

REPORT TO

USAID

on

AFRICAN MATHEMATICS PROGRAM (AID afr-711)

for period

January 1, 1974 to June 30, 1974

Education Development Center, Inc.  
55 Chapel Street  
Newton, Massachusetts 02160

## Table of Contents

I.	INTRODUCTION	
II.	IN-COUNTRY TEACHER TRAINING	2
	a) EARMP	2
	b) WARMP	4
III.	TEXTBOOK PRODUCTION	4
	a) EARMP	4
	b) WARMP	5
IV.	ORGANIZATIONAL DEVELOPMENT	7
	a) EARMP	
	1. Management Committee	7
	2. Planning Committee	8
	3. Personnel Changes	8
	b) WARMP	9
	1. Management Committee	9
	2. Planning Committee	10
	3. Personnel Changes	10
V.	GENERAL PROGRAM ACTIVITIES	10
VI.	PROGRAM FINANCES	11
VII.	EVALUATION	11
APPENDICES		
I.	Visitation Schedule - EARMP	13
II.	WARMP Teacher Training Schedule	14
III.	Textbook Preparation Schedule - WARMP	15
EXHIBIT A :	Monthly Expenditure Rates	16

REPORT TO USAID ON  
AFRICAN MATHEMATICS PROGRAM (AID afr-711)  
for period January 1 to June 30, 1974

I. INTRODUCTION

Much program management time, particularly on the part of the African members, has been devoted to the mathematics education problems still facing countries presently participating in the East and West African Regional Mathematics programs. Considerable discussion during the January, 1974, Management Committee meetings was devoted to laying plans for possible continued collaboration. Although Program targets for the production of materials and for the training of teacher trainers in both Programs will be met by the end of the present contract, the problem of in-servicing of primary school teachers still lies mainly in the future. Most countries have experienced dramatic increases in the numbers of primary school teachers, as educational systems expand toward universal primary school education. As a consequence, numbers of trainers envisaged by the participating ministries in 1970 as being needed to conduct in-servicing, has increased as well. For example, in Kenya and Ethiopia, only about one third of the inspectors and supervisors who will be called upon to conduct training have themselves had training in modern mathematics, in spite of excellent Program participation.

The situation in the teacher training colleges is somewhat better. Most mathematics tutors in participating countries have participated in various Program-run training functions. Expatriate tutors have been significantly reduced during the four year implementation program now in effect, to the point where it is possible to look forward to increasing stability in the staffs of the colleges. Textbooks in modern mathematics for the training

colleges are now available in East Africa and will soon be available in West Africa. Consequently, with additional training time for the tutors in the use of these new materials, the prospect for advancement in the introduction of modern mathematics for all new teachers in participating countries is brighter than at any time since the Program began.

## II. IN-COUNTRY TEACHER TRAINING

### a) EARMP

Work continues by the local Program maths educators in the training of supervisors, inspectors, assistant inspectors and tutors in modern mathematics. This involves a combination approach of visits to training colleges to work with tutors in their classrooms, coupled with in-service courses, of up to two weeks' duration, covering both modern mathematics content and methodology.

In Kenya, each one of the 17 primary teacher training colleges in the country was visited by the Program maths educator for two days on at least one occasion during the six-month period under review; a number of the colleges received two visits. The visitation schedule is indicated in Appendix I. During the spring Easter vacation break, courses in modern mathematics were run for inspectors and assistant inspectors at the Eregi Teacher Training College in Western Kenya, at Wajir in the extreme North-east, and at Kigari in the Central part of the country. Each of these courses involved in excess of 100 participants for periods of three days in the case of Kigari, to two weeks at Eregi. Total participants in inspectors training courses in modern mathematics during the period under review was 315.

In Ethiopia the new Program maths educator took up his post on March 4, 1974. He immediately proceeded on an extensive tour of the country to re-establish contact with Ministry supervisors throughout the various regions. Ethiopia is in a period of significant unrest and in a number of regions schools and Ministry offices were closed, and progress in training in modern mathematics was therefore limited during this review period. As the result of difficulties in establishing contacts and in traveling about Ethiopia at this time, a revision in the training visitation schedule was agreed upon during a visit to Ethiopia in April. The change involved the scheduling of a series of Mini-Institutes similar to those run in West Africa wherein five to seven supervisors travel to a central location in a particular area for a week of intensive training in modern mathematics, as opposed to the Program maths educator traveling to each of the supervisors at their individual working locations. Plans were laid to organize three to four of these Mini-Institutes in the months of May and June with the heavy additional schedule beginning again in September. The latest report indicates that Mini-Institutes have been successfully scheduled for Addis Ababa and Harar during June, but breaks in communication made it difficult to organize program activity sufficiently during the month of May. During the period under review, visits were made to supervisors in Debre Markos, Fintote Selam, Bahar Dar, Gondar, Wukro and Adi Grat, Asmara, Combolcha, Haik, Woldia and Assab.

Correspondence work by supervisors and inspectors in both countries continues. The correspondence program is working more successfully in Kenya than Ethiopia at present, partly because of the Governmental unrest affecting the postal service in the latter country.

b) WARMP

A program of Mini-Institutes in the three participating West African countries continues during the period under review.

Beginning January 15 in Monrovia, Liberia, a series of 18 mini-institutes were conducted by Program maths educators in all three participating countries. Details are shown in Appendix II. There was a total of approximately 120 teachers and inspectors involved in this training work. Most institutes ran for one week and involved an expected 6 to 12 participants from nearby schools and government offices.

The mini-institutes are intended as follow-up to the large scale institute program conducted in earlier years. Instruction is given in the use of WARMP prepared materials newly available in smaller and less formal settings so that participants can get personal help in learning to teach modern maths to others. In two cases participation was disappointingly small, but with those exceptions, experience suggests this method is particularly well adapted to this special teacher education problem. It is planned that further mini-institutes will be conducted.

Visitations to primary teacher training colleges was continued in all three countries. A review of this work will be made to see if further training college visits will be required in the contract period ahead.

III. TEXTBOOK PRODUCTION

a) EARMP

All writing and revision work on materials for the training colleges of East Africa has been completed. Vol. I and Vol. II of the Teacher Training college student texts have been delivered to the Ministries of Education in

Ethiopia and Kenya. Vol. I is presently in use in the colleges of both countries, and Vol. II is now being printed in both countries at local government expense. Prospects for the use of Vol. II are extremely high. The Teachers' Guide for both Vols. I and II has been typed and is in final correction stage. It will be delivered to East Africa in July or August, 1974, where it will be available for immediate printing.

With the delivery of the Teachers' Guide all materials development tasks under the East African Regional Math Program will have been completed successfully. Of equal importance, it is now clear that all texts prepared by the Program either are presently in use or will be widely used as soon as they become available in quantity.

Steps have been taken to make copies of the Teacher Training Texts available to the Uganda Ministry of Education. There is some possibility that that Government may be interested in considering EARMP materials for use in its training colleges. There is no way at the present time to assess the likelihood of this occurrence, however.

b) WARMP

Good progress has been made during the six months under review toward completing the ambitious textbook schedule for the West African Regional Mathematics Program. Scheduled completion dates are tight and depend almost entirely on the continued availability of the Program Editor. After the Program Editor's home leave in March, it became apparent that the production schedule had slipped slightly. Trainee Editors from Liberia and Sierra Leone were brought to Ghana for a two-week period in April to deal with the backlog, working on specific production tasks. This was viewed as a most valuable kind of training experience, so effectively two objectives were

served. As the result of this additional help, editing tasks are virtually on schedule. See Appendix III.

In April, advice was received that the Sierra Leone Ministry of Education had accepted the WARMP primary text series. Sierra Leone is the only one of the three participating countries to have a seven-year primary school curriculum. It was understood at the time the revision process was undertaken in 1970 that, should the Sierra Leone Government make the decision to adopt the texts officially, the Program would assume the obligation of helping that Government produce primary texts for grade seven, even though the other countries would not be using similar books.

Since judgement indicates that the addition of primary 7 pupil and teacher texts to the present schedule does not pose undue hardship, at least from the point of view of writing, plans have progressed for including the preparation of both a primary 7 pupil text and teachers' guide in the 1974 summer workshop. It is generally considered that the primary 2 books are largely a re-arrangement of presently existing material. It is clear, however, that with the addition of two primary 7 books for Sierra Leone, the total editing task of WARMP will be increased. Best judgement is that an additional sixty days beyond the March 31, 1975 cut-off day will be required to complete all expected editing tasks.

Plans for the final summer writing session, to be conducted from July 15 to August 26, 1974, in Accra, are now nearly complete. This year will concentrate on revision and adaptation of Primary 6 (and 7 for Sierra Leone) as well as Secondary 4 and 5. None of these tasks is seen as particularly complicated, with only minor revisions of presently available materials being required. A Sierra Leonean participant has been added to



the workshop writing group to lend manpower and legitimacy to the Primary 7 writing task. The Primary writing group will be again under the direction of Prof. C. Hardgrove of the University of Northern Illinois. Profs. A. Williams and D.K. Abbiw-Jackson will co-chair the secondary writing group, as in the past. The workshops have been under the same chairmanships for both primary and secondary work since the inception of the implementation phase of the Program.

#### IV. ORGANIZATIONAL DEVELOPMENT

##### a) EARMP

###### 1. Management Committee

The January 1974 Management Committee meeting of the East African Regional Mathematics Program continued to show how difficult it was to come to grips with the issue of legal status for Kenya and Ethiopia. The dilemma of whether the program or the organization to back up the program needs to be created first remains unresolved, and perhaps unresolvable.

Coupled with that problem is the continuing realization that Kenya and Ethiopia, although combining very effectively on specific Program tasks in recent years, are different in culture and background, lack a past history of cooperation, and apparently find it difficult to build a permanent legal combine. Whether this problem would dissipate or even disappear should the grouping be larger than these two countries in East Africa, remains to be seen, but it is one avenue being explored.

The January Management Committee meeting empowered the Acting Director to make overtures to SEPA for the purpose of searching out possible association, either programming or organizational, with that organization on future activities. The Acting Director did in fact make overtures to the SEPA Executive Committee held in Monrovia in April 1974. Little interest was found in a combination, lacking more specific guidance on what kind of program cooperation was envisaged by the Mathematics groups. SEPA, while not rejecting overtures, referred them back to the Regional Mathematics groups, indicating the need for a firmer proposal for collaboration for consideration.

## 2. Planning Committee

EARMP organized a Planning Committee consisting of the two senior members of each of the Ethiopian and Kenyan delegations plus the Acting Program Director from EDC. This group met in April for the purpose of developing a draft proposal for continued activities to be conducted by EARMP. This group did in fact meet in Mombasa in April and a draft proposal has been prepared which will be reviewed by the July 1974 Management Committee before being circulated widely. (A draft copy of this proposal has been provided to USAID/Washington.)

## 3. Personnel Changes

Ato Makonnen, the departing East African Regional (EARMP) Administrator, has not been replaced. In view of the expected termination of the Program in the East in December 1974, it was generally, although not universally, agreed to operate with existing personnel. This seemed particularly appropriate since no further large-scale institutes

requiring administrative support beyond the January 1974 Addis Ababa Institute were contemplated by the Program in either country.

Ato Petros Habtemariam was hired effective March 1 to replace Prof. Dubisch as the Program maths educator in Ethiopia. Ato Petros had been an earlier recommendation of the Committee, but was rejected by the Ethiopian members who were looking for a senior U.S. mathematician. When faced with the probable choice, in the final months of the contract, between a younger Ethiopian mathematician and no Program maths educator at all, the group unanimously agreed that Ato Petros would be the logical choice. It was felt important to have an Amharic speaker in order to relate properly with the supervisors in the rural areas of Ethiopia. This effectively prohibited the hiring of an ex-patriate for this post.

Mrs. Egigayehu Haile continues as the EARMP program office secretary and handles minor administrative duties as well, in the absence of a program administrator. It is anticipated that the Addis Ababa EARMP office will remain open through the end of the Program. Day to day direction of the maths educator and the office secretary is provided through the Ethiopian members of the Management Committee. This arrangement seems to work reasonably well. No changes in Program personnel or Management Committee membership have been made in Kenya.

b) WARMP

1. Management Committee

The Management Committee met in Monrovia, Liberia, in January 1974. It marked the first time that a full delegation from each of the three participating countries has attended in some time. The three countries

have now officially accepted the draft constitution of the new regional organization. And there was discussion of the legal implications of those governmental decisions. Legal counsel seemed called for: possibilities for such help were to be explored further.

## 2. Planning Committee

The WARMP Management Committee was equally concerned with programming for the future, feeling that much remained to be done. It decided to form a sub-committee to meet in Freetown in February for the purpose of drafting proposals for possible continuation tasks. This group did in fact meet in Freetown under the Chairmanship of Dr. Awadagin Williams, and a brief report of this meeting was issued.

## 3. Personnel Changes

No personnel changes in the WARMP staff or Management Committee membership are to be reported during the six months under review. However, Mr. D.A. Brown, Program Administrator in Accra, Ghana, did visit the EDC home office in March for the purpose of discussing how responsibilities for Program conduct could be more usefully shared between EDC and the WARMP office in Accra. The meetings were felt to be productive. The intent of the sessions was to convey to the West African Regional group that EDC is prepared to share greater responsibility for the conduct and results of the Program in West Africa with the WARMP Management Committee and its various operating personnel.

## V. GENERAL PROGRAM ACTIVITIES

R.H. Robins was appointed Acting Director of the African Mathematics Program in January 1974, and in that capacity traveled to East and West

Africa to attend both Regional Program Management Committee meetings. Prof. W.T. Martin, Mathematical Consultant, did not attend either meeting, as planned, due to personal injuries suffered in a fall. Dr. Jose Dominguez-Urosa, Director of EDC's International Area, attended the Management Committee meeting in Addis Ababa, stopping off en route to Iran on other EDC business.

R.H. Robins traveled again to Mombasa, East Africa, in April to chair the EARMP Planning Committee meeting in which draft proposals for continuation were prepared. Both travel itineraries included stops in Addis Ababa, Nairobi and Monrovia and the January trip included a stop in Accra as well, for the purpose of conducting on-going mathematics program business.

Roger Hartman, Program Editor in Accra, Ghana, was on home leave for much of the month of March. The home leave required careful Program scheduling in order that editing tasks not be unduly slowed during Mr. Hartman's absence.

#### VI. PROGRAM FINANCES

Program spending continues to be within the budget. No major problems have been encountered. Monthly expenditure rates are shown on the attached Exhibit A. An extension Amendment 8 was signed in mid-May for the continuation of the Program into fiscal 1975 to complete Program tasks.

#### VII. EVALUATION

At the January Management Committee meetings in East and West Africa, Dr. Bernard Shapiro, Evaluation Consultant to the Program, discussed the difficulties in making significant progress in evaluation, given the time

restraints on those for whom the evaluation effort is dependent, namely individuals in various African Ministries of Education. As a consequence evaluation plans as originally conceived have not been carried through and the problem facing the Program in its final year to fifteen months is to describe an appropriate evaluation activity which can be reasonably accomplished during that period of time, given constraints of time, money and personnel.

Essentially the program outlined was a series of interviews to be conducted by local people, by tape recorder. The interviews would record opinions of tutors, administrators, supervisors in both urban and rural settings, and both those who had participated and those who had not participated in the program. It was hoped that preliminary interviews could be done in sufficient time so that the final interview schedule could be conducted over the summer and the final results be available at least in tape form by September 30, 1974. It is clear that this schedule has slipped significantly, although some of the preliminary interviews have been done and not all participants have been able to devote the required time.

It is the intent of the program to proceed on the basis of interviews available to it. The fundamental problem with the evaluation exercise as presently seen is that no African connected with the program, when faced with the decision of making priority decisions on tasks to be done, puts evaluation work sufficiently high so that progress is made.

VISITATION SCHEDULE - EAMP

John Fitzgerald, EAMP Maths Educator

<u>Date</u>	<u>College</u>
January 30 & 31	Thogoto Teachers College
February 1	Loreto Teachers College
4 & 5	Kisii Teachers College
6 & 7	Asumbi Teachers College and Kamagambo Teachers College
8 - 11	Siriba Teachers College
12 & 13	Eregi Teachers College
14 & 15	Kaimosi Teachers College
19 & 20	Machakos Teachers College
21 & 22	Highridge Teachers College
25 & 26	Egoji Teachers College
27 & 28	Meru Teachers College
March 4 & 5	Kamwenja Teachers College
6	St. Cecilia's Teachers College
7 & 8	Kagumo Teachers College
11 & 12	Kigari Teachers College
12 & 14	Kilimambogo Teachers College
18	Kitale Teachers College
19 & 20	Mosoriot Teachers College
21 & 22	Kericho Teachers College
25 & 26	Shanzu Teachers College
May 28 & 29	Thogoto Teachers College
30 & 31	Machakos Teachers College
June 3 & 4	Siriba Teachers College
5 & 6	Kaimosi Teachers College
6 & 7	Eregi Teachers College
10 & 11	Kilimambogo Teachers College
12 & 13	Highridge Teachers College
17 & 18	Meru Teachers College
18 & 19	Egoji Teachers College
20 & 21	Kigari Teachers College
24 & 25	Kisii Teachers College
25 & 26	Asumbi Teachers College
27 & 28	Kericho Teachers College

APPENDIX II

WARMP TEACHER TRAINING SCHEDULE

<u>Dates</u>	<u>Location</u>	<u>Organizer</u>	<u>No. of Parti- cipants</u>
January 15 - 25	Monrovia, Liberia*	Ohuche/Alexander	20
February 4 - 8	Monrovia, Liberia	John Alexander	3
11 - 15	Monrovia, Liberia	John Alexander	11
March 4 - 8	Kumasi, Ghana	Pat Thompson	5
11 - 15	Kumasi	Pat Thompson	4
April 1 - 5	Kumasi	Pat Thompson	5 est.
22 - 26	Kumasi	Pat Thompson	6
22 - 26	Freetown, Sierra Leone	John Alexander	3
29 - 3	Kumasi	Pat Thompson	6
29 - 3	Bo, Sierra Leone	John Alexander	8 est.
May 6 - 10	Kumasi	Pat Thompson	4
13 - 17	Bunumbu, Sierra Leone	John Alexander	8 est.
20 - 24	Kumasi	Pat Thompson	5 est.
27 - 31	Makeni, Sierra Leone	John Alexander	8 est.
27 - 31	Kumasi	Pat Thompson	5 est.
June 3 - 7	Kumasi	Pat Thompson	5 est.
17 - 21	Kumasi	Pat Thompson	5 est.
17 - 21	Liberia	John Alexander	8 est.
24 - 28	Liberia	John Alexander	8 est.
TOTAL			127

\* In-service Workshop for Primary teachers



APPENDIX III

TEXTBOOK PREPARATION SCHEDULE - WARM

Secondary One - Teachers Guide	12/15/73	Editing tasks completed essentially on schedule. Distribution to Ministries delayed by problems at University of Ghana's duplicating facility until 6/74.
Primary Three - Pupil Book	4/15/74	Editing complete except for minor type face changes delayed from U.S. printer.
Primary Three - Teachers Guide	4/15/74	Editing completed on schedule
Teacher Training, Vol. II	5/30/74	Editing completed on schedule
Secondary Two - Pupil Book	7/15/74	On schedule
Secondary Two - Teachers Guide	7/15/74	In progress and on schedule
Primary Four - Pupil Book	8/31/74	On schedule
Primary Four - Teachers Guide	8/31/74	Typing completed: proof-reading and corrections to be done on schedule

EXHIBIT A

MONTHLY EXPENDITURE RATES

African Mathematics Program (afr-711)

Expenditures FY74

	\$	\$
July - December 1974		224,587
January 1974	27,103	
February 1974	25,671	
March 1974	29,243	
April 1974	19,157	
May 1974	25,469	
June 1974	<u>27,454</u>	
6 month total		<u>154,097</u>
TOTAL FY74 Expenditures		378,684
Budget FY74 (8/8/73 - 8/7/74)		398,670