

P/1-11-88-400

WA-54901

AUDIT OF  
RESEARCH GRANTS FOR  
KASETSART UNIVERSITY  
PROJECT NO. 398-0249

AUDIT REPORT NO. 2-493-88-06-N  
JANUARY 29, 1988

UNITED STATES GOVERNMENT

# Memorandum

TO: Dr. John R. Eriksson  
Director, USAID/Thailand

DATE: January 29, 1988  
RIG/EA-88-101

FROM: Leo L. LaMotte *Leo LaMotte*  
Regional Inspector General for Audit

SUBJECT: Audit Report No. 2-493-88-06-N  
Audit of the Research Grants for Kasetsart University,  
Project No. 398-0249

Attached is a copy of the final report on the subject audit. The certified public accounting firm of Ernst & Whinney (Bangkok) prepared the report dated August 26, 1987. The purpose of the review was to determine whether project funds were being properly accounted for in compliance with the terms of the grants and other applicable A.I.D. policies and procedures, and to identify and evaluate the accounting systems and internal controls of the funds.

Kasetsart University was the recipient of three A.I.D. grants totaling \$440,000 under the Program Development and Support Project No. 398-0249 which was to enhance science and technology development in Thailand. The first grant amounting to \$144,000 for the period May 22, 1984 to May 31, 1987 provided for research in "Utilization of Cassava and Cassava Waste through Fermentation Technology." A second grant of \$150,000 for the period June 10, 1985 to October 30, 1987 focuses on "In Vitro Conservation and Germplasm Exchange of Bamboo." A third grant of \$150,000 from August 8, 1985 to November 30, 1988 provided for research on "Hybridization of Halotolerant Yeast for the Production of Alcohol Fuels."

The auditors performed substantive and compliance tests on transactions totaling \$231,288 or 80% of actual expenditures. Of this amount, \$106,456 in costs were questioned. The grantee was found to have complied with all other material terms and conditions of the grant agreement examined.

This report recommends that USAID/Thailand resolve with Kasetsart University questioned costs in the amount of \$106,456, and that USAID/Thailand assist the University to resolve internal control problems identified in this report. These recommendations however will not be separately included in the Inspector General's audit recommendation follow-up system by mutual agreement of USAID/Thailand and RIG/A/Manila. Instead, these recommendations are consolidated into Audit Report No. 2-493-88-04-N entitled "Audit of Science and Technology Research Grants, Project No. 398-0249."

# Ernst & Whinney

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*(formerly Turquand Youngs & Co.)*

26th August, 1987

Mr. Leo L. La Motte,  
Regional Inspector General/Audit,  
Agency for International Development,  
Ramon Magsaysay Center,  
1680 Roxas Blvd., Manila 2801,  
PHILIPPINES.

Dear Sir,

KASETSART UNIVERSITY

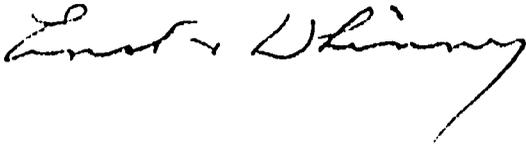
- Grant No. 936-5542
- Grant No. 936-5542-G-00-5057-00
- Grant No. 936-5542-G-00-5080-00

We have completed our examination of the systems and controls with respect to the above captioned in accordance with the contract no. 398-0249-C-00-6048-00 dated 19th June, 1986 as per amendment no. 1 and 2 and present herewith our findings and recommendations.

The matters dealt with in this report are based on the information and documents provided to us and therefore our comments cannot be expected to be exhaustive and to include all possible weaknesses on the systems of accounting and internal control.

Should you require clarification on the report or additional information to be added to, please feel free to contact us.

Yours faithfully,



Encl.  
RT: jk

RESEARCH GRANT  
KASETSART UNIVERSITY

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1. INTRODUCTION

This report provides the results of our review of accounting system and internal control under the contract of which the contents are summarised as follow :-

GRANTEE : The Royal Thai Government acting through the Department of Technical and Economic Cooperation. Kasetsart University will act on behalf of the Department of Technical and Economic Cooperation concerning the administration of the grant.

GRANT : The grants included in the exercise are summarised as follow :

<u>Grant No.</u>	<u>Project Outline</u>	<u>Project Period</u>	<u>Budgeted Amount</u> <u>US\$</u>
936-5542	Utilization of Cassava and Cassava Waste Through Fermentation Technology	22/5/84-31/5/87	144,000
936-5542-G-00-5057-00	In Vitro Conservation and Germplasm Exchange of Bamboo	10/6/85-31/10/87	150,000
936-5542-G-00-5080-00	Hybridization of Halotolerant Yeast for the Production of Alcohol Fuels	8/8/85-30/11/88	150,000

## RESULT OF AUDIT :

<u>Grant No.</u>	<u>Date of Report</u>	<u>Fund</u>	<u>Actual</u>	<u>Questioned</u>		
		<u>Received</u>	<u>Spending</u>	<u>Costs</u>		
		<u>to date</u>	<u>Reported</u>	<u>Amount</u>	<u>Verified</u>	<u>Costs</u>
		<u>US\$</u>	<u>US\$</u>	<u>US\$</u>	<u>%</u>	<u>US\$</u>
936-5542	28/2/87	123,623	123,491	112,371	91	60,036
936-5542-G-00-5057-00	31/12/86	118,134	118,134	74,168	63	43,573
936-5542-G-00-5080-00	31/1/87	49,492	48,435	44,749	92	2,847
		<u>291,249</u>	<u>290,060</u>	<u>231,288</u>	<u>80</u>	<u>106,456</u>
		=====	=====	=====	==	=====

REMARK : The above tabulation is based on the exchange rate of US\$ 1 = Baht 26 which had been adopted in translating Baht figures to U.S. dollars.

For questioned costs, details are set out in individual grant reports in Baht value as follow :

<u>Grant Number</u>	<u>Appendix</u>
936-5542	I
936-5542-G-00-5057-00	II
936-5542-G-00-5080-00	III

## 2. INITIAL DISCUSSION

Initial discussion with the principal investigators/co-investigator, the field work in respect of evaluating, testing the systems of internal control, reported expenditure and compliance thereto with terms of grant agreement and final discussion on findings with the principal investigators/co-investigator were conducted during 31st March, 1987 to 24th April, 1987.

3. ADMINISTRATION OF GRANT

	<u>Kasetsart University</u>	<u>Principal Investigator</u>
- Receiving of fund		/
- Custody of project fund	/	
- Procurement of goods and services	for payment greater than Baht 20,000	for payment not greater than Baht 20,000
- Receiving of goods and services	/	
- Disbursement authorization	/	
- Staff recruitment	/	
- Recording books of account		/
- Financial report		/
- Custody of books of account		/
- Physical control	/	
- Management control	review of operating performance	

4. AUDIT

At the time of this exercise the grants were audited by the internal auditor of Kasetsart University except for Grant No. 936-5542-G-00-5080-00 of which audit results can be summarized as follow :-

Grant No. 936-5542 :

Report was issued on 7th April, 1986 with respect to lack of control over petty cash fund and no recording of fixed assets of Baht 22,490 in the fixed assets register.

These, however, are now implemented.

Grant No. 936-5542-G-00-5057-00 :

Report issued for the period of August 1985 to January 1986 reported "no finding except for project's assets, register should be prepared and a copy submitted to Horticulture Department in order to provide a control over fixed assets and inspection of assets against register is to be carried out subsequently".

This recommendation, however, is now implemented.

5. SCOPE OF WORK

The objective of the exercise is to review financial and internal control systems established by the research grantee institution and the Principal Investigator. Specifically, under the terms of the engagement this encompasses :

- 5.1 Hold initial discussion with the research grantee institution and the principal investigator concerning systems review and audit work to be performed.
- 5.2 Examine the accounting systems and internal controls of the grantee institution and the principal investigator.
- 5.3 Ascertain the propriety of procedures used by the grantee to authorize and bill USAID for expenditures under the grant.
- 5.4 Examine a representative sample of expenditures reimbursed by USAID as to their compliance with USAID requirements.
- 5.5 Ascertain whether the grantee has completed with the terms of the grant.
- 5.6 Prepare an audit report for RIG/A/MANILA which include an outline of specific deficiencies as well as any recommendations for improvement.

The examination was conducted in accordance with generally accepted government auditing standards appropriate to the scope of audit as described below.

The scope of audit encompassed an examination of research grantee institution/principal investigators' financial operating procedures, financial transactions, accounts and reports and included such tests of these records and such other auditing procedures as were necessary in the circumstances. Our audit does not include coverage of the economy and efficiency of operations, nor do we attempt to assess the results of the contract performance.

Receipts and disbursements were documented and reviewed. Compliance and substantive tests were carried out.

6. FINANCIAL STATEMENTS

We have examined the Status Of Funds/And Request For Funds of Kasetsart University for the grants and the periods as set out in section 1 of this report.

Our examination was made in accordance with generally accepted auditing standards and the financial and compliance elements of the Standards for Auditing of Governmental Organisations, Program, Activities and Functions, issued by the U.S. Comptroller General in 1981, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The Status Of Funds/And Request For Funds includes costs in the amount of US dollars 106,456 as set out in section 1 of this report which we have questioned for the adequacy of supporting documentation and for disallowance under the terms of grant agreements.

In our opinion, subject to the effects of such adjustments, if any, as might have been required had the ultimate resolution of the allowability of the questioned costs contained in the Status Of Funds/And Request For Funds been known, the Status Of Funds/And Request For Funds of Kasetsart University for the grants and the periods as set out in section 1 presents fairly the expenditures, in conformity with generally accepted accounting principles.

This report is intended solely for the use of the Agency for International Development and should not be used for any other purposes.

7. COMPLIANCE - TERMS OF GRANT AGREEMENT

We have examined the Status Of Funds/And Request for Funds of Kasetsart University for the grants and the periods as set out in section 1 of this report.

Our examination was made in accordance with generally accepted auditing standards; the provisions of Standards for Audit of Governmental Organisations, Programs, Activities and Functions, promulgated by the U.S. Comptroller General, as they pertain to financial and compliance audits; the Guidelines for Financial and Compliance Audits of AID Financed Agreements and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In connection with our examination, we found that for the grant items tested, Kasetsart University complied with the material terms and conditions of the terms of grant agreements, except as stated below in the individual grant reports as follow :

<u>Grant Number</u>	<u>Appendix</u>
936-5542	I
936-5542-G-00-5057-00	II
936-5542-G-00-5080-00	III

As for the transactions not tested, based on our examination and the procedures referred to above, nothing came to our attention to indicate that Kasetsart University had not complied with the material terms and conditions of the terms of grant agreements.

8. STUDY AND EVALUATION OF INTERNAL ACCOUNTING CONTROL

The management of the research grantee institution is responsible for establishing and maintaining a system of internal accounting control. In fulfilling this responsibility, estimates and judgements by the research grantee institution are required to assess the expected benefits and related costs of control procedures. The objectives of a system are to provide management with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorised use or disposition and that transactions are executed in accordance with the research grantee institution's authorization and recorded properly to permit the preparation of the Status Of Funds/And Request For Funds in accordance with the accounting practices prescribed by OMB Circular A-122, Cost Principles for Nonprofit Institutions and the terms and conditions of the grant agreements. Because of inherent limitations in any system of internal accounting control, errors or irregularities may nevertheless occur and not be detected.

Our study and evaluation revealed weaknesses in the systems of internal control to which the weaknesses and recommendations are addressed in this section. The matters as addressed came to our notice during the conduct of financial and compliance audit which are designed primarily with a view to the expression of opinion on the accounts and compliance with the terms and conditions of the grant agreements and our comments cannot be expected to include all possible weaknesses in the systems of accounting and internal control. Accordingly, we do not express an opinion on the system of internal accounting control of Kasetsart University and principal investigators taken as a whole. However our study and evaluation disclosed no condition that we believe to be a material weakness.

Finding and recommendations resulting from study and evaluation of internal accounting control are as follow :

8.1 ADMINISTRATION OF GRANT FUNDS

Finding

Administration of grant funds are by the principal investigators except for the areas as set out in section 3.

Recommendation 8.1

In order to promote the efficiency and effectiveness of research undertaken by the principal investigators, (ie : to allow greater time to be devoted to research work) administration could be performed by Kasetsart University. Similarly, the University may be in a better position to administer due to administrative staff complement who are technically competent in administration.

8.2 SEPARATION OF USAID FUND

Finding

For the three grants included in the exercise, funds from USAID transferred to the project are deposited in the bank current account of Kasetsart University and mixed with other fund. This, however, is the general policy of the University.

Recommendation 8.2

In order to comply with the Standard Provision of grant agreement, USAID fund should be deposited in a separate bank account and be in the Project's name. Disbursements for goods and services are also made from this account.

8.3 DISBURSEMENT - TERMS OF GRANT AGREEMENT

Finding

For the three grants included in the exercise disbursements are neither in accordance with the terms of grant agreement nor are there prior written approval from USAID.

Recommendation 8.3

It is recommended that disbursement not in accordance with the terms of grant agreement should be made against prior written approval from USAID.

8.4 RECONCILIATION OF CASH BALANCES

Finding

With reference to Grant no. 936-5542 and 936-5542-G-00-5080-00, no reconciliation of cash balances in cash book of the Project and the Finance Section of the University is made.

Recommendation 8.4

Such reconciliation should be made on a monthly basis and be initialled as evidence of checking.

8.5 PREPARATION OF STATUS OF FUNDS/AND REQUEST FOR FUNDS

Finding

With reference to Grant no. 936-5542-G-00-5057-00 the Status of Funds/And Request For Funds is prepared according to the amounts of fund received from USAID.

Recommendation 8.5

In order to present fairly the financial position and to facilitate the evaluation of the Status of Funds/And Request For Funds, it is recommended that such report be prepared from the books of account which present the actual expenditure.

RESEARCH GRANT  
KASETSART UNIVERSITY  
GRANT NO. 936-5542  
UTILIZATION OF CASSAVA AND CASSAVA WASTE  
THROUGH FERMENTATION TECHNOLOGY

PREPARED FOR : REGIONAL INSPECTOR GENERAL/AUDIT/MANILA

PREPARED BY : ERNST & WHINNEY (BANGKOK)

RESEARCH GRANT  
UTILIZATION OF CASSAVA AND CASSAVA WASTE  
THROUGH FERMENTATION TECHNOLOGY

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\* These pages are not included, refer to summary report.

## 6. RESULT OF VERIFICATION OF DISBURSEMENTS

<u>Description</u>	<u>Total Budget</u>		<u>Fund received</u>	<u>Actual</u>	<u>Verification</u>	
	<u>US\$</u>	<u>Baht</u>	<u>to date</u>	<u>Spending</u>	<u>Baht</u>	<u>%</u>
			<u>Baht</u>	<u>Baht</u>		
SALARY	19,200	499,756	406,336	430,229	430,229	100
EQUIPMENT	70,000	1,665,224	1,665,189	1,665,189	1,651,044	99
MATERIAL AND SUPPLY	15,500	386,749	333,083	346,849	151,506	44
LOCAL TRANSPORTATION AND PER DIEM	3,500	85,169	53,818	33,818	33,818	100
INTERNATIONAL TRAVEL TO US.	4,000	92,000	62,490	62,490	62,490	100
MISC.	4,500	116,730	70,510	61,010	22,480	37
OVERHEAD	23,040	582,560	574,186	574,186	570,076	99
CONTINGENCY	4,260	57,666	48,584	37,000	-	-
TOTAL	144,000	3,485,854	3,214,196	3,210,771	2,921,643	91
	=====	=====	=====	=====	=====	===

Questioned  
Cost  
(Baht)

6.1 Overhead of Baht 186,000 paid on 24th July, 1984 to the Faculty of Science, Kasetsart University, for central research facility was not supported by adequate documentation (ie. official receipt of the Faculty) whereby only unofficial receipt with recipient signature is presented.

186,000

6.2 Recorded actual overheads spending Baht 384,076 for central research facility to the Faculty of Science, Kasetsart University, are still to be paid and are not supported by any documentation. As discussed with the Principal Investigator, such amounts are still kept at the Finance Section of the University and will be paid to the Faculty soon. Details are as follow :

<u>Period of Payment</u>	<u>Amount (Baht)</u>	
1.6.85-31.8.85	176,076	
1.12.86-28.2.87	<u>208,000</u>	
	384,076	384,076
	=====	

## 7. COMPLIANCE - TERMS OF GRANT AGREEMENT

Based on the samples selected there has been compliance with the terms of grant agreement. The exceptions which are questioned are as follow :

7.1 Disbursement of the following equipments were neither approved in the estimated project budget nor were there prior written approval from USAID :-

<u>Description</u>	<u>Amount (Baht)</u>	
Two cooler tanks	5,140	
Peristaltic pump	11,000	
Sugar pack column	29,000	
High Performance Liquid Chromatography (HPLC)	<u>945,723</u>	
	990,863	990,863
	=====	

As discussed with the Principal Investigator, such item were purchased instead of the following which are waived :-

<u>Description</u>	<u>Amount (US\$)</u>
Vacuum drying oven, to 200 c, 2 psi pressure stainless steel chamber of about 38x48x56 cm.	3,000
Refrigerated centrifuge (-10 to 25 c) maximum speed 6,000 rpm.	<u>22,000</u>
	25,000
	=====

- 7.2 The number of staff is over the estimated project budget to which there is no prior written approval from USAID :-

	<u>Budget</u>	<u>Actual</u>
Research Assistant	2	4

However, total payment of salary up to 28th February, 1987 as per "Status of Funds/And Request for Funds" does not exceed the budget.

- 7.3 No separate bank account is maintained for the project fund whereby funds transferred to the project are deposited in the bank current account of Kasetsart University and mixed with other fund.

Total Questioned Costs	- 1,560,939 =====
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- \* The amount of Baht 1,560,939 is equal to US dollars 60,036 at the exchange rate of 1US\$ = Baht 26.

#### 8. STUDY AND EVALUATION OF INTERNAL CONTROL

Findings and recommendations resulting from study and evaluation of internal control are categorised into two types as follow :

- (I) Shortcomings or lack of internal control which are fundamental :
- In protecting an entity's resources against waste, fraud and inefficiency.
  - In ensuring the accuracy and reliability of the entity's accounting/operating data.
  - In securing compliance with the terms of grant agreement.
- (II) Improvements in order to supplement the existing system of internal control.

8.1 SHORTCOMINGS OR LACK OF INTERNAL CONTROL

8.1.1 Administration of Grant Funds

Administration of grant funds are by the Principal Investigator except for the areas as set out in section 3.

In order to promote the efficiency and effectiveness of research undertaken by the Principal Investigator, (ie: to allow greater time to be devoted to research work) administration could be performed by Kasetsart University. Similarly, the University may be in a better position to administer due to its administrative staff complement who are technically competent in administration.

8.1.2 Separation of USAID Fund

Funds from USAID transferred to the project are deposited in the bank current account of Kasetsart University and mixed with other fund. This, however, is the general policy of the University.

In order to comply with the Standard Provision of grant agreement, USAID fund should be deposited in a separate bank account and be in the Project's name. Disbursements for goods and services are also made from this account.

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8.1.3 Reconciliation of cash balances

No reconciliation of cash balances in cash book as maintained by the Principal Investigator and the Finance Section of the University is made.

Such reconciliation should be made on a monthly basis and be initialled as evidence of checking.

8.2 IMPROVEMENTS

8.2.1 Payment - Cancellation

Authorised payment vouchers and related supporting documents are not stamped "PAID" or otherwise being cancelled upon payments.

Cancellation should be made immediately on authorised payment vouchers and related supporting documents after payments had been made in order to prevent resubmission.

8.2.2 Withholding Tax - Corporate Income Tax

Payments of goods to suppliers are made without withholding tax of 1 percent. Any payments made by the government unit to juristic body should be deducted withholding tax at the rate of 1 percent as per section 69 bis of the Revenue Code.

Failure to deduct withholding tax could render the project to be jointly liable for the tax shortfall and surcharge of 1.5 percent per month (maximum of 100 percent).

It is recommended that withholding tax be deducted when such payments are made to juristic body in order to preclude the consequence of the Revenue Code despite the fact at this point in time the amount involved is insignificant.

### 8.2.3 Insurance Cover

There is no insurance cover for assets purchased by USAID's fund.

Because value of fixed assets is significant, we recommend that insurance policy be made to cover valuable assets.

**Ernst & Whinney**

9. PRINCIPAL INVESTIGATOR'S RESPONSE TO THE REPORT

# Ernst & Whinney

8th June, 1987

Dr. Napha Lothong,  
Principal Investigator,  
Department of Microbiology,  
Faculty of Science,  
Kasetsart University,  
BANGKOK.

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*(formerly Turquand Youngs & Co.)*

Dear Sir/Madam,

KASETSART UNIVERSITY

GRANT NO. 936-5542

UTILIZATION OF CASSAVA AND CASSAVA WASTE THROUGH FERMENTATION TECHNOLOGY

Enclosed for your consideration please find a copy of our report (draft) in conjunction with the review of financial and internal control systems of the referenced subject.

Should you concur with the accuracy of the report kindly acknowledge in writing within two weeks from the date of this letter in order that the final report can be issued to USAID. Please feel free if you wish to provide us with any additional information/documents so as to ensure the accuracy and completeness of the report.

In addition to the foregoing please advise in writing as to the followings :

- (i) Set out in section 7.1 please state whether the said equipment are related to the research under the grant or not.
- (ii) Set out in section 7.2 please state whether the additional staff not addressed in the budget perform services related to the grant or not.

We would like to take this opportunity to express our appreciation to all members of the staff who have assisted us in carrying out our work.

Yours faithfully,



ERNST & WHINNEY  
RECEIVED

23 JUN 1987

ANSWERED \_\_\_\_\_

INITIAL \_\_\_\_\_



DEPARTMENT OF MICROBIOLOGY  
Faculty of Science  
Kasetsart University  
Bangkhen, Bangkok 10900  
Thailand Tel. 579-2351

19 June, 1987.

Ernst and Whinney  
Sinthon Building, 9<sup>th</sup> Floor  
132 Wiseless Roas  
Bangkok 10500, Thailand

Subject : Response to the draft report in reviewing of the project accounting system of Kasetsart University Grant No. 936-5542 "Utilization of cassava and cassava waste through fermentation Technology".

Dear Sir :

The following is my response to the report concerning the above grant. The response is given in two parts.

I. Response to the enquiries specified in the letter dated 8<sup>th</sup> June, 1987.

Section 7.1 :

- We ensure that all the said equipment is directly related to the grant as has been clearly indicated in the technical progress reports submitted to USAID.

- Purchase of the refrigerated centrifuge was waived because the equipment became available in the Department of Microbiology through another financial source between the time of proposal and the time the project was funded.

- The transferring of budget funds to purchase the HPLC left an insufficient amount for purchasing the vacuum oven. However the problem was solved by using an available lower capacity rotating evaporator.

Sect 7.2 : We ensure that the additional staff members perform only services that are related to the grant. The number of research assistants employed changes from time to time according to the stages of work. However the budget used has not exceeded that allocated.

II. Response to certain other comments that appeared in the report. For accuracy and completeness, we suggest that more information needs to be added as well as clarification of some statements made.

Sect. 2 (Initial discussion) : besides discussing with the principal investigator, the reviewers met with the chief of the financing division of Kasetsart University.

Sect. 4 (Audit) : The report of the internal audit on 7<sup>th</sup> April, 1986 did not mention or imply that the project lacked of control over fixed assets. In fact we did have a control book since the beginning of the project. As shown in the report, the auditor pointed that there was a delay in recording of one item (12,340 B). There were also items of glassware (a three piece funnel and a desicator) that the auditor misclaimed to be fixed assets. This however, has been made clear by our responding letter which has also been shown to Ernst and Whinney reviewers. Therefore for accuracy, we request that the clause "lack of control over fixed assets" be deleted and changed to "a delay in the recording of an item purchased (12,340 B)".

Sect 8.1.1 : We manage to prevent resubmission of such documents by using our filing system.

Sect 8.1.3 : Although there was no reconciliation of cash balances appeared in the cash book, we check the balances at the time of our quarterly financial preparation.

In ending of this letter, we thank very much for your kind recommendations. Some of them have proven to be very useful and some, I believe, will be effective if there is agreement by USAID and/or the University.

Sincerely

*Napha Lotong.*

(Mrs. Napha Lotong)  
Principal Investigator

CC : Mr. Robert F. Barnes  
Director  
Science and Technology Division  
Office of Technical Resources

Rector of Kasetsart University

Dean of Faculty of Science KU

Chairman of the Department of Microbiology KU

Appendix II

RESEARCH GRANT  
KASETSART UNIVERSITY  
GRANT NO. 936-5542-G-00-5057-00  
IN VITRO CONSERVATION AND GERMPLASM EXCHANGE  
OF BAMBOO

PREPARED FOR : REGIONAL INSPECTOR GENERAL/AUDIT/MANILA

PREPARED BY : ERNST & WHINNEY (BANGKOK)

KASETSART UNIVERSITY  
IN VITRO CONSERVATION AND GERMLASM EXCHANGE OF BAMBOO

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9. PRINCIPAL INVESTIGATOR'S RESPONSE TO THE REPORT	

\* These pages are not included, refer to summary report.

1/15

6. RESULT OF VERIFICATION OF DISBURSEMENTS

<u>Description</u>	<u>Total Budgeted</u>		<u>Fund received to date</u>	<u>Total Expenditures</u>		<u>Verification</u>	
	<u>US\$</u>	<u>Baht</u>		<u>Request For Fund</u>	<u>Per book of account</u>	<u>Baht</u>	<u>%</u>
			<u>Baht</u>	<u>Baht</u>	<u>Baht</u>		
Salary	22,800	615,600	416,150	416,150	451,457	282,645	62
Equipment/Material	57,000	1,539,000	1,374,000	1,374,000	1,369,510	1,227,454	89
Travel	27,000	729,000	401,250	401,250	183,643	160,150	40
Training/Consultation/ Travel	20,000	540,000	410,500	410,500	-	-	-
Laboratory Remodelling and Maintenance	11,000	297,000	248,000	248,400	163,040	160,250	64
Research Collaboration	4,200	113,400	76,050	76,050	-	-	-
Central Res. Facility	8,000	216,000	145,125	145,125	97,875	97,875	67
<b>Total</b>	<b>150,000</b>	<b>4,050,000</b>	<b>3,071,475</b>	<b>3,071,475</b>	<b>2,265,525</b>	<b>1,928,374</b>	<b>63</b>
	=====	=====	=====	=====	=====	=====	=====

Ernst & Whinney

2/1

Questioned Cost  
(Baht)

6.1 From our review of the Status of Funds/And Request For Funds as at 31st December, 1986 revealed that the reported expenditures do not agree with the books of account. The discrepancy is due to the fact that the Status of Funds/And Request For Funds is prepared according to the amounts of fund received from USAID. Details of the discrepancy are as follow :

<u>Description</u>	<u>Total Expenditures (Baht)</u>		
	<u>Per Status of Funds</u>	<u>Per Books of Account</u>	<u>Over (under) Books of Account</u>
Salary	416,150	451,457	(35,307)
Equipment			
Materials	1,374,000	1,369,510	4,490
Travel	401,250	183,643	217,607
Training/ Consultation/ Travel	410,500	-	410,500
Laboratory Remodelling and Maintenance	248,400	163,040	85,360
Research Collaboration	76,050	-	76,050
Central Res. Facility	145,125	97,875	47,250
Total	<u>3,071,475</u>	<u>2,265,525</u>	<u>805,950</u>

Such discrepancies of each line item, except the salary which was under reported, are questioned as to the adequacy of supporting documentation.

241,257

23

Questioned Cost  
(Baht)  

---

6.2 At the time of this exercise, cost of one Bio-cool & Options and Accessories for Freezing Programme of Baht 199,800 is supported by letter of credit from bank and proforma invoice from supplier and the equipment is still to be received and paid for.

7. COMPLIANCE - TERMS OF GRANT AGREEMENT

Based on the samples selected there has been compliance with the terms of grant agreement. The exceptions are as follow :

7.1 Purchase of furniture not in budget nor is there written approval from USAID. Details are as follow :

<u>PV No. / Date</u>	<u>Description</u>	<u>Amount (Baht)</u>	
34/28 17.10.85	1 unit of cabinet	16,500	
71/28 3.12.85	2 units of desk		
	1 unit of typewriter's desk		
	1 unit of telephone's desk		
	1 unit of cabinet	18,900	
72/28 3.12.85	13 units of chair	18,100	
73/28 3.12.85	2 units of desk		
	1 unit of desk in lab room		
	1 unit of cabinet	18,450	
74/28 3.12.85	3 units of cabinet	<u>15,600</u>	
		87,550	87,550
		=====	

Questioned Cost  
(Baht)

7.2 The following units of equipment purchased are over the budget in which there is no written approval from USAID :

<u>Description</u>	<u>Budget</u>	<u>Actual</u>	<u>Cost of over- budgeted items (Baht)</u>	
Air-conditioner  (30,000 BTU, each)	2	5  (12,540 BTU, each)	57,600	
Laminar flow station	1	2	<u>55,000</u> 112,600 =====	112,600

(NOTE : Total cost of air-conditioners purchased does not however exceed the budget.)

In addition, our review of expenditure after 31st December, 1986 revealed that disbursement for "Nikon camera and filter" of Baht 14,128 was not in the budget nor was there written approval from USAID.

Questioned Cost  
(Baht)

7.3 The number of staff exceeds the budget which there is no prior written approval from USAID as follow :

<u>Description</u>	<u>Budget</u>		<u>Actual</u>		
	<u>Number of staff</u>	<u>Amount (Baht)</u>	<u>Number of staff</u>	<u>Amount (Baht)</u>	
Research					
Assistant	1	97,200	2	39,768	-
Technician	2	145,800	3	110,042	-
Other	-	-	4	91,481	91,481

7.4 Some expenditures are not recorded in the correct line items and should therefore be reclassified in order to form a proper basis for the computation of 15 percent allowable variance. Details are as follow :

7.4.1 Payments for installation cost of Baht 23,000 were included as "Equipment/ Materials" could be questioned as to whether it should be classified as "Laboratory Remodelling and Maintenance" instead. Details are as follow :

<u>PV No.</u>	<u>Date</u>	<u>Description</u>	<u>Amount (Baht)</u>
61/28	20.11.85	Laboratory improvement	12,000
62/28	20.11.85	Repair and repaint existing cabinets	<u>11,000</u>
			23,000
			=====

Questioned Cost  
(Baht)

7.4.2 Payments for travelling expenses of Baht 13,660 were included as "Equipment/Materials" could be questioned as to whether it should be classified as "Travel" instead. Details are as follow :

<u>PV No.</u>	<u>Date</u>	<u>Description</u>	<u>Amount (Baht)</u>
1/28	30.8.85	Fuel	1,740
		Travel expense for Dr. Paiboolya	11,720
67/28	3.12.85	Fuel	<u>200</u>
			13,660 *****

7.5 No separate bank account is maintained for the project fund whereby funds from USAID are transferred to the project and are deposited in the bank current account of Kasetsart University and mixed with other fund.

Total Questioned Costs \*  
1,132,888  
\*\*\*\*\*

\* The amount of Baht 1,132,888 is equal to US dollars 43,573 at the exchange rate of 1US\$ = Baht 26.

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## 8. STUDY AND EVALUATION OF INTERNAL CONTROL

Findings and recommendations resulting from study and evaluation of internal control are categorised into two types as follow :

- (i) Shortcomings or lack of internal control which are fundamental :
  - in protecting an entity's resources against waste, fraud and inefficiency
  - in ensuring the accuracy and reliability of the entity's accounting/operating data
  - in securing compliance with the terms of grant agreement.
- (ii) Improvements in order to supplement the existing system of internal control.

### 8.1 SHORTCOMINGS OR LACK OF INTERNAL CONTROL

#### 8.1.1 Administration of Grant Funds

Administration of grant funds are by the Principal Investigator except for the areas as set out in section 3.

In order to promote the efficiency and effectiveness of research undertaken by the Principal Investigator, (i.e. to allow greater time to be devoted to research work) administration could be performed by Kasetsart University. Similarly, the University may be in a better position to administer due to its administrative staff complement who are technically competent in administration.

#### 8.1.2 Separation of USAID Fund

Funds from USAID transferred to the project are deposited in the bank current account of Kasetsart University and mixed with other fund. This, however, is the general policy of the University.

In order to comply with the Standard Provision of grant agreement, USAID fund should be deposited in a separate bank account and be in the Project's name. Disbursements for goods and services are also made from this account.

#### 8.1.3 Disbursement - Terms of Grant Agreement

Ancillary to 7.1 to 7.4 is that disbursements are neither in accordance with the budget nor are there prior written approval from USAID.

It is recommended that disbursements not in accordance with the budget be made against prior written approval from USAID.

#### 8.1.4 Preparation of Status of Funds/And Request For Funds

With reference to 6.1 is that the Status of Funds/And Request For Funds is prepared according to the amounts of fund received from USAID.

In order to present fairly the financial position and to facilitate the evaluation of the Status of Funds/And Request For Funds, it is recommended that such report be prepared from the books of account which present the actual expenditure.

## 8.2 IMPROVEMENTS

### 8.2.1 Insurance Cover

There is no insurance cover for assets purchased by USAID's fund.

Because value of fixed assets is significant, we recommend that insurance policy be made to cover valuable assets.

### 8.2.2 Payment - Cancellation

Documents supporting payments except for payment vouchers and receipts are not cancelled or otherwise stamped "PAID" after payments are made.

Cancellation should be made not only on payment vouchers and receipts but also on all supporting documents immediately after payments had been made in order to prevent resubmission.

### 8.2.3 Official Receipt

Certain official receipts obtained are made out not in the name of project but under the name of "ศูนย์ฝึกอบรมวิศวกรรมอาชีวศึกษา ปทุมธานี".

It is recommended that official project's name be used in order to substantiate that payments are by the project and thus leaving no room for doubt and confusion.

8.2.4 Withholding Tax - Corporate Income Tax

Payments of goods and services to suppliers are made without withholding tax of 1 percent. Any payments made by the government unit to juristic body should be deducted withholding tax at the rate of 1 percent as per section 69 bis of the Revenue Code.

Failure to deduct withholding tax could render the project to be jointly liable for the tax shortfall and surcharge of 1.5 percent per month (maximum of 100 percent).

It is recommended that 1 percent withholding tax be deducted when any payments are made to juristic body in order to preclude the consequence of the Revenue Code despite the fact at this point in time the amount involved is insignificant.

**Ernst & Whinney**

**9. PRINCIPAL INVESTIGATOR'S RESPONSE TO THE REPORT**

31

Ernst & Whinney

G.P.O. Box 1047  
Sinthon Building, 9th Floor,  
132 Wireless Road, Bangkok 10500, Thailand.

Telephone: 2500233-7  
Cable: ERNSTAUDIT BANGKOK  
Telex: 87661 ERNST TH  
FAX: (36) 2-2501479

*(formerly Turquand Youngs & Co.)*

9th June, 1987

Assistant Professor Pranom Prutpongse,  
Co-Investigator,  
Department of Horticulture,  
Faculty of Agriculture,  
Kasetsart University,  
BANGKOK.

Dear Sir,

KASETSART UNIVERSITY

GRANT NO. 936-5542-G-00-5057-00

IN VITRO CONSERVATION AND GERMLASM EXCHANGE OF BAMBOO

Enclosed for your consideration please find a copy of our report (draft) in conjunction with the review of financial and internal control systems of the referenced subject.

Should you concur with the accuracy of the report kindly acknowledge in writing within two weeks from the date of this letter in order that the final report can be issued to USAID. Please feel free if you wish to provide us with any additional information/documents so as to ensure the accuracy and completeness of the report.

In addition to the foregoing, please advise in writing as to the following :

- (1) Set out in 6.2 please state whether the said equipment had been received or not and the cost of the equipment.

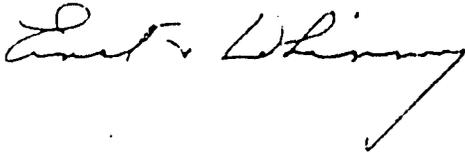
Ernst & Whirney

- 2 -

- (ii) Set out in 7.1 and 7.2 please state whether the purchases for furniture and equipment are related to the research under this grant.
- (iii) Set out in 7.3 please state whether or not the staff not addressed in the budget perform services related to the research under this grant.

We would like to take this opportunity to express our appreciation to all members of the staff who have assisted us in carrying out our work.

Yours faithfully,

A handwritten signature in cursive script, appearing to read "Ernst & Whirney", with a long, sweeping underline that extends to the right.



KASETSART UNIVERSITY  
Faculty of Agriculture  
Bangkok 9, Thailand

ERNST & WHINNEY RECEIVED 30 JUL 1987 ANSWERED _____ INITIAL _____
---

July 16, 1987.

Ernst & Whinney (Bangkok)  
G.P.O. Box 1047  
Sinthon Building, 9th Floor,  
132 Wireless Road, Bangkok 10500, Thailand.

Re : Report of Auditing  
Grant No. 936-5542-G-00-5057-00

Dear Sir;

Thank you for your draft report of 9th June, 1987, auditing for research Grant No. 936-5542-G-00-5057-00 Entitle, "In Vitro Conservation and Germplasm Exchange of Bamboo". In response to your report, I would like to make clarify for the following items.

(1) Research collaboration, and Training/consultation, of which money has been left unuse, due to the unfavorable political situation in Sri Lanka, we therefore delay to implement the collaboration effort.

(2) Referring to the item 6.2, Some equipment is quite delayed, Due to the unexpected problem from the original agency. However, the complete set of equipment will be already in hand at the beginning of August, 1987.

7.1 Concerning the furniture. As a matter of fact, those have been considered, for laboratory remodelling catagories the first phase. They are essential for research work. Supportive items are as importance as experimental equipments which will be combined into a good unit of research laboratory. I would like to request you to consider the mentioned items as necessary items for laboratory.

7.2 The over budget equipment purchased. Actually it is not over in financial, it is necessary for our laboratory planing to seperate the proper various areas therefore the over units of air conditioner are needed. In addition of the mentioned disbursement of Nikon camera and filter. I would like to explain that it is necessary to have data recording and photograph for the report. So that camera and filter are needed for the mentioned purpose.

7.3 The number of staff exceeds the budget. This is due to the short duration of raw material available, therefore more staff are arranged to collect the raw material from various rural areas in order to do tissue culture propagation.

7.4 Payments for installation cost.

I would like to apologize for our misunderstanding for accounting and controlling system. I will try to do my best.

Thank you very much for your kind audit and cooperation.

Sincerely your,

*Pranom*

(Assistant Prof. Pranom Prutpongse)  
Co-investigator.

CC : Dr. Paiboolya Gavinlertvatana

**Ernst & Whinney**

Appendix III

RESEARCH GRANT  
KASETSART UNIVERSITY  
GRANT NO. 936-5542-G-00-5080-00  
HYBRIDIZATION OF HALOTOLERANT YEAST FOR  
THE PRODUCTION OF ALCOHOL FUELS

PREPARED FOR : REGIONAL INSPECTOR GENERAL/AUDIT/MANILA

PREPARED BY : ERNST & WHINNEY (BANGKOK)

KASETSART UNIVERSITY  
HYBRIDIZATION OF HALOTOLERANT YEAST  
FOR THE PRODUCTION OF ALCOHOL FUELS

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\* These pages are not included, refer to summary report.

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## 6. RESULT OF VERIFICATION OF DISBURSEMENTS

<u>Description</u>	<u>Total Budget</u>		<u>Fund received</u>	<u>Actual</u>	<u>Verification</u>	
	<u>US\$</u>	<u>Baht</u>	<u>to date</u>	<u>Spending</u>	<u>Baht</u>	<u>%</u>
			<u>Baht</u>	<u>Baht</u>	<u>Baht</u>	
SALARY	15,000	405,000	162,369	160,538	153,265	95
EQUIPMENT	32,100	866,700	866,700	869,501	869,501	100
MATERIAL AND SUPPLY	21,000	567,000	174,654	163,116	100,694	61
TRAVEL AND TRANSPORTATION						
LOCAL	1,200	32,400	26,200	18,920	11,290	60
MISC.	1,600	43,200	2,700	1,517	-	-
TRAINING IN THE U.S.	22,500	607,500	-	-	-	-
CENTRAL RESEARCH FACILITY COST	14,000	378,000	54,180	45,710	28,730	63
TRAVEL OF 2 U.S. EXPERTS	10,000	270,000	-	-	-	-
RESEARCH COLLABO- RATION AND CONSULTATION	32,600	880,200	-	-	-	-
TOTAL	150,000	4,050,000	1,286,803	1,259,302	1,163,480	92
	=====	=====	=====	=====	=====	===

Questioned  
Cost  
(Baht)

- 6.1 Cost of "DNA/RNA Electrophoresis Equipment" of Baht 72,000 is still to be received or paid for. Only purchase contract with supplier is available.
- 6.2 Travelling expenses of Baht 626 were not supported by external documentation (ie. bus tickets) whereby only payment voucher with recipient signature of the project staff is presented. Detail is as follow :-

<u>PV. No./Date</u>	<u>Description</u>	<u>Amount (Baht)</u>	
15/27.1.86	Cost of air-bus fare for Khun Pramote Bangkok-Chiangmai- Bangkok	500	
	Chiangmai-Chiangrai- Chiangmai	<u>126</u>	
		626	626
		*****	

6.3 Over Reporting of Expenditure

Payment of Baht 1,400 made to project staff for collecting of sampling yeast (ref. PV # 47 dated 1.9.86) was reported in both "Salary" and "Material and Supply". The amount should be excluded from "Salary".

1,400

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7. COMPLIANCE - TERMS OF GRANT AGREEMENT

Based on the samples selected there has been compliance with the terms of grant agreement. The exceptions are as follow :-

7.1 Disbursement for "DNA/RNA Electrophoresis Equipment" of Baht 72,000 as recorded in the "Status of Funds/and Request for Funds" was neither approved in the budget nor was there written approval from USAID. 72,000

7.2 No separate bank account is maintained for the project fund whereby funds from USAID are transferred to the project and are deposited in the bank current account of Kasetsart University and mixed with other fund.

-  
\*  
Total Questioned Costs 74,026  
=====

\* The amount of Baht 74,026 is equal to US dollars 2,847 at the exchange rate of 1US\$ = Baht 26.

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## 8. STUDY AND EVALUATION OF INTERNAL CONTROL

Findings and recommendations resulting from study and evaluation of internal control are categorised into two types as follow :

### (i) Shortcomings or lack of internal control which are fundamental :

- in protecting an entity's resources against waste, fraud and inefficiency.
- in ensuring the accuracy and reliability of the entity's accounting/operating data.
- in securing compliance with the terms of grant agreement.

### (ii) Improvements in order to supplement the existing system of internal control.

## 8.1 SHORTCOMINGS OR LACK OF INTERNAL CONTROL

### 8.1.1 Administration of Grant Funds

Administration of grant funds are by the Principal Investigator except for the areas as set out in section 3.

In order to promote the efficiency and effectiveness of research undertaken by the Principal Investigator, (ie: to allow greater time to be devoted to research work) administration could be performed by Kasetsart University. Similarly, the University may be in a better position to administer due to its administrative staff complement who are technically competent in administration.

8.1.2 Separation of USAID Fund

Funds from USAID transferred to the project are deposited in the bank current account of Kasetsart University and mixed with other fund. This, however, is the general policy of the University.

In order to comply with the Standard Provision of grant agreement, USAID fund should be deposited in a separate bank account and be in the Project's name. Disbursements for goods and services are also made from this account.

8.1.3 Reconciliation of cash balances

No reconciliation of cash balances in cash book of the Project and the Finance Section of the University is made.

Such reconciliation should be made on a monthly basis and be initialled as evidence of checking.

8.1.4 Disbursement - Term of Grant Agreement

Ancillary to 7.1 is that disbursement is neither in accordance with the budget nor is there prior written approval from USAID.

It is recommended that disbursement not in accordance with the budget should be made against prior approval from USAID.

## 8.2 IMPROVEMENTS

### 8.2.1 Payment - Cancellation

Authorised payment vouchers and related supporting documents are not stamped "PAID" or otherwise being cancelled upon payments.

Cancellation should be made immediately on authorised payment vouchers and related supporting documents after payments had been made in order to prevent resubmission.

### 8.2.2 Cash Book Format

Referring to 6.3, whereby payment was recorded to both "Salary" and "Material and Supply" it is recommended that a multi-column cash book be adopted. In this respect a column for each line item be adopted in order to ensure the correctness of allocation of expenditures.

### 8.2.3 Withholding Tax - Personal Income Tax

Payments of salary and per diem allowance exceeding the rate authorised by the Revenue Authority to project person are not subjected to withholding tax.

Failure to deduct withholding tax could render the project to be jointly liable for the tax shortfall and surcharge of 1.5 percent per month (maximum of 100 percent).

It is recommended that withholding tax be deducted when such payments are made to staff in order to preclude the consequences of the Revenue Code despite the fact at this point in time the amount involved is insignificant.

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8.2.4 Withholding Tax - Corporate Income Tax

Payments of goods to suppliers are made without withholding tax of 1 percent. Any payments made by the government unit to juristic body should be deducted withholding tax at the rate of 1 percent as per section 69 bis of the Revenue Code.

Failure to deduct withholding tax could render the Project to be jointly liable for the tax shortfall and surcharge of 1.5 percent per month (maximum of 100 percent).

It is recommended that 1 percent withholding tax be deducted when any payments are made to juristic body in order to preclude the consequence of the Revenue Code despite the fact at this point in time the amount involved is insignificant.

8.2.5 Insurance Cover

There is no insurance cover for assets purchased by USAID's fund.

Because value of fixed assets is significant we recommend that insurance policy be made to cover valuable assets.

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9. PRINCIPAL INVESTIGATOR'S RESPONSE TO THE REPORT

Ernst & Whinney

2nd June, 1987

Ms. Savitree Limtong,  
Principal Investigator,  
Department of Microbiology,  
Faculty of Science,  
Kasetsart University,  
BANGKOK.

G.P.O. Box 1047  
Sinthon Building, 9th Floor,  
132 Wireless Road, Bangkok 10500, Thailand.

Telephone: 2500233 7  
Cable: ERNSTAUDIT BANGKOK  
Telex: 87661 ERNST TH  
FAX: (66) 2-2501479

*(formerly Turquand Youngs & Co.)*

Dear Sir/Madam,

KASETSART UNIVERSITY

GRANT NO. 936-5542-G-00-5080-00

HYBRIDIZATION OF HALOTOLERANT YEAST FOR THE PRODUCTION OF ALCOHOL FUELS

Enclosed for your consideration please find a copy of our report (draft) in conjunction with the review of financial and internal control systems of the referenced subject.

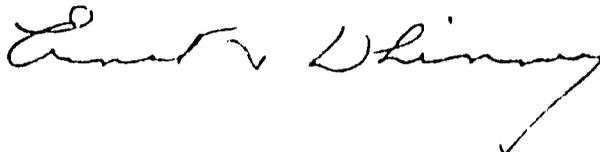
Should you concur with the accuracy of the report kindly acknowledge in writing within two weeks from the date of this letter in order that the final report can be issued to USAID. Please feel free if you wish to provide us with any additional information/documents so as to ensure the accuracy and completeness of the report.

In addition to the foregoing please advise in writing as to whether the equipment as set out in section 7.1 of this report :

- (i) are related to the research under this grant.
- (ii) had been received.
- (iii) payments had been made at the stated price of Baht 72,000.

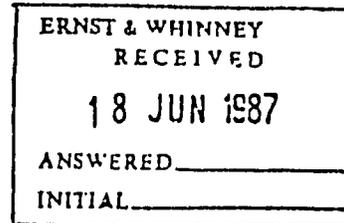
We would like to take this opportunity to express our appreciation to all members of the staff who have assisted us in carrying out our work.

Yours faithfully,



CA/kte

51



June 16, 1987

Maneger,  
Ernst & Whinney  
G.P.O. Box 1047,  
Sinthon Building 9 th Floor,  
132 Wireless Road,  
Bangkok 10500.

DEPARTMENT OF MICROBIOLOGY  
Faculty of Science  
Kasetsart University  
Bangkhen, Bangkok 10900  
Thailand Tel. 579-2351

Ref : Kasetsart University  
Grant No. 936-5542-G-00-5080-00  
Hybridization of Halotolerant Yeast for the Production  
of Alcohol Fuels.

Dear Sir :

Thank you very much for allowing me to see your draft report. In responding to your financial audit report, I would like to make some comments as follows:

Page 3: No. 4 Lack of audit

Internal audit was actually carried out by Kasetsart University (KU) for many research projects. In our case, at first we were called by Office of the Auditor General from the Office of the Prime Minister to audit our project but since no payment was made at that time so only few questions were asked. Last year internal audit was carried out by KU auditor, however since KU has only one auditor our project was not randomly selected among those. Probably our project will be audited later this year. Please be informed that KU is very strict on the project administration and under such condition we have to follow all the rules and regulations of the university. Whether we were audited or not, we are aware of the strict financial control imposed by the university, If possible please acknowledge this fact in your report so that USAID could understand our position that we are in the international financial management system. I feel that your report did not adequately reflect to our status in this matter so it appears that such system does not exist at KU.

3

**Page 6: No.6.1 Procurement of DNA/RNA Electrophoresis equipment**

The purchase order was issued by the university and in accordance with the RTG financial regulation, payment will be made only after the equipment is received and inspected by the committee and we were informed that the equipment will be delivered before July 8, 1987. At this stage our financial report stands for expense on actual basis.

**Page 6: No. 6.2 Travelling Expense of Baht 626**

The amount of Baht 500 for round trip ticket to Chiangmai and another Baht 126 for round trip from Chiangmai and Chiengrai. Please be informed that the bus tickets are not required by the RTG regulation for travel. The document on this matter is enclosed for your information. I am sorry that we did not clarify at that time because I assume that you are aware of this practice. Please observe that the amount paid was rather small probably comparable to taxi fare for round trip journey in Bangkok and vicinities. Since our financial record is following the RTG regulation, the expense on this category should be eligible and if not we will return the money after receiving the advise from USAID to do so.

**Page 7: No. 6.3 Over Reporting of Expenditure**

We accepted that the Baht 1,400 was incorrectly recorded by mistake in both salary and material. This amount was already excluded from the salary item. We appreciate to your recommendation and your help in finding this error.

**Page 7: No. 7.1 Lack of Approval for Procurement of Equipment**

DNA/RNA Electroforesis Baht 72,000 was procured upon recommendation of Dr. Gerald R. Fink, our project consultant. Dr. Fink's letter was enclosed for your information. I hope that our supported document was considered as part of the proposal. Please kindly contact USAID mission if more document is required since we made our contact with our consultant through the mission.

**Page 7: No. 7.2 No Separate Bank Account**

In practice, as a principal investigator, the cash advance received from USAID was deposited as a separate account at the Office of Finance of KU. Without basic knowledge in

financial administration it is impossible for me to give any advice to the Office of Finance on this matter. I have spend most of my time to work in the laboratory in order to keep up with the research plan. I feel that this responsibility is not pertain to my field of experience, so once the money was deposited correctly to the university it should be ended. If you want to pursue on this matter please contact directly to the university. I am sorry that I am not authorized to clarify on this matter.

Page 8: No. 8.1.1 Administration of Grant Funds

Administration of the grant was proceeded to authorities concerned for the approval of all expenses in all categories as partly included in your report. Your statement that administration of grant funds are done by the PI is rather exaggerated. In fact the check issued from USAID is by the name of KU and refer to my account only. My role is only keeping the files and receipts and report the financial status to USAID. Apart from that it is controlled by KU. I want to insist that KU is supervising for the grant administration not me.

Page 9: No: 8.1.2 Separation of USAID Fund

The same response as in No. 7.2

Page 9. No. 8.1.3 Reconciliation of Cash Balance

We will follow to your recommendation.

Page 9: No. 8.1.4 Approval Requirement

We are confident that no additional approval is required as supported by our document. If this is not acceptable to you we will follow the instruction from USAID on this matter.

Page 10. No. 8.2.1 & 8.2.2 Improvements

We appreciate to your recommendation for improving the financial procedure as we will follow them accordingly.

Page 10: No. 8.2.3 & 8.2.4 Withholding Tax

The subject of withholding tax is rather complicated and not

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clear to us since no instruction was given by USAID on this matter. In Standard Provision attached to the grant, it is not liable to pay tax from the grant fund. Withholding tax may lead to the conclusion that the expenses incurred is including the identifiable tax. We will follow your recommendation only after receiving advise from USAID on this matter. Also, we wonder if per diem and allowance was subjected to withholding tax since this is not a common practice in KU.

Page 11: No. 8.2.5 Insurance Cover

So far the university has no policy on this matter, if we want to do so, then from what item of budget that can be use to cover the expense? Do we have to seek approval from USAID? Again we will follow to your recommendation provided that USAID give instruction to us. Actually KU has security guards for 24 hours, so I beleive that minimum security measure has been implemented and if this is not sufficient USAID should advise us later on.

I hope that my responding to your report is sufficient and thank you for your consideration. If there is any further clarification needed please let me know and I will cooperate with you.

Your Sincerely,

*Savitree Limtong*

(Dr. Savitree Limtong)  
Principal investigator

cc;  
Ms. Poonoilai Suwanrit, Head, Department of Microbiology.  
Dr. Sookapracha Vachananda, Dean, Faculty of Science.  
Dr. Sutharm Areekul, Rector, Kasetsart University.  
Mr. Robert F. Barnes, Director, S&T Division, USAID.

St. Martin's AID  
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1000/1000-1000-1000

AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON DC 20523  
29 May 1985

MEMORANDUM

TO: USAID/Bangkok/Thailand, Dr. E. Briskey  
FROM: AID/W/SCI, Miloslav Rechcigl, Jr., Ph.D. *ell*  
SUBJECT: AID/SCI Proposal 5.238, "Hybridization of Halotolerant Yeast for Alcohol"

We have finally obtained a technical response from Dr. Gerald R. Fink regarding Ms. Limtong's proposal. You will note from the attached copy that Dr. Fink made several specific modifications regarding the workplan.

Would you please inform Dr. Limtong about this and cable us her concurrence if she agrees with the recommendations.

We have included the referenced project in our action memo on the assumption that she will accept Dr. Fink's modifications of the workplan.

A prompt response would be greatly appreciated.

With personal regards.

Attachment:  
Letter from Fink to Rechcigl dated 13 May 1985

# WHITEHEAD INSTITUTE

May 13, 1985

M. Rechcigl, Jr., Ph.D.  
Review Coordinator  
Office of the Science Advisor  
Agency for International Development  
SA16, Room 311  
Washington, DC 20522

Dear Dr. Rechcigl:

Enclosed are suggested revisions to the experiments proposed by Ms. Limtong RE: AID/SCI proposal 5.238, "Hybridization of Halotolerant Yeast for Alcohol." Dr. James Hicks of Cold Spring Harbor and I have conferred over the telephone and agreed upon these amendments.

## REVISION OF 5.23B

The proposal to obtain high ethanol producing halotolerant hybrids (fusants) of yeast is both practically and theoretically important. The major scientific criticism of the proposal focuses on the hybridization experiment between the halotolerant yeast S. rouxii and industrial high ethanol producing strains of S. cerevisiae. We feel that these criticisms are reasonable but could be overcome by a more thorough investigation of the parameters affecting fusion between S. rouxii and S. cerevisiae.

The formal design of the experiments is to make a new organism with the desirable fermentation characteristics of two different yeast species. The success of the experiments described in the proposal depend critically upon the ability of the experimentalists to select for the rare organism resulting from the fusion in a background of the input parental organisms. Since the fusion is likely to be extremely rare (we suspect less than  $10^{-7}$ ), the selection for the fusant needs to be sufficiently stringent so that no parental organisms can grow on the petri plates at anywhere near this frequency. Second, the parental strains need appropriate genetic markers so that any putative fusants can be distinguished from the parents and can be shown easily to be the consequence of fusion (and not contamination).

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Dr. M. Rechcigl, Jr., Ph.D.  
May 13, 1985

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Ms. Limthong proposes to use respiratory deficient Saccharomyces rouxii (can't grow on glycerol) and auxotrophic high alcohol producers (can't grow on minimal medium) and select for fusants that can grow on glycerol containing minimal medium. The experiment might work as described but the odds are against it. Even if it were possible to obtain respiratory deficient S. rouxii (the difficulty of obtaining such mutants in these wild isolates is unknown) the auxotrophs in the other alcohol production parent may revert at frequencies that are too high. In other words, the absence of good genetic markers to prevent the growth of parental strains will obscure the rare fusants.

The second problem with the approach is that even if a fusant appeared on the plate, it could not be distinguished from contaminants or revertants of either of the parental strains. Ms. Limthong hopes the fusant will be halotolerant and a high ethanol producer. However, this hope presupposes that these traits are dominant and will be expressed in the fusant. Since nothing is known about the genetic control of ethanol production and halotolerance in yeast, this assumption is untested. Should these traits be recessive or not expressed in the fusant, it will be impossible to distinguish the fusant from a contaminant or either of the input parental strains.

We suggest that the investigators first study the fusion between genetically defined laboratory strains of S. cerevisiae and halotolerant S. rouxii in order to have better control over the fusion process. It is possible to start with S. cerevisiae strains that have non-revertible auxotrophies (deletions) and dominant markers. These strains can be provided by Dr. Hicks and me. This set of experiments would permit assessment of all the parameters influencing fusion. Use of the laboratory S. cerevisiae would eliminate any revertants of that parental strain and provide an unambiguous assessment of the frequency of fusion. Fusants could be distinguished because of the dominant marker from the laboratory S. cerevisiae (i.e. trifluoroleucine resistance or cycloheximide resistance. What about the other parent? If petites can not be obtained in S. rouxii, then one of the positive selections for auxotrophy should be tried. Selection for growth on alpha amino adipate will give lys2 auxotrophs and selection for fluoroorotic acid resistance will give ura3 requiring mutants. Both American collaborators could help in this phase of the work.

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May 13, 1985

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Once a fusant is obtained the inheritance of halotolerance can be assessed more easily because the laboratory strain parent is haploid and genetically and physiologically defined. If halotolerance is not dominant then the methods for producing a halotolerant fusant must be altered and new strategies will need to be developed. At the very least this new design will permit all of the factors involved to be assessed without the objections that arise from using two strains with unknown genetic background.

Ultimately, the investigators will need DNA hybridization probes to obtain unambiguous proof of the presence of the two genomes in the fusant. These can easily be obtained by collaboration with the American consultants.

In addition, I believe that both Dr. Hicks and I should visit this laboratory only after the experiments are well underway so that there is adequate experimental data to evaluate and scientific strategy to be discussed. Furthermore, in addition to the provision that scientists from Thailand spend some time in U.S. laboratories we suggest that at least Ms. Limtong take the Cold Spring Harbor Yeast Molecular Biology Course (3 weeks). This course would put her in touch with additional technologies that would help in the solution of the problems she is attacking.

In our opinion the budget is realistic and the work will require at least \$128,000 to ensure progress. The \$30,000 for molasses fermentation seems uncalled for since the organism required for the fermentation of the molasses is not likely to be available until late in the project period. For this reason I would cut the fermentation budget in half and move these funds to equipment and travel. The amount of money allotted for travel for the training of Indonesian scientists in the U.S. is too small. Training for 1 person in the U.S., without travel, should cost \$25,000 a year at a minimum (to cover salary and supplies during the stay). I can not tell whether there is sufficient travel money provided for our travel to Indonesia because I am unfamiliar with the costs involved. After the stay in the U.S., the principal investigator will need state of the art equipment for DNA analysis (agarose electrophoresis etc.). The transfer of funds from fermentation to travel and equipment would make the budget more consistent with the experiments planned.

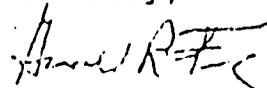
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Dr. M. Rechcigl, Jr., Ph.D.  
May 13, 1985

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We believe that these alterations greatly improve the feasibility of the experiments and provide important areas of collaboration that will help to foster the success of the project.

Sincerely,



Gerald R. Fink  
American Cancer Society  
Professor of Genetics

GRF:rgb

cc: Dr. J. Hicks

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