability and Breeding Improved Sesame (S. Indicum) Cultivars (C5-147)
- Development of a New Field Tool to Optimize Nitrogen Fertilization by the Water Fern Azolla for Rice Crops (C5-179)
- New Subtropical Fruit and Nut Crops for Arid Lands (C5-228)
- Identification of Aquifer Hydraulic Properties Under Uncertainty (C5-269)
- Cashew Nut Compact Sized Sheller (C5-301)
- Study of a Non-Conventional System of Industrial Waste Water: High Rate Anaerobic Digestion and High Rate Oxidation Ponds (C5-328)
- Biological Control of Coffee Rust (C5-330)
- Stable Isotopes of Carbon, Nitrogen and Hydrogen as Naturally Occurring Indigenous Tracers for Non-Invasive Studies in Human Nutrition (C5-348)

We have reviewed these proposals in terms of potential environmental impact, and have determined, in accordance with Section 216.2(c)(2)(ii) of AID's Environmental Procedures that these research proposals will not have a significant environmental impact as a result of their limited scope, carefully controlled nature, and effective monitoring.

An Advice of Program Change has been processed.

RECOMMENDATIONS:

1. That you approve and sign the Project Authorization for the new U.S.-Israel Cooperative Development Research Program at Tab B.

Approved: 

Disapproved: \_\_\_\_\_

Date: 6/27/65

2. That you approve the fifteen (15) new collaborative research proposals listed above and described in the attached summaries at Tab C for funding under the new U.S.-Israel Cooperative Development Research Project (936-5544).

Approved: *DBrennan*

Disapproved: \_\_\_\_\_

Date: 6/27/85

Attachments:

TAB A - SCI Action Memo to A/AID dated 25 October 1984, approved  
2 November 1984

TAB B - Project Authorization for 936-5544

TAB C - Research Proposal Summaries

Clearance:

S&T/PO:GEaton *DR* Date \_\_\_\_\_

S&T:DBrennan \_\_\_\_\_ Date 6/27/85

SCI:GEShivers:MRechcigl:Gramsey:js:vso:06/19/85:235-3666:0185S

AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON DC 20523

25 October 1984

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THROUGH: SAA/S&T, Dr. Nyle C. Brady  
FROM: SCI, Dr. Howard A. Minners  
SUBJECT: Initiation of the New U.S.-Israel Research Program

Problem: We want to initiate the new U.S.-Israel Cooperative Development Research (CDR) Program with your transmittal of the program description to appropriate officials both here and in Israel.

Background: The FY 1985 Continuing Resolution earmarks \$2 million in the 106 account for transfer to "Science and Technology Development Assistance." This sum is "for cooperative projects among the United States, Israel and developing countries."

A new and separate program has been designed, and some rationale along with detailed operational procedures are given in the attached information statement. This program will undoubtedly involve rather intense competition for available resources. Judgments will be made on the basis of four criteria: scientific merit, relevance to development, innovation and LDC capacity building. Benefit to Israel will not be a factor when making an award. Deadlines this initial year are extremely tight, though we believe they are do-able.

Options: Dr. Brady plans a trip to Israel in the near future to describe this initiative and give it greater visibility. Staff from the Office of the Science Advisor may follow up if necessary to assure a full understanding of the ground rules and procedures. Selective mailings to Israeli scientists are being carefully planned. Your writing to transmit the attached information will add extra thrust to this fresh approach to promoting development through "successes in science" as manifest in Israel.

Recommendation: That you sign the transmittal letters to the U.S. Ambassador in Israel and the Israeli Ambassador here in Washington.  
*/s/ M. Peter McPherson*

Approved: \_\_\_\_\_

Disapproved: \_\_\_\_\_

Date: NOV 2 1984

Clearance: DAA/NE, Mr. B. Langmaid (in draft) Date 10/26/84  
AA/PPC, Mr. R. Derham \_\_\_\_\_ Date \_\_\_\_\_  
D/LEG, Mr. K. C. Kammerer \_\_\_\_\_ Date \_\_\_\_\_  
GC, Mr. H.M. Fry \_\_\_\_\_ Date \_\_\_\_\_

cc: STATE/NEA/IAI, Timothy Hauser  
NE/EUR, Ann M. Gooch  
NE/TECH, Kenneth H. Sherper  
AMEMBASSY/Tel Aviv/Israel, Roy Simpkins, Science Attache  
SCI:HAMinners:vso:10/23/84:235-3666:0669A

TITLE: The Double Stranded RNA Viruses of Fungi and the Regulation of Virulence of Plant Pathogens (C5-002)

AMOUNT: \$149,950

PERIOD: Three years

INSTITUTION: Tel Aviv University, Israel in collaboration with Forest Research Center, Kumasi, Ghana

DESCRIPTION:

The purpose of this project is to elucidate the role of the relatively new group of double stranded (dsRNA) viruses of fungi in the regulation of virulence as attenuating factors or as virulence inducers. Specifically, attempts will be made to (1) identify nucleotide sequence in the dsRNA segments encoding for products responsible for virulence in Rhizoctonia solani; (2) assess the restrictions imposed by various mechanisms on the transmission of dsRNA segments associated with virulence; and (3) investigate the in vivo regulation of major virulence factors. The linkage between products encoded by the dsRNA segments and regulation of proteolytic enzymes will then be elucidated.

The results should provide a method for biological control if the dsRNA viruses act as attenuating factors. If, however, these viruses induce virulence, the simplicity of their genomes will allow the isolation and characterization of the virulence factor(s).

REVIEW COMMENTS:

The project was rated high for scientific merit and innovative character. Some concern was expressed regarding the LDC collaboration. The latter concern was subsequently clarified by the additional information received from the principal investigator with evidence of a highly developed scientific collaboration, including the assurance that approximately 30% of the funds would be distributed directly to Ghana. USAID/Ghana concurs in this proposal.

CLEARANCES:

ANE/MEUR/I, A. Gooch	per telecon	Date	5/28/85
AFR/CCWA/G, D. Walsh	per telecon	Date	6/13/85

TITLE: Development of Integrated Management Methods for  
the Control of Bemisia tabaci (C5-004)

AMOUNT: \$150,000

PERIOD: Three years

INSTITUTION: Tel Aviv University, Tel Aviv, Israel in  
collaboration with Makoka Agricultural Experiment  
Station, Thondwe, Malawi

DESCRIPTION:

The aim of the project is to minimize the incidence of cassava mosaic virus by providing an efficient, cheap and simple way to control its vector, Bemisia tabaci. If successful, the proposed method will have reduced the population of the white fly through permanently acting natural enemies and will have provided the growers with simple and efficient traps to further reduce the pest, and to monitor it simply and precisely. More healthy cassava plants will be available to the growers and food production will increase.

REVIEW COMMENTS:

The proposal received high marks for scientific merit, innovative character, as well as for relevance to development and capacity strengthening. Decision on implementation was deferred pending the principal investigator's response to the following points: (1) that more of the funding be shifted to Malawi to develop facilities there and to lengthen the training of Malawi scientists; (2) that a clear emphasis be placed first on the entomological aspects of the problem, and only then on the in-depth epidemiological study of the virus; and (3) that the naturally occurring Malawian parasitoid fauna be checked before or during the importation of natural enemies. The principal investigator provided a written response which was judged satisfactory and in conformance with the panel recommendations. USAID/Malawi concurs in this proposal.

CLEARANCE:

ANE/MEUR/I, A. Gooch	per telecon	Date	5/28/85
AFR/SA/M, L. Pompa	per telecon	Date	5/28/85

TITLE: Screening, Transfer and Incorporation of Alien Genetic Material into Wheat Genomes for Resistance to the "Take-all" Disease (C5-039)

AMOUNT: \$149,375

PERIOD: Three years

INSTITUTION: The Volcani Center, Bet Dagan, Israel in collaboration with Estacao Agronomica Nacional, Oeiras, Portugal

DESCRIPTION:

The purpose of the project is to assemble a comprehensive collection of wild wheats in Portugal and Israel and to screen the accessions for resistance to take-all disease. The resistant genes from wild relatives will then be transferred into the cultivated wheats Triticum durum Def. and Triticum aestivum L. This chromosome manipulation will be carried out through homologous recombination induction with the aid of Ph mutants available in wheats.

Take-all is a serious disease of wheat in many developing countries, and conventional measures against it have been largely ineffective. The availability of new genetic sources for disease resistance, techniques for transferring these genes into wheat, and newly developed screening procedures will thus be of great value to any wheat breeding program.

REVIEW COMMENTS:

The proposal received high marks for scientific merit, but the reviewers questioned both the existence and availability of the gene sources of resistance. The principal investigator subsequently provided research evidence of the existence of highly resistant genes in a line of Aegilops variabilis, a line of Secalo-montanum and a semi-dwarf cultivar of Secale cereale.

On the basis of this information, the project was recommended for approval. USAID/Lisbon concurs in this proposal.

PROJECT OFFICER:

CLEARANCES:

AID/ANE/MEUR/I, A Gooch	per telecon	Date	5/28/85
AID/ANE/MEUR/P, M. Sterne	per telecon	Date	6/13/85

TITLE: Evaluation of Autosomal and Chromosomal Influence on Tilapias (C5-065)

AMOUNT: \$149,850

PERIOD: Three years

INSTITUTION: Bar-Ilan University, Ramat-Gan, Israel in collaboration with the Agricultural Research Organization, Dor, Mobile Post Hof Hacarmel, Israel and Technology Research Center Foundation, Makati, Metro Manila, Philippines

DESCRIPTION:

The proposed research takes advantage of hybrids (F<sub>1</sub> and beyond) among the various Oreochromis species and by classical genetics methods will test a model of sex determination involving a single autosomal locus and sex specific chromosomes. The proposal lays out a series of crosses between O. mossambicus and O. hornorum and backcrosses of the F<sub>1</sub> hybrids which should produce a variety of well defined sex ratios if the model of sex determination is correct. Previous work in this area has suffered from a lack of sex-linked markers which are critical to understanding the control of fish gender.

The proposed research will verify or refute the importance of a male specific protein (MSP) as a sex-linked marker and will study the progeny produced by the crosses mentioned above. In addition, an attempt will be made to identify sex chromosomes using a variety of techniques developed for mammalian systems. The ultimate goal of this research is to understand the control of sex in fishes so that male hybrids can be produced for aquaculture.

If successful, this research will remove the foremost obstacle to increasing production of tilapia, i.e., the lack of proper broodstocks yielding monosex (preferably all male) populations.

REVIEW COMMENTS:

The project was considered to have a high scientific merit. It was recommended for approval with provisos dealing with (1) clarification of specific technical issues in the proposal; (2) suggesting that more of the actual work be done in the Philippines rather than in Israel; and (3) conditioning expenditures for years 2 and 3 on evidence of success during the first year's effort. The principal investigator has responded to the provisos by further justifying the proposition that most of the experimental work be accomplished in Israel because of the availability there of the necessary equipment, facilities and expertise; and by accepting the conditionality of funding for years 2 and 3. SCI considers the proposer's response as having met the provisos. USAID Manila concurs in this proposal.

CLEARANCES:

AID/ANE/MEUR/I, A. Gooch	per telecon	Date	5/28/85
AID/ANE/EA/P, T. Kellerman	per telecon	Date	6/3/85

TITLE: Biological Control of Plant Diseases Using  
Microorganisms Grown on Agricultural and Forestry  
Wastes (C5-107)

AMOUNT: \$150,000

PERIOD: Three years

INSTITUTION: The Hebrew University of Jerusalem, Rehovot,  
Israel, in collaboration with the Forest Products  
Research Institute, Kumasi, Ghana

DESCRIPTION:

The aim of the project is to study the feasibility of using naturally occurring microorganisms isolated from soils in Ghana as biocontrol agents against soil-borne fungal pathogens. An attempt will be made to grow the biocontrol agents on various agricultural wastes such as bagasse, Cassava or wood chips. The most economic and appropriate methods of application of the antagonists either to soil or on seeds will be tested in laboratory and greenhouse with sublethal amounts of fungicides. The stated goal of the proposal is to develop alternative control procedures for soil-borne fungal pathogens to reduce chemical fungicide utilization.

REVIEW COMMENTS:

Most reviewers rated the proposal on the high side in all categories. The work plan was considered both logical and feasible and the principal investigator was judged to have broad experience and an international reputation in this field of research. The review panel recommended approval with three provisos relating to increasing the effort in Ghana itself (more field testing in Ghana with appropriate changes in the budget; and the teaching of fermentation technology to Ghanaian researchers and more fermentation work conducted in Ghana rather than in Israel). The principal investigator has agreed to these provisos. USAID Ghana concurs in this proposal.

CLEARANCES:

AID/ANE/MEUR/I, A. Gooch	<u>per telecon</u>	Date	<u>5/28/85</u>
AID/AFR/CCWA/G, David Walsh	<u>per telecon</u>	Date	<u>6/13/85</u>

TITLE: Biological Control of Mosquitoes with Bacillus Sphaericus (C5-141)

AMOUNT: \$150,000

PERIOD: Two years

INSTITUTION: Biotechnological Applications (BA) Ltd.,  
Jerusalem, Israel in collaboration with the  
Ministry of Agriculture, Conakry, Guinea

DESCRIPTION:

The principal aim of the project is to improve, by recombinant DNA techniques, the characteristics of B. sphaericus as a biocontrol agent of disease-transmitting mosquitoes. This will be done by introduction and expression of the mosquito toxin gene of another bacterium, B. thuringiensis var. israelensis (Bti) into B. sphaericus. Bti is very toxic to a number of mosquito species, as well as to black flies, but has a very short life under natural conditions. B. sphaericus derived toxin, on the other hand, is toxic mainly to Culex and Anopheles species of mosquitoes, but has a longer persistence. The researcher hypothesized that a combination of the desired characteristics of both bacteria may result in a more potent biocontrol agent.

The results of this research should improve effectiveness of controlling disease-transmitting mosquitoes in developing countries. In addition, the project will prepare local specialists in this field who will be able to combine and extend the work on their own.

REVIEW COMMENTS:

The review panel rated this proposal very high in all review criteria and recommended approval with the provisos that (1) experimental protocol be modified in view of the recent isolation of Bti gene; (2) more emphasis be given to technology transfer and involvement of Guinean scientists; (3) budget be reevaluated to assure adequate funding for LDC collaboration. The principal investigator has agreed to the provisos and amended the proposal budget accordingly. USAID Conakry concurs in this proposal.

CLEARANCES:

AID/ANE/MEUR/I, A. Gooch per telecon Date 5/28/85  
AID/AFR/CCWA/G, M. Meares per telecon Date 5/29/85

TITLE: The Development of a Drought Resistant Wheat Breeding Germplasm (C5-038)

AMOUNT: \$118,750

PERIOD: Three years

INSTITUTION: The Volcani Center, Bet Dagan, Israel in collaboration with Estacao Agronomica National, Oeiras, Portugal

DESCRIPTION:

The purpose of the research is to screen and identify cultivars of wheat that are resistant to drought and to train the local staff in Portugal on new screening techniques. The project will take advantage of two recently developed methods, i.e., infrared thermometry and chemical dessication which have proven successful in Israel.

The results of this research effort will be threefold: (1) the identification of drought resistant wheat materials that will be used by breeders in Portugal for improvement of drought resistant qualities in their wheat varieties; (2) possible use of similar techniques by breeders in drought-prone areas in Africa; and (3) training the Portuguese cooperators in these techniques for use in adapting Portuguese germplasm by crossing and reselecting for resistance following completion of this project.

REVIEW COMMENTS:

The propopsal was rated high by the review panel for scientific merit, and relatively high for innovative character, relevance to development and capacity strengthening. The reviewers agreed that the plan of work is realistic, and have recommended approval with two provisos which have been met by the investigators, i.e., (1) present the credentials of the Portuguese collaborators, and (2) include CIMMYT and ICARDA germplasm in the research to gain a clear understanding of drought tolerance in African countries. USAID/Lisbon concurs in this proposal.

CLEARANCES:

AID/ANE/MEUR/I, A. Gooch	per telecon	Date	5/28/85
AID/ANE/MEUR/P, M. Sterne	per telecon	Date	6/13/85

TITLE: Enhancing Genetic Variability and Breeding  
Improved Sesame (S. indicum) Cultivars (C5-147)

AMOUNT: \$149,700

PERIOD: Three years

INSTITUTION: The Hebrew University of Jerusalem, Rehovot,  
Israel, in collaboration with the Field Crop  
Research Institute, Bangkok, Thailand

DESCRIPTION:

The aim of the project is to develop widely based segregating populations of sesame for selection and breeding of improved cultivars, with non-shattering, uniform ripening and high yields. The newly developed varieties should mature within a short time span, thus facilitating harvest with minimal seed losses and a shorter growing season. Because of the unique architecture of the determinate plants, (i.e., plants with uniform ripening) they will be more suitable for combine harvesting. The improved varieties could potentially change the cropping patterns in various regions.

REVIEW COMMENTS:

Numerical ratings of the review panel were all in the high range, particularly with regard to the scientific merit, relevance to development and capacity strengthening. The panel recommended approval with the provisos that the principal investigator establishes a link with other investigators in the field and visits Thailand in year three. The principal investigator agreed with these recommendations. USAID Bangkok concurs in this proposal and will provide project management.

CLEARANCES:

AID/ANE/MEUR/I, A. Gooch	<u>per telecon</u>	Date	<u>5/28/85</u>
AID/ANE/EA/T, W. Nance	<u>per telecon</u>	Date	<u>6/3/85</u>

TITLE: Development of a New Field Tool to Optimize Nitrogen Fertilization by the Water Fern Azolla for Rice Crops (C5-179)

AMOUNT: \$140,250

PERIOD: Three years

INSTITUTION: Hebrew University of Jerusalem, Rehovot, Israel in collaboration with Univeristy of Peradeniya, Peradeniya, Sri Lanka

DESCRIPTION:

The purpose is to develop a field probe for simple, fast and sensitive detection of physiological condition and photosynthetic productivity of Azolla.

Once developed, the probe will be used for selecting the most suitable and productive strains for rice farming under various environmental conditions and for continuous evaluation of the productivity of Azolla.

Measurements with such a probe will save the need for long growth experiments against unfavorable conditions during growth, with the ultimate goal of improving the quantity of N-fertilizer for the rice crop.

REVIEW COMMENTS:

The proposal was approved with the provisos that: 1) documentation be provided on the potential field use of the probe; 2) productivity be correlated with biomass and other standard photosynthetic measurements; and 3) more details be furnished on field studies. The principal investigator's response satisfactorily met the provisos indentified by the panel. USAID Colombo concurs in this proposal.

CLEARANCES:

ANE/NE/MEUR/I, Ann Gooch per telecon Date 6/17/85  
ANE/ASIA/PNS/S, John Gunning HThomas per telecon Date 6/18/85  
ANE/ASIA/TR, Edward Rice (info)

TITLE: New Subtropical Fruit and Nut Crops for Arid Lands  
(C5-228)

AMOUNT: \$149,975

PERIOD: Three Years

INSTITUTION: Ben Gurion University of the Negev, Beer-sheva, Israel  
with Terre Aide Botswana, Gaborone, Botswana

DESCRIPTION:

The purpose of this project is to initiate research on several native plants of Botswana and other subtropical regions which have significant underexploited potential as new fruit and nut crops for the local and export markets. Botswanan species include the Botswanan wild plum, the maketti nut and the marula. Other candidates include the ber and jujube (India), angel and yehib (Somalia), raisin-tree (East Asia) and Cardon (Mexico). Due to existing water quality limitations, special emphasis will be given to developing superior cultivars that can be raised on brackish or saline water under Botswanan conditions. These results and superior selections should be of use throughout the arid regions of subtropical Africa. Climatic and edaphic conditions of all experimental orchards will be recorded in detail, and the particulars of all seed accessions will be recorded in accordance with the guidelines of the International Board on Plant Genetic Resources (IBPGR).

REVIEW COMMENTS:

The project was rated high on development relevance, and several reviewers expressed particular interest in several of the species selected. They did, however, recommend the deletion of cashew fruit and jackfruit from the original list of subjects, due to their high water requirements. This and other minor provisos were subsequently accepted by the investigators. The reviewers expressed confidence in the Israeli investigators, but some doubt regarding the scientific capabilities of the collaborators in Botswana. The panel suggested that SCI contact USAID/Gaborone who subsequently reported that the Botswana facilities and staff are entirely appropriate. The mission encouraged funding of the subject proposal.

Clearances:

ANE/MEUR/I, Ann Gooch	per telecon	Date	5/28/85
AFR/SA/B, Leonard Pompa	per telecon	Date	6/14/85

TITLE: Identification of Aquifer Hydraulic Properties  
Under Uncertainty (C5-269)

AMOUNT: \$143,000

PERIOD: Three years

INSTITUTION: Tel Aviv University, Ramat Aviv, Israel in  
collaboration with National Laboratory for Civil  
Engineering, Lisboa Codex, Portugal

DESCRIPTION:

The primary goal of this research is to further develop a stochastic method for characterizing spatially distributed hydraulic properties of groundwater aquifers using space field measurements. If successful, this project will materially contribute to evaluation and management of groundwater aquifers both from the supply standpoint and from the quality standpoint.

REVEIW COMMENTS:

The project was approved with the proviso that the degree of collaboration with Portugal be strengthened. The principal investigator agreed to do this. USIAD Lisbon concurs in this proposal.

CLEARANCES:

ANE/NE/MEUR/I, Ann Gooch	<u>per telecon</u>	Date	<u>6/17/85</u>
ANE/NE/MEUR/P, Marx Sterne	<u>per telecon</u>	Date	<u>6/13/85</u>
ANE/NE/HRST, Harold Freeman	(info)		

1100A

TITLE: Cashew Nut Compact Sized Sheller (C5-301)  
AMOUNT: \$149,600  
DURATION: Three years  
INSTITUTION: Khon Kaen University, Khon Kaen, Thailand in  
collaboration with the Volcani Center, Bet Dagan,  
Israel

DESCRIPTION:

The overall aim of the project is to help cashew nut farmers and small manufacturers more efficiently and effectively shell cashew nuts with higher ultimate quality to improve income in the rural areas.

The specific objectives include: (1) the investigation and evaluation of available cashew nut shellers; (2) modification and evaluation of the most promising sheller, with emphasis on compactness, reliability and economy; and (3) transfer of the improved technology to the users.

REVIEW COMMENTS:

The project was approved with the provisos that the prototype machines be built in Thailand rather than Israel and that consideration be given to building a lower cost prototype so farmers could more easily afford the machines. The principal investigator accepted these provisos, USAID Bangkok concurs in this proposal and will provide project management.

Clearance:

ANE/MEUR/I, Ann Gooch	per telecon	Date	5/28/85
ASIA/EA/T, William Nance	per telecon	Date	6/3/85

1100A"

**TITLE:** Study of a Non-conventional System of Industrial Wastewater Treatment: High Range Anaerobic Digestion and High Rate Oxidation Ponds (C5-328)

**AMOUNT:** \$148,600

**PERIOD:** Three years

**INSTITUTION:** ICAITI, Guatemala, C.A., in collaboration with Ben-Gurion University of the Negev, Sede-Boquer Campus, Israel

**DESCRIPTION:**

This research is aimed toward the search for an efficient biological system to reduce the polluting potential of the discharges derived from the preparation of pulp through sulphate-soda processes. Specifically, it will study Kraft pulping wastewater treatment by using an anaerobic reactor and a high rate algae pond. Three different types of anaerobic digestion will be evaluated, namely upflow sludge blanket type, fluidized bed, and fixed biofilm system.

**REVIEW COMMENTS:**

The project was approved with the proviso that the technical work plan be clarified and expanded in several specific areas. The principal investigator provided a detailed response which was judged satisfactory in meeting the recommendations of the expert panel. USAID/Guatemala concurs in this proposal.

**CLEARANCES:**

AID/ANE/MEUR/I, A. Gooch	per telecon	Date	5/28/85
AID/LAC/CAP/G, G. Adams	per telecon	Date	6/19/85

1100A

TITLE: Biological Control of Coffee Rust (C5-330)  
AMOUNT: \$149,100  
DURATION: Two and one-half years  
INSTITUTION: ICAITI, Guatemala, C.A. in collaboration with  
Hebrew University of Jerusalem, Rehovot, Israel

DESCRIPTION:

The aim of the project is to study the microbiological control of the Coffea arabica-Hemileia vastatrix association by inoculation of the infected plant with the competing or parasitic microbes.

In addition a series of biochemical determinations will be made in order to gain understanding of the infection phenomena and the host-microbe interaction.

REVIEW COMMENTS:

The project was approved with the provisos that (1) the objectives be more sharply focused; (2) the investigators coordinate the effort with Prome Cafe (IICA), San Salvador; and (3) at least one survey be conducted in Africa. The principal investigator agreed with these provisos and modified the research plan accordingly. USAID/Guatemala concurs with this proposal.

CLEARANCE:

ANE/NE/MEUR/I, Ann Gooch per telecon Date 6/17/85  
ANE/LAC/CAP/G, Gary Adams per telecon Date 6/19/85

1100A

TITLE: Stable Isotopes of Carbon, Nitrogen and Hydrogen as Naturally Occurring Indigenous Tracers for Non-Invasion Studies in Human Nutrition (C5-348)

AMOUNT: \$150,000

PERIOD: Three years

INSTITUTION: Delron Development, Ltd., Jerusalem, Israel in collaboration with University of the Philippines, Los Banos, Laguna, Philippines

DESCRIPTION:

The purpose is to investigate the utility of using different ratios of the naturally occurring stable isotopes of carbon, nitrogen and hydrogen as indigenous tracers for studying the flow and the fate of nutrients in human nutrition.

The effectiveness of this relatively non-invasive technique will be tested in the context of the relationship of dietary regimen to actual sources of new tissues, metabolic energy, and excreted nitrogen and carbon. With this knowledge, the specific sources of metabolic energy, protein tissue growth and excreted nutrients will be studied in mixed diet, with three staple combinations of importance in Southeast Asia.

The greatest potential for this project lies in the prospect of being able to study the associative effects of foods or the efficiency of nutrient use from individual components while these components remain a part of a total mixed diet. The proposed studies provide a unique approach that allows such studies to be conducted in humans without using added radioactive tracers.

REVIEW COMMENTS:

The reviewers recommended approval of the project with the provisos that (a) a physician or clinical nutritionist be actively involved in the study; (b) the number of human subjects be increased because of the anticipated variability in the data; (c) a clearance/approval be provided by the appropriate institutional ethics committee on the matter of human experimentation. The principal investigator has accepted and will implement all provisos of the review panel. USAID Manila concurs in this proposal.

CLEARANCES:

AID/ANE/MEUR/I, A. Gooch	<u>per telecon</u>	Date	<u>5/28/85</u>
AID/EA/P, T. Kellerman	<u>per telecon</u>	Date	<u>6/3/85</u>