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AFRICAN ELEMENTARY SCIENCE PROGRAM

EDUCATIONAL SERVICES INCORPORATED
Watertown, Massachusetts

R E P O R T

to the

AGENCY FOR INTERNATIONAL DEVELOPMENT

for the period

SEPTEMBER 1 - NOVEMBER 30, 1965

AID Contract No. csd-772

December 1965

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REPORT OF PERIOD SEPTEMBER 1 to NOVEMBER 30, 1965

The three months under review were largely a period of program self-appraisal and analysis of strengths and weaknesses. It was a time for consideration of the nature of the program in the future. This was a particularly good time for review, because the 1965 summer workshop had been completed and its report of activities produced, distributed, and widely read. It was significant because planning is, of course, the all-important prerequisite for the submission of a proposal to fund a continuation of the African Science Program. Such a proposal is in preparation.

The most significant activity of the three-month period was an extensive trip through six of the participating program countries by Mr. James L. Aldrich, E.S.I. Deputy Director, and Mr. Ralph H. Robins, Administrator of the African Science Program. The purpose of the trip was to assess progress made to date, to examine program needs for the future, and to assist in planning local implementation of the Science and Math Programs. A summary of this trip forms Appendix A of this Report.

1966 Workshop

Preliminary consideration has been given to the needs of the Science Workshop tentatively scheduled for the summer of 1966. Its objective will be to pick up where the 1965 workshop left off in the development work on science units for Primary Schools, taking into account the trial testing work of the units in African schools now going on through the Eastern Nigerian and Kenyan Science Centers. Also trial use of the units by individual workshop participants during the September 1965 - June 1966 period in countries where science centers are not yet operating will provide invaluable feedback as to the need for revision and local adaptation.

Careful attention is being given to the types of science resource people desired for the 1966 workshop. Attempts are being made to draw into the program Scientists with academic training and experience relevant to the needs of the African countries which were not present at the first workshop. This will enable the workshop to begin work on new units, while at the same time carrying forward the development of the earlier ones. Public health is perhaps the most conspicuous scientific area where we hope to begin work this coming summer.

Our efforts to recruit able participants for the 1966 workshop are severely hampered by our inability to make formal commitments to them, since workshop funds are not yet available. Our proposal to fund a continuation of this program will urge a longer contractual period and a different contract termination date, to avoid a similar problem in the years ahead.

Science Centers

Up to date information on the progress of efforts to establish Science Centers is contained in the African Trip Report, Appendix A. Our work has centered heavily on recruiting Scientists and Science Educators for posting as Innovators to the Science Centers as they are officially established. In addition to the two Innovators already working in Africa, we have commitments from two others to take up assignments in Africa, probably in the summer of 1966, following the 1966 summer workshop. And strong indications of interest have been received from a number of others on whom follow-up work is now being done. There are problems inherent in recruiting able people when it is difficult, if not impossible, to tell precisely when they will be needed. These problems, however, are not insurmountable. Interest of American scientists and educators in engaging in science education work in Africa appears quite high.

Our planning now calls for new Science Innovators participating in the summer workshops before taking up their posts in one of the program countries. This will assure their keeping up to date on the latest program developments, and help attune new people to the overall program goals and methods.

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Appendix A

Report of Trip to Nigeria, East and Central
Africa by J. L. Aldrich and R. H. Robins, E.S.I.,
October 30 & November 22, 1965

Mr. James L. Aldrich, E.S.I. Deputy Director, and Ralph H. Robins, Administrator, African Science Program, visited Nigeria, Kenya, Uganda, Tanzania, Malawi and Zambia on an extensive trip commencing October 30 and concluding on November 22, 1965. The purpose of the trip was to:

- 1) review plans for ongoing work in science centers currently established in the Eastern Region of Nigeria, and in Kenya;
- 2) determine present ministry of education plans for the establishment of science centers for the carrying on of primary science curriculum development work, and to quicken the interest in the development of centers in those countries where plans have not yet formalized;
- 3) assess the impact made thus far by the African Education Program in the countries visited;
- 4) arouse interest in the All-Africa Mathematics Institute to be held in the summer of 1966 in Nairobi, Kenya, under the sponsorship of The Ford Foundation, the purpose of which is to train a cadre of people in each program country to begin work on the vast problem of teacher training in modern mathematics;
- 5) encourage participation in the African Science Workshop tentatively planned for the summer of 1966;
- 6) take such other steps to further the African Education Program as time would permit.

Lagos, Nigeria

Contacts made in the Lagos, Nigeria, area were: Mr. Stephen Awokoya, Federal Adviser, Federal District Ministry of Education and member of the E.S.I. African

Education Program Steering Committee; Prof. Denys Morgan, Chairman, Faculty of Education, University of Lagos; Dr. Grace Alele Williams, Faculty Member, University of Lagos, and African Mathematics Program contact for the Federal Mid-West and Western Regions; Mr. Sam Fuhr, and Dr. Douglas Ward, Education Officers, US/AID Mission; Mr. Femi Oyewole, Franklin Books Representative; and Mr. Christopher Modu, West African Examinations Council.

A meeting at the Federal Ministry revealed that no plans are currently in prospect for the establishment of a science center in the Federal Region, although considerable interest was shown. Plans for the All-Africa Mathematics Institute were also discussed and indications of support were received. A visit was made to the Federal Advanced Teacher Training College in company with Prof. Morgan and Dr. Williams for the purpose of reviewing the facilities as a possible site for a future science workshop.

Enugu, Nigeria

Contacts made were the Ministry of Education, Eastern Region; Dr. A. Babs Fafunwa, Dean of the Institute of Education, University of Nigeria at Nsukka; members of the Science and Mathematics Faculties of the University; Mr. M.B.R. Savage, E.S.I. Science Innovator at the Eastern Region Science Center at Nsukka; Mr. Asher, in charge of the Eastern Region AID Mission; Mr. Les Nuckolls, Educational Consultant to Peace Corps Nigeria; and Mr. John Iroaganachi, Franklin Books Representative.

The meeting with the Eastern Region Ministry of Education was fruitful in assuring proper cooperation from the Ministry in the planning and operation of the Science Center. It also clearly established that direction of the Center will come from the Institute of Education and the University. Those in attendance were, Mr. N. U. Akpan, Permanent Secretary; Mr. J.C. Menakaya, Chief Inspector of Education; Mr. E. O. Inyan, Principal Inspector of Teacher Training; Mr. I. Mbota,

Principal Inspector, Technical College; Mr. W.E. Iweama, Principal Inspector, Secondary Schools; and Mr. G.A. Ugwuegede, Inspector of Education, Science. Hope was expressed at the meeting that the Science Center would be in a position to assist the Ministry in the establishment of a new Science Curriculum for elementary schools scheduled for adoption in January, 1966.

A full day's meeting was held with Dean Fafunwa at which detailed discussions took place about actual operations for the Science Center, and how effective communications could best be assured. Special consideration was given to the manner in which the Science Center in the Eastern Region might act as a co-ordinating Center for all Nigerian science centers, as it is already beginning to do. This appears to be at least a possibility worth exploring.

Attention was given to Mr. Savage's personal housing problem, in view of the fact that no housing will be available at Nsukka for some time. Adequate temporary housing arrangements were made for Mr. Savage at Enugu, some 40 miles distant. Space for his temporary operations will probably be arranged at the Enugu campus of the University of Nigeria. His work will still be directed by Dean Fafunwa during this period.

Useful discussions were held with the Peace Corps, Nigeria, Educational Consulting staff on the possibility of providing additional Peace Corps manpower for work at the science center, and Peace Corps involvement in Primary Teacher Training work in Science. Further exploration of this possibility is definitely planned for the future.

Nairobi, Kenya

Contacts made at Nairobi were: Mr. Mwendwa, Chief Education Officer, Ministry of Education; Mr. John Gitau, Chief Inspector of Schools; Mr. Horton Kenner, AID Representative at the Nairobi Mathematics Teaching Centre; Mr. Anselmo Bernal, AID Education Officer; Dr. Mohamed Hyder, member of the Science Faculty, University

College of Nairobi; Mr. William S. Warren, ESI Science Innovator at the Nairobi Science Teaching Centre; and Mr. Hillary Ng'weno, Franklin Book Representative.

Meaningful discussions were held at the Ministry offices with Mr. Mwendwa and Mr. Gitau about the work of the ESI Science Innovator at the Nairobi Science Teaching Centre. Plans for Mr. Warren's try-out of materials in local schools, and educational work with local primary teachers and one or two teacher training colleges were discussed at some length.

Meetings with Dr. Hyder were held for the purpose of briefing the University Faculty on the work of the African Science Program and maintaining interest. Strong support of the program was indicated. Plans for the Nairobi All-Africa Mathematics Institute were also discussed at some length.

Visits to several schools in and near Nairobi were made, to observe classroom teaching and facilities firsthand.

Kampala, Uganda

Contacts were made with the following individuals: Mr. Reitseba, Permanent Secretary, Ministry of Education; Dr. Edwin Trethaway, US/AID; Mr. Senteza Kajubi, Director of the Uganda Institute of Education; Mr. E. Nnyanzi, Acting Under-Secretary, Ministry of Education; Mr. Alex Smith, Science Inspector, Ministry of Education; Mr. James Ariada, Mathematics Inspector, Ministry of Education; and Representatives of the British Council and Members of the Science Faculty at Makerere University.

Here again, the principal purpose of the visit to Kampala was to discuss plans for the Uganda Science Center with the Ministry of Education and representatives of the University. Strong interest was evident and a specific plan for the development of the science center had recently been submitted to the Ministry by Mr. Alex Smith, the Science Inspector. Action on the proposal has not yet been taken, as both the Minister of Education and the Chief Education Officer were out of the country for an extended period of time.

Discussion was held about the location of the Science Center and several facilities in the general Kampala area were mentioned as possibilities. Stress was placed on our willingness to be flexible on beginning physical and personnel requirements for a Science Center. This point was well received.

Dar es Salaam, Tanzania

Contacts made at Dar es Salaam were: Mr. J. Sawe, Chief Education Officer, Messrs. Tarimu and Mutabuyaro, Assistant Chief Education Officers and members of the Inspectorate, Ministry of Education; Mr. S. Ndunguru, Institute of Education; and Members of the Science Faculty at the University College at Dar es Salaam; Mr. A. Beninati, AID Sponsored Mathematician; Mr. J. Hummon and Mr. D. Shear, and Dr. W. Niblo, Acting Director, Program Officer and Education Officer respectively at the AID Mission.

At a meeting of the principal Ministry of Education officials concerned with mathematics and science education, plans for the forthcoming All-Africa Mathematics Institute and also for the establishment of a Science Center were discussed in some detail. Enthusiasm was expressed at the meeting about the potential value and need for a central co-ordinating source for work on science curricula for elementary schools. Indications were that the Ministry feels the proper location for the science center would be under the Institute of Education, located physically at the University College at Dar es Salaam. Discussions with University officials appear to confirm that facilities will be available and the required help provided by the time a trained science innovator can be located by ESI.

Plans for the All-Africa Mathematics Institute were well received, and assurance of co-operation and participation were made.

Word had reached the Ministry that Mr. Lawuo, participant at the 1965 summer workshop was actively trial testing several of the Entebbe Science Units.

A visit was made to the Chan'gombe Teacher Training College near Dar es Salaam to view accommodations for the Mathematics Institute planned there for ear-

December, 1965, and to appraise its suitability as a site for a future Science Workshop.

Blantyre, Malawi

Contacts made here were: Mr. Wareham, Secretary for Education, Ministry of Education; Mr. Malcolm Pinchin, Science and Mathematics Inspector, Ministry Inspectorate; Mr. Robert Snyder and Mr. Harold Konvalinka, US/AID Mission; Dr. Lotter, Assistant Representative of Peace Corps, Malawi, and staff members of Domasi Teacher Training College.

Again, the principal reason for the Malawi visit was to learn at first hand of plans for the establishment of a Science Center. Mr. Wareham indicated that plans were well along, and only further approval of the Ministry of Development, described as perfunctory, was necessary before the Center could actually be established and the necessary facilities provided. The site for the Center will undoubtedly be the Domasi Teacher Training College located ten miles from Ministry headquarters in Zomba. A visit was made to the College to view at first hand the facilities envisaged, and to discuss the Center with the principal of the College there. The site appears very satisfactory, the staff enthusiastic about the prospect, and there are indications of a further improvement in facilities. (Plans are now in readiness for seconding a science innovator to the Malawi Science Center as of the summer of 1966.)

Dr. Konvalinka, the Education Officer - AID, accompanied us to the Training College and is well posted on our plans there.

Mr. Pearson Kanyenda, a participant at the 1965 Science Workshop, and a staff member at Domasi Teacher Training College was visited. Plans for his trial work during the winter with Entebbe Science Units were discussed.

Lusaka, Zambia

Contacts made at Lusaka were: Mr. Joseph Iwerba, Permanent Secretary, Ministry of Education; Mr. C.H. Thorneycroft, Parliamentary Secretary; Mr. F. Gere, Under-Secretary; Mr. A.E. Phiri, Assistant Secretary; Dr. Lindsay Young, Registrar, University of Zambia; Mr. L. Goma, Zoologist, University Science Faculty; Prof. Alastair Keron, Director, Institute of Social Research; Mr. Mary Neville, US/AID and staff member of Ministry of Education Inspectorate; Mr. Sibson, Chief Inspector of Schools; Mr. Barker, Principal Inspector, Primary Schools and Teacher Training Colleges; Mr. Noah Setidisho, Mathematics Inspector, Inspectorate Division; Mr. I. Cruikshank, Education Officer, Ministry of Education.

The purpose of the visit to Zambia was to discuss on-going work on Lntebbe Mathematics with Ministry officials and AID representatives, and also to discuss developing plans for a Science Center on which there had been some previous correspondence.

A meeting at the Ministry of Education office with the Chief Education Officer revealed a considerable interest in the development of a primary science center, although no commitment for the establishment of such a center was made, available facilities being a problem. Consideration of various sites was given with Lusaka chosen as the most likely.

A meeting was held with representatives of the University of Zambia to acquaint them with the African Science and Mathematics Programs, and considerable interest was expressed.

Visits were made to three area schools to observe modern mathematics being taught.