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TO - AID/WASHINGTON TOAID A-1040

PTS

PD-AAC-046-B1

DATE SENT 9/6/68

FROM - TUNIS

SUBJECT - NON CAPITAL PROJECT PAPER (PROP) - LYSINE FORTIFICATION STUDY

REFERENCE -

A. IDENTIFYING DATA

Country : World-Wide Research (Tunisia) Project No. 664-11-560-255.2

Submission date : September 4, 1968 Original

Project Title : Lysine Fortification Study

U.S. Obligation Span : FY1969 through 1971

Physical Implementation Span : FY1969 through 1972

Gross life-of-project financial requirements :

US. dollars :	$535,000
US. owned local currency :	$232,000 (dollar equivalent)
Total	$767,000

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DRAFTED BY	OFFICE	PHONE NO.	DATE	APPROVED BY:
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B. SUMMARY DESCRIPTION

Fortification of wheat products with the amino acid lysine is considered today to be a major method of raising the protein quality of food staples. The nutritional benefits of amino acid fortification have been well documented in the laboratory and with small numbers of individual human beings. However, there has not yet been conducted a large scale test or demonstration under controlled but real life conditions which will show in conclusive fashion the validity of previous findings. Tunisia is considered an ideal country for undertaking such a "real life" demonstration.

The primary goal of the project is, therefore, to conduct a rigorously planned and controlled test with a sufficiently large number of people to demonstrate conclusively the extent of nutritional benefits which can be derived from lysine fortification in real life conditions.

A second goal of the project is to improve the nutritional quality of the Tunisian diet by having all commercially milled wheat which is designed for human consumption fortified with lysine and with vitamins and minerals.

A third goal of the project is to develop in Tunisia a capacity to manufacture lysine locally.

The fourth and final goal is to organize the proposed research in such fashion that it will contribute to the formation and development of a Tunisian National Food and Nutrition Institute.

The exploratory and initial project design work has already been done. In May, 1967 a high level team visited Tunisia and secured the interest of the GOT in undertaking the project. Following this, a mission staff nutrition advisor was recruited and entered on duty in April, 1968. He prepared the way for a project design team which came to Tunisia in June, 1968 and prepared a report submitted to AID/W on July 8, 1968. The present project proposal is based on that report and much of the material in the following sections of this PROP is taken directly from it. The report (and consequently this PROP) provides for a contract with a US. university under which fortification and testing will be carried out in three political-geographical sub-divisions of the province of Gabes, representing a total population of approximately 75,000 people. In the first sub-division, all wheat products entering the area will be fortified with vitamins, minerals and lysine; the second sub-division's wheat products will be fortified only with vitamins and minerals; the third sub-division will receive its wheat products unfortified.

Within each of the three sub-divisions, three villages ('Cheikats') will be selected, thus permitting the establishment of 3 sets of villages, each containing one control group, one receiving full fortification, and one vitamin and mineral fortification only. The nine villages will have a total population of from 25,000 to 30,000. From them a stratified sample of 2,100 children in the 1 to 5 age group will be selected for testing and the households from which they come carefully followed. In addition, gross measurements of change in over-all morbidity and mortality, productivity, etc. will be taken and analysed for each of the 3 sub-divisions of the province.

It is also proposed that a PASA be concluded with the USPHS to control and monitor the research design, the carrying out of the field investigations, and the analysis of the findings.

The University contract should also provide for assistance to the GOT in carrying out the mixing, blending and control operations at the mill, plus related laboratory work; and for conducting a feasibility study on the local manufacture of lysine.

Given the world-wide interest in the research findings of this project, the high level team which initially proposed the activity to the GOT, assured the latter that all costs would be born by the U.S. Thus, no cooperating country contribution is shown and it is proposed to fund dinar requirements on a grant basis from 104 (h) availabilities.

Univ. Ctr
a) Contract Nutr
b) Contr No Factor
c) Do Feasibility on (Local) Factory/Industry

USPHS PASA
Control & Monitor: a) Research design
b) Field Investig.
c) Analysis of findings

Peace Corps

TABLE I

NON CAPITAL PROJECT FUNDING (OBLIGATIONS IN $000)

Project Title: Lysine Fortification Study

not incl. L/C US-owned 232 Thous ([illegible])

Fiscal Years	Ap	L/G	Total Cont.	Personnel Serv.			Participants		Commodities		Other Costs	
				AID	PASA	CONT.	U.S.	CONT.	U.S.	CONT.	U.S.	CONT.
Prior through FY 1968	TC/DG	G	-	-	-	-	-	-	-	-	-	-
Oper FY 1969	TC/DG	G	186	-	4	57	-	-	-	75	-	50
Budget FY 1970	TC/DG	G	166	-	4	79	-	-	-	17	-	66
B / 1 FY 1971	TC/DG	G	183	-	4	84	-	-	-	17	-	78
All Subs.	-	-	-	-	-	-	-	-	-	-	-	-
Total Life			535	-	12	220	-	-	-	109	-	194

Note: FY 1969 and FY 1970 obligation requirements based on 12 months of services each; FY 1971 obligation requirements based on terminal 14 months of services.

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TABLE I — Exchg rate $1 = TD 0.525 — (All figures in thousands of dollar equivalents)

Fiscal Years	Currencies: U.S. Owned	Currencies: Country Owned	Cash Contribution: Cooperating Country	Cash Contribution: Loan-	Other Donors Funds: Peace Corps
Prior through Act. FY1968	-	-	-	-	-
Oper FY1969	84	-	-	-	5
Budget FY1970	69	-	-	-	5
B / 1 FY1971	79	-	-	-	5
All Subs.	-	-	-	-	-
Total Life	232	-	-	-	15

C. SETTING

D. STRATEGY

E. PLANNED TARGETS, RESULTS AND OUTPUTS

The above topics are fully covered in the document entitled "Plan For a Lysine Fortification Project in Tunisia", transmitted to AID/W on July 8, 1968 under cover of a memorandum from Daniel Rosenfield of the USDA addressed to Messrs. Brooks, Curtis, Foreman, Meinecke, Mac Arthur and Varrati.

This document makes reference to the Harvard-Florence-Tunis research project which has been underway for several years and has collected certain base-line data on growth and nutrition of children in Tunisia. In June, 1968 the GOT and this research group submitted to Mr. Maurice T. Jones, National Institute of Health, U.S. Public Health Service, an application for Foreign Currency Credit Award, entitled "Nutrition and Child Growth and Development in Tunisia", essentially a proposal for continuing and expanding this activity. The proposed budget was $500,000 equivalent in dinars over a 3 year period.

The PROP being submitted has been designed and costed on the basis that the area study on lysine fortification will be undertaken as a separate and distinct operation from the work of the Harvard-Florence-Tunis research group. It can be both justified and operated on that basis. Both projects could, however, be consolidated into one contract with Harvard University with considerable advantages, e.g. financial savings, securing for the lysine area study the services of a team already familiar with this type of work in the Tunisian setting, and the use of the computer facilities at Florence.

It should also be pointed out that the GOT/Harvard-Florence proposal contemplates paying U.S. and other non-Tunisian personnel a portion of their salaries in dinars. The personnel costs shown in this PROP are calculated on the standard pattern of all U.S. salaries being a dollar cost.

Given the fact that funding authorities presently contemplated for the Harvard-Florence-Tunis proposal and for the lysine study are different, it seemed prudent to develop this PROP in its present form. However, the alternative of developing different approaches to source of funding and thus enabling a merging of the two activities should be given serious consideration.

This PROP also proposes that a PASA arrangement be developed with the Nutrition Program/NCCD of the USPHS to monitor the performance of the contractor. The reason for this addition to the recommendations of the project design team is the great importance which will attach to the research results and the need to be as certain as is humanly possible that the findings will stand-up under scrutiny.

In line with this thinking, the cost components of the project have been examined carefully with an eye to economy and to maximizing dinar vs dollar requirements, but also from the viewpoint of ensuring findings that will be definitive. It is strongly felt that it would be preferable to not undertake the project if financial limitations impose changes in project design which would weaken the rigorousness of the research.

F. COURSE OF ACTION

The procedural steps to be taken in carrying out the project are in the following order :

1. Resolution in Washington of the alternative regarding scope and funding authorities (lysine alone or lysine plus Harvard-Florence research work) discussed in the previous section of this PROP.

2. Negotiation of a PRO-AG with the GOT. While technically a PRO-AG may not be necessary, in view of the secondary project objectives and the desired involvement of the Tunisian nutrition institute, such a proceedure is highly recommended. (In this connection, it should be noted that the Mission has been working closely with GOT officials to draw up a charter for the institute and it seems likely that this institution can be established in the very near future). Also, this would be an appropriate occasion and mechanism for obtaining GOT assurances on such items as keeping the corn mix percentage in bread flour to acceptable minimums.

3. Negotiation of a PASA with the Nutrition Program/NCCD/PHS providing for monitoring of all aspects of the project, with the emphasis on control of research design, research operations and evaluation of research data.

4. Negotiation of a contract with a suitable U.S. entity (preferably Harvard University) under which the contractor will assume full responsability for all aspects of project operations, including work with the flour mills in Tunis, and the conduct of the industrial feasability study.

The nature of the work to be executed by the Contractor and consequently the scope of work of the contract, including the research design, are fully described in the paper entitled "Plan for a Lysine Fortification Project in Tunisia" referred to earlier in this PROP. In order to translate this scope of work into budgetary requirements, the following schedule of operations has been developed to take effect upon contract signing.

Schedule of Operations After Contract Signed

Months 1 and 2 - Recruitment of personnel, ordering of blenders, feeders, ingredients and other equipment.

Months 3 - Selection of villages on basis of census data.

Months 4 through 8 - Survey team collects data; establishes sample of households, children, etc.

Months 6 through 10 - Medical team compiles baseline medical data.

Month 6 - Blenders, feeders and ingredients arrive and are installed and calibrated.

Month 7 - Start deliveries of lysine fortified products to first village.

Months 12 through 34 - Four follow-up medical exams performed in each of 9 villages at 6 month intervals, with allowance of 2 month periods between each set of exams for revision of data, re-examination where necessary, etc.

Months 21 - 23 - Conduct feasability study on local manufacture of lysine .

Months 35 through 38 - Analyse results and write final report.

The above schedule of operations is also shown in graphic form in Chart No. 1. Two explanatory notes may be helpful:

1. For maximum utilization of time and personnel, it is proposed that the contractor dovetail the activities of the field survey team and of the medical team, i.e. while the medical base-line examinations are going on in the first set of 3 villages, the survey team will be selecting families and children in the second set of three villages. This will enable the medical team to start baseline examinations of the children in the second set of three villages immediately after finishing with the first set. The same prodeedure would then be followed with the third set of villages.

2. The bio-chemical and anthropometric measurements are very sensitive and will be relied upon very heavily in the assessment of possible nutritional benefits. Extreme care must be exercised in conducting them and in recording and analyzing the data. Consequently, the operational plan provides for the two physicians in the medical team to work together for short periods of time with each set of examinations and then to continue with the set separately. The purpose of this method of operating is to find a suitable compromise between the need for uniformity in techniques and procedures and a high level of productivity regarding the time of the personnel.

The operation of the project will call for the establishment of offices in Gabes (the capital city of the province where the testing will take place) and in Tunis (where the flour and other wheat products will be fortified and where most of the laboratory work will be done). The personnel needed to operate these offices, the personnel of the survey and medical teams which will operate out of the Gabes office, and the time requirements for each element are as follows

I. Central Staff - Tunis

1.	1 Nutritional expert to control blending & feeders & product testing (Tunisian)	36 months
2.	2 US expert to assist in installation of above	½ month
3.	1 Laboratory Technician (Tunisian)	30 months
4.	1 Secretary (Tunisian)	32 months
5.	1 Chauffeur(Tunisian)	32 months
6.	1 Census expert (Tunisian)	1 month

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II. Central Staff - Gabes

1.	1 Physician - Project Leader (U.S.)	36 months
2.	1 Statistian (U.S.)	36 months
3.	1 Statistical Operator Clerk (Tunisian)	36 months
4.	2 Secretaries (Tunisian)	36 months
5.	5 Chauffeurs(Tunisian)	36 months
6.	1 Office Manager (Tunisian)	36 months

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III. Medical Team

1.	2 Physicians (U.S.)	28 months
2.	4 Male Nurses (Tunisian)	28 months
3.	2 Chauffeurs for Mobile Medical Units (Tunisian)	28 months

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IV. Survey Team

1.	3 Interviewers (Tunisian)	6 months
2.	1 Sociologist (U.S.)	2 months
3.	1 Sociologist (Tunisian)	6 months
4.	1 Dietician (U.S.)	2 months
5.	1 Dietician (Tunisian)	6 months

7 + 6 + 11 + 8 = 32

The Tunisian personnel shown above should be employed by the new Tunisian Food and Nutrition Institute and will be used by that institution on other projects when their services are no longer required for the purposes of this PROP. However, only the duration of their services in connection with the lysine testing are shown above and are reflected in the PROP budget.

In addition, it is hoped to secure the service of up to nine Peace Corps Volunteers to reside in each of the villages during the course of the project and undertake day-to-day observation of pertinent factors under the supervision of contractor personnel.

The total duration of operations under the contract is 38 months, including 2 months for start-up work and 4 months for analyzing results and report writing. The obligational budget shown in Table one, is based on funding the first 12 months of operations in FY 1969, the second 12 months of operations in FY 1970, and the final 14 months of operations in FY 1971. The attached detailed budget, Tables 2 and 3 are on an expenditure basis and show requirements for each 12 month period.

MULCAHY

TABLE II. DETAILED BUDGET - FY 1969 - FY1971

Dollars Costs (in thousand of dollars)

I. CONTRACT COSTS	Quantity	Year One	Year Two	Year Three	Year Four
A. Field Personnel (salaries)					
1. Central Staff-Cabes					
Project Leader	1	20 (10 months)	25	25	5 (2 months)
Statistician	1	12 (10 months)	15	15	3 (2 months)
2. Central Staff-Tunis					
Milling-Fortification Expert	1	1 (2 weeks)	-	-	-
3. Survey Team					
Sociologist-Consultant	1	2 (2 months)	-	-	-
Dietician	1	2 (2 months)	-	-	-
4. Medical Team					
Pediatricians	2	18 (6 months)	36	30 (10 months)	-
5. Other Short-Term Consultants		2	3	3	3
(Totals Field Personnel)		57	79	73	11

TABLE II. DETAILED BUDGET - FY1969 - FY1971

I. CONTRACT COSTS	Quantity	Dollar Cost (in thousand of dollars) Year One	Year Two	Year Three	Year Four
A. Commodities					
1. Vehicles					
Medical Mobile Units & Spare Parts	2	33	-	-	-
Pick-up Truck	1	3	-	-	-
Jeeps	4	12	-	-	-
Sedan	1	2	-	-	-
Spare Parts & Replacements		1	3	3	-
Sub-totals		51	3	3	-
2. Mill Equipment					
Enrichment Feeders	2	3	-	-	-
Blender	1	1	-	-	-
Testing Equipment		1	-	-	-
Sub-totals		5	-	-	-
3. Medical Supplies & Instruments		3	1	1	-
4. Office Equipment & Supplies		3	1	1	-
5. IHE for 4 Technicians		4	-	-	-
6. Fortification Ingredients					
Vitamin-Iron Mix		1	2	2	-
Lysine		5	10	10	-
(Total Commodities)		75	17	17	-

TABLE II. DETAILED BUDGET - FY1969 - FY1971

Dollars Costs (in thousand of dollars)

I. CONTRACT COSTS	Quantity	Year One	Year Two	Year Three	Year Four
C. Other Costs					
1. Operating Costs					
Computer Operations		4	2	2	2
Final Report		-	-	-	2
Sub-total		4	2	2	4
2. Campus Staff					
Project Monitor (half time)		9	9	9	2
Secretary		7	7	7	1
3. Overhead (25% of salaries)		15	21	21	5
4. Transportation of cars, storage HHE, Education Allowances etc.		15	12	12	15
5. Lysine Industrial Feasibility study		-	15	-	-
(Totals of Other Costs)		50	66	51	27
II. PASA COSTS		4	4	4	-
-Grand Totals-		186	166	145	38

TABLE III. DETAILED BUDGET - FY1969 - FY1971

Dinar Costs (in thousands of dollar equivalent)

	Quantity	Year One	Year Two	Year Three	Year Four
A. Field Personnel (salaries)					
1. Central Staff-Gabes					
Statistical Operator-clerk	2	3 (10 months)	4	4	1 (2 months)
Secretaries	2	5 (10 months)	6	6	1 (2 months)
Chauffeurs	5	5 (10 months)	6	6	-
Office Manager	1	3 (10 months)	4	4	1 (2 months)
2. Central Staff-Tunis					
Nutrition Expert	1	4 (10 months)	5	5	1
Laboratory Technician	1	2 (6 months)	4	4	-
Secretary	1	3	3	3	1
Chauffeur	1	1	1	1	-
Tunisian Census Expert	1	1	-	-	-
Consultant		(1 month)	-	-	-
3. Survey Team					
Inteviewers	3	3 ((6 months)	-	-	-
Sociologist	1	3 (6 months)	-	-	-
Dietician	1	3 (6 months)	-	-	-
4. Medical Team					
Male Nurses	4	3 (6 months)	10	8	-
Chauffeurs	2	1 (6 months)	2	2	-
(Totals Field Personnel		42	45	43	5

TABLE III. DETAILED BUDGET - FY1969 - FY1971

Dinar Costs (in thousand of dollar equivalent)

Commodities	Quantity	Year One	Year Two	Year Three	Year Four
1. Mill Equipment Testing Equipment		1	-	-	-
2. Medical Supplies and Instruments		3	2	2	-
3. Office Equipment and Supplies		5	2	2	-
4. RHE for 4 Technicians		8	1	-	-
5. Fortification Ingredients Calcium Carbonate		-	1	1	-
(Totals Commodities)		17	6	5	-

TABLE III. DETAILED BUDGET - FY1969 - FY1971

Dinars Costs (in thousands of dollar equivalent)

Page (cont.)

	Quantity	Year One	Year Two	Year Three	Year Four
C. Other Costs					
1. Operating Costs					
Oil, gas, repair labor		1	1	1	-
Office Rentals and Utilities		4	4	4	1
Technicians rent & Utilities		7	7	7	1
Sub-Totals		12	12	12	2
2. Travel					
International Travel		8	3	3	3
Local Travel Per Diem		5	3	3	3
Sub-Totals		13	6	6	6
(Totals of Other Costs)		25	18	18	8
GRAND TOTALS		94	69	66	13

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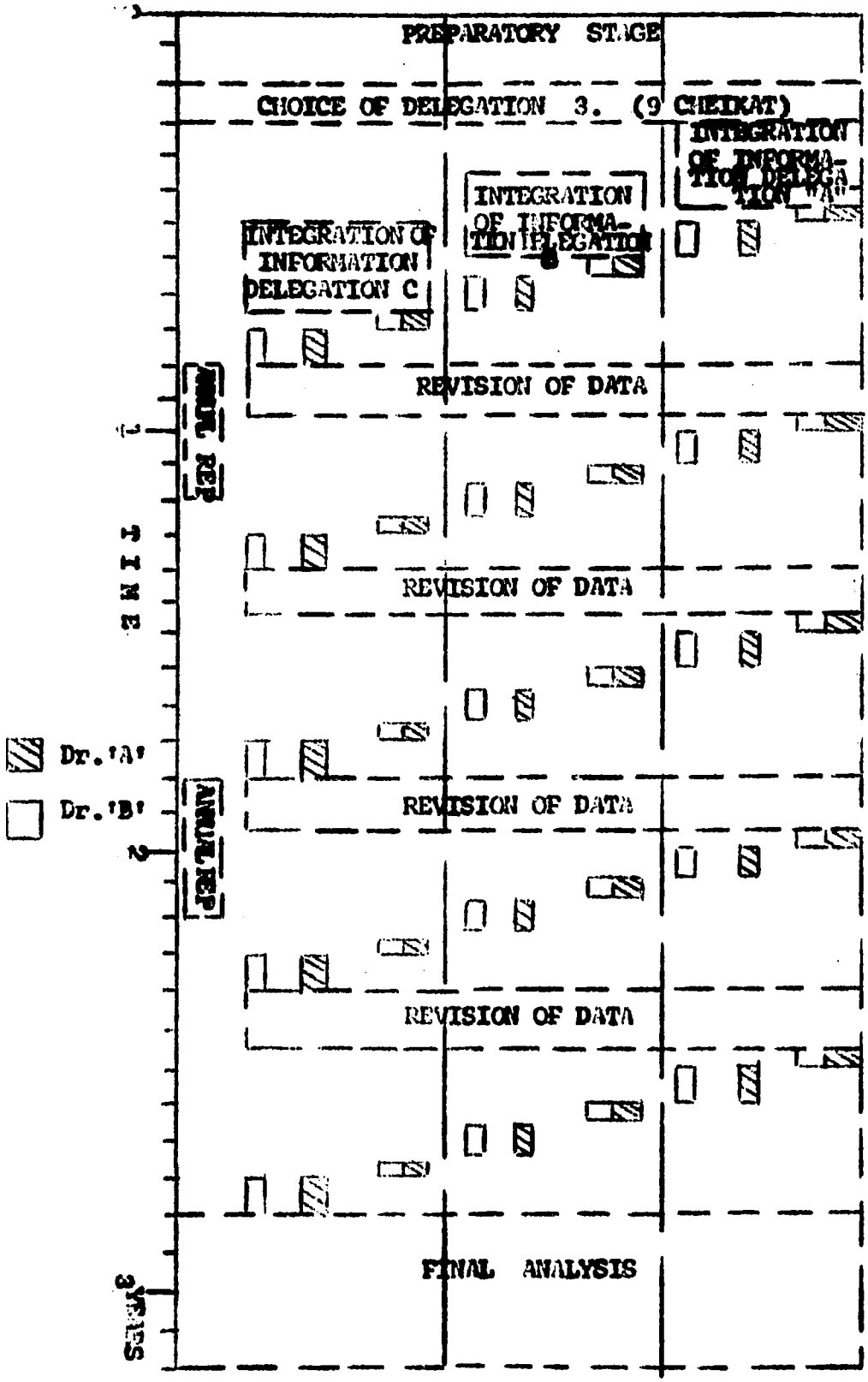

LYSINE STARCH

VITAMINS - MINERALS

REGULAR WHEAT

CHART No. 1