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MALAWI MASS COMMUNICATIONS PROJECT

CONTRACT AID/AFR 355

UNIVERSITY OF MISSOURI  
COLUMBIA, MISSOURI

JUNE 1970

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**Cover Photograph by John Woods**

## INTRODUCTION

The AID/University of Missouri Mass Communications project in Malawi began in 1965. The contractor undertook to help bring radio, press, and cinema to bear on some of the formidable problems facing the developing country of Malawi. Every effort was made to insure a continuous output of mass media educational materials while also maintaining a training program for personnel both in Malawi and in the United States. In every case, major emphasis was placed on the early identification and training of counterparts.

Whatever success this project has achieved is due in large part to the encouragement, cooperation and guidance of many people, in and out of government, who have been both friends and colleagues. The University of Missouri wishes to express particular appreciation for the excellent support given by the officers and staff of the Extension Aids Section of the Ministry of Agriculture and Natural Resources and the Malawi Broadcasting Corporation. As Campus Coordinator, I also wish to thank the Agency for International Development and our contract technicians for their interest, dedication and hard work.

## BACKGROUND INFORMATION

A three-man survey team arrived in Malawi on 11 July 1965 to study the country's existing media capabilities and to suggest ways to expand and improve the use of such media in educational programs aimed at national development. Team members were Dr. Stirling Kyd, Team Leader; Dr. Barton Griffith; and William E. Mackie, who later became Chief of Party for the contract team in Malawi.

The Pre-contract Survey Report of July 1965 listed these objectives:

1. To encourage Government Ministries to make greater and more coordinated use of mass media for educational purposes.
2. To help these Ministries increase the effectiveness of their mass media efforts by providing technical production assistance.
3. To assist the Malawi Broadcasting Corporation in its efforts to maximize its advertising revenue.
4. To assist the Extension Aids Section of the Ministry of Agriculture and Natural Resources with the installation and operation of AID-donated printing equipment.
5. To help the above Ministry expand its use of extension radio as an educational medium for both farmers and extension workers.

6. To assist all Ministries, as requested and as permitted by work loads, to expand the use of films, slides and recorded materials in educational programs.
7. To seek new techniques and uses of mass media which might have application in Malawi.
8. To encourage the constant evaluation of mass communications programs.
9. To coordinate the production, utilization, and evaluation of school programs broadcast by MBC in behalf of the Ministry of Education and the Malawi Correspondence College.
10. To assist in giving Malawians the training necessary for them to assume as quickly as possible all the functions and responsibilities of contract team members.

Phase I of the Mass Communications Project consisted of assistance in the areas of radio program production, radio advertising, printing, and graphics and agricultural radio. Four technicians were working in Malawi by March 1965. They were William Mackie, Chief of Party and Radio Production Advisor, and E. L. Vandagriff, Radio Advertising Advisor, both attached to the Malawi Broadcasting Corporation in Blantyre, and Edward B. Etheridge, Graphics Advisor, and Ewing Canaday, Agricultural Information Advisor, who worked with the Extension Aids Section of the Ministry of Agriculture and Natural Resources in Zomba.

Printing equipment was provided by AID in 1965-66 for use by the Extension Aids Section. A radio production studio at MBC was equipped in 1968. Tape recorders and radio receivers were also made available during Phase I of the project.

Phase II (1968-1970) added the elements of motion picture production and training and installation of the three remaining transmitters needed to complete Malawi's medium-wave radio network. Walter Wierzbicki, Transmitter Installation Engineer, arrived in January 1968 for a two-year tour, and Cinema Advisor John Woods began a two-year tour in March 1968.

Motion Picture Production equipment was provided for the Extension Aids Section and was available when Mr. Woods arrived. The remaining commodities for the radio network were received by early 1968. One thousand radios for use by the Malawi Correspondence College and the Extension Aids Section Farm Forum project were also provided.

A total of fourteen man years of assistance on the part of regular team members has been made available to the country. Four short-term consultants have also worked in Malawi in connection with the project. They were Drs. Daryl Hobbs and Gerald Klonglan, rural sociologists; Mr. Edward Berg, a printing equipment specialist; and Dr. Richard Lee, an agricultural extension information specialist. Dr. Stirling Kyd served as campus coordinator from 1965-1968. Mr. Mackie took over the post upon his return from Malawi in December 1968.

A detailed review of accomplishments follows.

### ACCOMPLISHMENTS

The following objectives, proposed in the Plan of Work of March, 1966, have all been realized. It must be emphasized that many people at MBC, Extension Aids, and in Government contributed substantially to achievement of these goals.

1. Organization of a Production Services Section. This section served as both a production agency and a training facility for specialized advanced instruction in the preparation of commercial materials and complex programs. It has now been integrated into the Commercial Department and is housed in Studio F, a production studio equipped by AID.
2. Books comprising the broadcast reference library were first circulated by the Radio Program Producer-Director and are now available through Production Services personnel.
3. As noted in earlier reports, a number of seminars and training classes were organized at MBC and Extension Aids. Former participants now conduct such training.
4. More Ministries are now making use of radio and press. Transport and Communication, Health, and Trade and Industry have joined Education and Natural Resources as users of mass media.
5. More than twenty Malawians were trained in the United States. A summary of Participant Training will be found in the Appendix.
6. All transmitter sites were visited by Contract personnel. The information obtained was especially useful in the development of local commercial sales by MBC. Mr. Mkambula has further expanded the local sales program since the departure of the Commercial Radio Advertising Advisor, Mr. Vandagriff.
7. Adult educational programming, agricultural programming, and schools broadcasting was expanded during the contract period. Educational programs were also broadcasted during prime evening time. The UNESCO advisors and Ministry personnel are to be complimented for their excellent work in this field. Contract personnel played a supporting role in schools and Correspondence College broadcasting because of the presence of these skilled and dedicated broadcasters and administrators.
8. While little could be done directly to increase the number of radios in Malawian homes, every effort was made to encourage the abolition of license fees (eliminated in January, 1966) and to make programs and presentation as attractive as possible to encourage the purchase of sets.

The opening of regional stations also accelerated receiver purchases. Both radio and print media were also used to promote listening.

9. Research and evaluation was accomplished through the use of consultants from the University of Missouri and with the cooperation of the Malawi Census Bureau. Listenership surveys were conducted in both urban and rural areas. Arrangements have been made for surveys at six-month intervals. Reports by consultants Hobbs, Lee and Klonglan were made available to the Government of Malawi, AID, and to other interested agencies. Extracts were distributed to advertising agencies and commercial firms as promotional material.
10. Excellent relations were established with advertising agencies by the Commercial Advisor. Mr. Mkambula, the advisor's counterpart, continues to enjoy an extremely good working relationship with agency personnel and advertisers.
11. Contract personnel contributed to the growth and development of a MBC promotional magazine and program schedule, "Malawi Calling." (First called the "M.B.C. Review"). This publication has proved extremely popular with listeners and has been invaluable as a promotional vehicle. The major problem continues to be dependable nation-wide distribution. Additional revenue has come from advertising in the publication.
12. A commission plan for sales personnel was established. Proposed revisions are discussed in Mr. Vandagriff's report of December, 1969. A talent fee plan has also been introduced which has helped alleviate the problem of more adequate remuneration for those upon whom greater demands are made.
13. The MBC Commercial Department has been established as a separate entity within the Corporation, with its own established posts, budgets, and facilities. Commercial revenue has continued to increase dramatically since the beginning of the contract and continuing to increase under Mr. Mkambula.
14. Improved log and traffic systems have been designed and put into effect. Less duplication of effort and greater accuracy have resulted, along with a saving of time in preparation.
15. The printing and graphics equipment provided by AID was installed early in the contract. Technical training on the presses was conducted by Edward Berg, a consultant who visited Malawi on two occasions. Graphics training was carried on by Mr. Etheridge, the Graphics and Visuals Production Advisor, during his two year tour.

16. A number of new agricultural publications were developed by Extension Aids. There has been continuous improvement in quality, especially in the printing of half-tone illustrations. Output has also increased.
17. A farm forum radio project was organized with the help of the Agricultural Extension Information Advisor, Mr. Canaday. More than 400 listening groups are now active. Supporting printed materials are also produced by Extension Aids. The Farm Forum is regarded as a major part of the Agricultural Extension effort in Malawi and has benefited greatly from the interest and support of Ministry and extension personnel.
18. A sound recording studio was established at EAB. With the opening of an MBC studio facility in Zomba, the studio became a sound studio for use by the cinema section.

The following accomplishments relate to additional work proposals contained in the Quarterly Progress Report of June, 1966.

1. Additional radio staff posts were created at Extension Aids and personnel were recruited to fill them.
2. Training sessions for agricultural workers and students were conducted by Mr. Canaday throughout his two-year tour. Great emphasis was placed on training students at the Bunda Agricultural College. A radio club was also organized there.
3. Preliminary plans were made for the establishment of a motion picture production unit at Extension Aids.

The following accomplishments relate to the Plan of Work submitted by Mr. Walter Wierzbicki, Transmitter Installation Engineer, in March, 1968.

1. Mr. Wierzbicki's counterpart, P. Mkandawire, has been made Engineer in charge of Transmitters.
2. The four medium-wave stations built prior to Mr. Wierzbicki's arrival were all up-graded and standardized, as nearly as possible, with the new stations built by Mr. Wierzbicki.
3. The FM program distribution system was installed, resulting in marked improvement in signal quality in the affected areas.
4. Three new medium-wave stations were installed at Bangula, Mzimba, and Nkhota-Kota.
5. The independent side-band facility was not installed in Karonga since the Post Office will be providing programs via an VHF link. As noted elsewhere, the side-band equipment is to be used for remote broadcasts and a University of Malawi Extension teaching project.

6. The AID-equipped production studio was built by Malawian studio engineers under Mr. Wierzbicki's supervision.

The following accomplishments relate to the Plan of Work submitted by John Woods, Cinema Advisor, in May, 1968.

1. A fully-staffed film production unit has been established at Extension Aids, led by Mr. Woods' counterpart, Everisto Mwale.
2. Intensive training has been given five staff members in single-system production. Mr. Woods was able to hand-over to his counterpart well before his departure from the country. Only one double-system film was undertaken and only limited training was given in this area since it will seldom be necessary for Extension Aids to produce film requiring this production method.
3. One hundred and thirteen short films were produced during Mr. Wood's two-year tour.
4. Mr. Woods helped train mobile cinema operators and has suggested ways to improve the efficiency and effectiveness of this operation. He has also developed improved procedures for handling the films that are used on the cinema vans.
5. Editing benches designed by Mr. Woods have been built and are in use. A complete set of forms for the cinema section were designed and printed. These are for lab work, shipping, filing, ordering supplies, film check-out, etc.
6. A reference book on cinema production was written by Mr. Woods and distributed to the staff.

#### OTHER ACCOMPLISHMENTS

1. A mobile cinema advertising project was developed which has earned considerable revenue for Extension Aids and MBC, who share the profits. The program has met with enthusiastic support from advertising agencies and should provide increasing amounts of revenue. Extension Aids' earnings are to be used to help finance the film production program.
2. FM service for the public in Blantyre and Zomba was established in connection with the program distribution system for out stations mentioned earlier.
3. A large number of teaching aids, such as slides, demonstration and briefing films, charts and posters, etc., were developed by Mr. Woods and left with his staff for use in training new cinema staff members. Job descriptions and examination materials were also prepared for the Civil Service Commission which led to the permanent establishment of cinema staff positions.
4. Staff reorganizations were made in Extension Aids which should improve the efficiency of the media sections and simplify administration.
5. Equipment was provided to allow a second Auricon camera, once belonging to the Information Department, to be integrated into the Extension Aids Cinema Unit as a back-up camera.
6. The frequencies of the medium-wave transmitters were changed to bring the network into compliance with CCIR requirements.

## CONCLUSIONS

Several factors of possible interest to other communicators in developing nations have come to light during the University of Missouri's five years in Malawi. First, in media centered programs, it is essential that provision for on-going research be included in any such project from the start. Further, a full-time researcher should be included in any team of technicians sent to a developing country to mobilize media for nation building.

Secondly, radio and film programs can be combined to great advantage in developing countries. They can be used for cross-media reinforcement of content, to reach persons not adequately covered by one medium, and to promote the other medium. Frequently the same personnel, both program and technical, can be used in both media; thus affecting economy and coordination, essential ingredients in communication projects in developing nations.

Third, a film unit of the type developed in Malawi provides a realistic approach to what has been considered an overly complex and expensive tool in many young nations. Mr. Woods has demonstrated that a functioning film unit can be trained in two years to operate with a relatively small capital investment and comparatively low production costs. Mr. Woods has prepared a report on how other countries can establish a similar film program. Copies have been made available to AID.

Fourth, there are distinct advantages to operating fundamentally public service communications programs on a limited commercial basis. Not only is revenue increased, thus reducing costs to government, but on the basis of the contractor's experience in Malawi, the fact that the presenter was in effect personally earning revenue for his organization plus the variety of materials introduced by commercial operations leads to more professional standards of presentation. Staff members in Malawi, both radio and mobile cinema, displayed considerably more polish and skill in presentation when commercial elements were involved. For these reasons it seems desirable to exploit commercial possibilities as a motivational tool even when advertised revenue is not essential to the operation of a communications service.

FUNDING

A total of \$529,300 was committed by AID to support the University of Missouri's portion of the Malawi Mass Communications project. An account of expenditures, actual and estimated, through the contract termination date of June 30, 1970 follows. This data is extracted from Budget No. 5, Contract Amendment No. 5. A detailed account of commodity expenditures is also included in this report.

Line Item No.	Actual & Estimated Expenditures	Firm Budget	Total Budget
	Fr: 10/8/65 To: 12/31/68	Fr: 1/1/69 To: 6/30/70	Fr: 10/8/65 To: 6/30/70
1. Salaries	\$ 205,371	\$ 60,264	\$265,635
2. Allowances	10,248	5,600	15,848
3. Travel and Transportation	76,612	35,642	112,254
4. Other Direct Costs	10,025	7,422	17,447
5. Overhead	67,309	24,907	92,216
6. Equipment	20,945	4,955	25,900
7. Participant Costs	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>
Grand Total	\$ 390,510	\$ 138,790	\$ 529,300

## RECOMMENDATIONS -- EXTENSION AIDS

During the last year there has been a very rapid improvement in efficiency and quality of communications materials from the Extension Aids Section. Sufficient equipment is now available to allow operation of a complete communications service for the rural people of Malawi. Staff quality is also greatly improved. The project team is confident that Extension Aids will continue to develop during the years ahead.

The basic framework of Extension Aids is now well developed and a high level of leadership exists. The type of communications output is basically good and appropriate to the target audience. The following suggestions are offered to further improve the Extension Aids Section.

### GENERAL

1. During the past year an attempt has been made to simplify the EAS organizational structure and to clarify staff job descriptions. The project team suggests that these efforts should continue. Operations should be divided into two divisions: Media Services and Technical Services. Media Services should be responsible for all creative treatment of subject matter. Technical Services should assume responsibility for printing, electrical maintenance, mobile unit operation, etc.
2. Plans are underway to create a new section (in Media Services) responsible for the writing and editing of printed matter. This Editorial Section should have at least Bunda quality of staff. All materials should clear this section before going to the Printing Section. The Editorial Section should have final authority on the writing style of any printed material processed by the Printing Section. Of course, the Subject Matter Specialist should have the final authority on the subject matter. The project team hopes that these plans will be put into action as soon as staff becomes available.
3. The project team feels that another section should also be created in Media Services to handle all distribution and sales of communications materials produced by Extension Aids. The head of the Distribution Section should be a Bunda quality person and a member of the creative staff. He can have a number of clerks under him to do the routine jobs. However, his main task would be to investigate new means of distributing communications materials to rural Malawi. Close coordination would be required with other sections in Media Services. He should experiment with new methods of distribution such as posters in buses, canteens, local courts, clinics, etc. He should

handle distribution of all materials produced for general distribution or sale: films, slide sets, non-broadcast tapes, photographs, publications, posters, leaflets, etc. He should also organize and supervise some evaluation work.

4. Staff ranks between sections must be brought into better balance. Rank must be based upon the importance of the job. For example, the head of the Printing Section (now called Publications) is at a much higher rank than any of the creative staff members in the Media Services.
5. A better system is needed to insure that all materials (radio scripts, cine scripts, manuscripts for publications, etc.) are factually correct. Subject Matter Specialists must be brought in to check materials before the final stages of production. The project team feels that the Research Staff of the Ministry should be involved more closely in this endeavor. The Extension Aids staff must continue to strive toward greater professionalism in writing, editing, re-writing and producing. However, they should not expect to also become professional subject matter people.
6. The project team also suggests that more attention be given to checking the input of materials coming into Extension Aids. One of the most important jobs of the Media Services Coordinator should be examination of materials coming in to be sure they fit with other materials being produced. The Editorial Section Staff should handle the editing and re-writing of all materials for printing. The Cine Section staff should be responsible for re-writing films, and the Radio Section staff should adapt materials for radio programs.
7. Another method of job input control would be the setting up of Extension Aids on a semi-commercial basis. Extension Aids would then charge for large jobs such as those costing over ₦20 or ₦30. (If every job was charged for it might create too much paper work.) This procedure would help prevent high expenditures on minor projects. Also, it would help point out costs to subject matter specialists and administrators.
8. Presently there is a system in Extension Aids for checking output quality. The project team feels that even more attention should be directed towards this activity. The Media Services Coordinator and Technical Services Coordinator should check all materials to be sure they meet desired quality standards. Each section head should also be encouraged to strive for higher quality output.
9. Continued efforts should be made to design communications materials for specific audiences. This approach should be carefully explained to Subject Matter Specialists and administrators.

The first step is to identify different audience groups in rural areas -- average farmers, top 10% farmers (progressive), women, school children, extension workers, health workers, politicians, etc. Then the communications style and media should be chosen, and finally the distribution channel must be established to reach the desired group.

10. It is recommended that more effort be directed toward streamlining budget formulation and cost accounting procedures. The project team does realize, however, that this is extremely difficult because of billing delays, price changes, difficult communications, etc. Budget estimates should be based upon a long range plan for each section and should also include provisions for equipment depreciation and up-grading.

It is suggested that cost accounting for each vote be reviewed with each section head at least four times a year. Each section head should also be encouraged to plan his expenditures for the whole year and to check spending as the year progresses.

11. Extension Aids should continue to explore all advertising possibilities. The mobile cinema advertising program is off to a good start. Other possibilities are slide-audio tape spots between films on mobile units, puppet show announcements, posters with commercial content, calendars, the monthly magazine, spots in the radio programs, etc.
12. As total commercial revenue increases, Extension Aids and MBC may want to re-negotiate the terms of their revenue sharing agreement. Presently the net is shared 50-50. In most cases the operating costs for Extension Aids increase as the commercial revenue increases (more mobile units in the field, etc.) while MBC costs are fairly constant. Therefore, the project team feels that Extension Aids should probably start receiving a larger share of the net revenue. It is recommended that MBC and EAS discuss the matter prior to the start of the 1971 campaign.
13. It is recommended that Extension Aids continue to investigate possibilities for selling materials to other Ministries, other African countries and to international organizations. The three prime possibilities are reference books (printed in English), motion pictures and slide sets.
14. The project team feels that Regional Extension Aids operations are not essential in Malawi. It is recommended that printing presses and staff be incorporated into the Extension Aids headquarters. There are not sufficient resources to allow the regional operations to function as intended. These regional operations present the same type of problems as do the small educational communications operations in other Ministries.

It is recommended that one well-trained editorial man be assigned to each region who can write and take photographs. Actual production would be undertaken by the Extension Aids headquarters. These regional men would thus act as stringers and liaison men.

15. The project team feels that the Extension Aids operation should be removed from under the Extension Service and should report directly to the Permanent Secretary. Within the Ministry of Agriculture and Natural Resources, Extension Aids is already responsible for doing work for all departments. From all indications, other departments will be greatly increasing their demands upon the Extension Aids in the future, and under the present set-up, the Extension Service must provide the budget for the entire operation. Also, under the present system, the Extension Aids Officer has no official means of maintaining close contact with other departments.
16. It is recommended that the Extension Aids Officer be brought into the early planning stages of any major projects in the Ministry. It seems desirable that the educational communications backup effort should become much more important in Ministry programs. The only way to achieve the needed communications support is by having a representative from Extension Aids in on planning from the beginning of any program.
17. The project team recommends the establishment of a Communications Advisory Committee in the Ministry of Agriculture and National Resources. The members should represent each department in the Ministry. The committee's role would be advisory and would include the following functions: (1) determining the greatest educational needs in the rural areas of Malawi upon which communications efforts should be concentrated; (2) keeping the Extension Aids staff informed on educational activities which will need communications support; and (3) advising on educational programs involving more than one department. The Extension Aids Officer should be the chairman of this committee.
18. The scope of Extension Aids activity should continue to be broadened to expand the production of materials for health, nutrition, community development and any other agency which deals with adult education in the rural areas of Malawi. Extension Aids has by far the most developed and complete production services and channels of communication to the rural areas. These services should be broadened to meet the total educational needs of the rural people. Extension Aids has the machine capacity (printing presses, cameras, etc.) to take on work for other Ministries, but the Ministry served would have to provide the creative writing staff for the job. Actual production costs could be billed to the appropriate Ministry.

To implement this suggestion, it might be desirable to establish a Rural Communications Advisory Committee representing all the Ministries that might be involved in rural educational programs plus Extension Aids and MBC. The project team feels that the Government of Malawi cannot afford to have each Ministry establish their own educational communications operation. At present there is not enough money for equipment and not enough trained staff available.

19. In line with recommendation 18, the project team feels that the name of Extension Aids should be changed to "Rural Educational Communications Centre." If the rapidly increasing rural population is to be served effectively, a much greater emphasis needs to be placed on mass communications directed specifically at this audience. Further, the effort of all Ministries must be coordinated if maximum benefit is to be derived from money invested in such programs.
20. Extension Aids should seek the cooperation of the Ministry of Education in using schools as a rural distribution channel. Some cooperation has been effected and more possibilities exist. There are approximately 1,500 schools in Malawi. Presently, they receive very few educational materials from agriculture, health, community development, etc. Schools desperately need teaching materials and reference materials. Further, the other Ministries desperately need the distribution outlet which the schools can offer. The following list gives four possibilities:
  - a. Reference books (currently being printed by Extension Aids) could be distributed to all school teachers.
  - b. Achikumbe publications could be distributed to all school children (presently only one goes to each school).
  - c. A regular series of posters could be distributed to each classroom.
  - d. Education and agriculture might pool their radio sets and put them into the schools. In the afternoon when schools are not in session, agriculture, health, community development could conduct their radio listening forums in the schools. The radios should be under the control of the headmaster, but should be made available for workers from other Ministries to use. (Such a proposal is presently under consideration and the project team fully supports it).
21. During the period covered by the project, several discussions have been held concerning the merger of Extension Aids and the Information Department. The project team feels that this should not be done. First of all, the job each is responsible for is completely different. Extension Aids is responsible for producing educational materials for distribution in the rural areas. The

Information Department is responsible for reporting and interpreting the goals of government to Malawians and publicizing Malawi in the world community. Extension Aids functions only in rural areas whereas the Information Department places major emphasis on urban areas and external communications. The project team feels that greater benefit will derive from combining the communication programs of Ministeries aimed at rural areas as discussed earlier rather than a merger of Extension Aids and Information.

#### STAFF

1. The project team feels that a continued effort must be made to up-grade staff through on-going training programs and through the recruitment of better staff. Creative positions should be filled with Bunda graduates at the T.O. level. The size of the Extension Aids staff can be kept constant or perhaps be reduced while maintaining output and quality given these conditions.
2. Under the present system there is too little incentive toward professional improvement. The Extension Aids staff feel they are not being recognized as communications specialists. They believe that extension field workers stand a much better chance of being up-graded. As long as current salary levels and ranks exist, experienced Extension Aids staff members will continue to leave for better paying jobs at MBC, the Information Department, MANA, commercial printing companies, etc. It is essential that EAS workers be given higher salaries and that professional posts be established in the appropriate communications specialties.

#### STAFF TRAINING

1. More effort should be made to utilize local on-the-job training possibilities such as the Government Press, MBC, commercial printing companies, MANA, etc.
2. Companies send representatives to Malawi from time to time. These people should be invited to hold short seminars for staff members when appropriate.
3. There are a number of communications operations in Salisbury which might be investigated for on-the-job training possibilities.
4. Within the next two years, one of the top creative staff members should be sent overseas for a university degree in Agricultural Communications as preparation for appointment as Extension Aids Officer. As soon as possible another staff member should be selected for a similar University program as preparation for the post of Media Services Coordinator.

### PUBLICATIONS SECTION

1. The name of this section should be changed to "Printing Section." The present name implies that it is also responsible for editorial work which is not the case.
2. The section is well equipped. Machine capacity at the present time exceeds demands. However, given the situation in Malawi, these machines should be operating no more than 60 percent of the time, thus allowing for repairs, cleaning, etc.
3. As production increases, the collating operation will have to be improved. Some semi-automatic machines should be installed, such as a motor-driven circular table.

### EDITORIAL SECTION

As stated earlier, efforts are currently underway to establish this important section. Many of the jobs an Editorial Section should perform are currently being carried out by others.

1. This section should handle all materials going to the Printing Section in respect to editing, re-writing, checking with subject matter specialists, proof reading copy that has been typeset, determining distribution, etc. These jobs are currently being done by the Editorial Coordinator. However, the project team feel that this job requires additional staff for more expeditious handling.
2. The project team feels that a continued effort should be made to coordinate the entire printing effort. As stated earlier, materials should be planned for a specific audience's characteristics and needs. The following materials, already planned or in limited production, should be made available in increasing numbers:
  - a. The greatest emphasis should be on the production of reference books for village level workers. These should be aimed at agricultural workers, health workers, community development workers, school teachers, missionaries, politicians, commercial company representatives, etc. A reference service should also be established. This could consist of single page "fact sheets" on current developments.
  - b. A regular picture poster service is needed. Posters are presently being produced, but more are needed. These should consist of pictures with short, simple captions and should be beamed towards the average rural family.
  - c. The monthly Achikumbé magazine, designed for progressive rural families, should be continued. However, more health, nutrition and similar material should be included.

- d. A monthly National Newsletter for village level workers (the groups mentioned in "a" above) should be initiated. The publication could include current programs, timely suggestions for projects and demonstrations, success stories of other village level workers' activities, etc.

#### MOBILE UNIT SECTION

The project team feel that the mobile unit operation is making a substantial contribution to the Extension Aids program. The success of the cinema advertising project indicates that commercial companies respect the mobile unit program as an effective communications medium.

1. The biggest need in this section is to increase the number of mobile units. The project team feel that the efficiency of the existing units is high and can be improved only slightly. Extension Aids should strive to have at least twelve mobile units in the field at any one time. This would require having eighteen or more fully equipped units available.
2. More experimental work needs to be done with new presentation techniques. While films are carefully selected and arranged for the cinema part of the program, little has been done in utilizing other time segments -- the hour before films are shown, time between reel changes on the projector, and after the films are shown. Drivers should have materials available so that there need be no gaps in the total presentation. Possibilities include taped music, tape and slide shows, tapes with MBC personalities, etc.
3. Drivers should be given thorough briefing on the subject matter of each campaign. If the drivers are asked questions, they should be able to answer most of them. (EAS has now adopted such a procedure).
4. Mobile unit schedules should be compiled and printed in August. The MBC Commercial Department must have the printed schedule before September 1 to allow distribution to advertising agencies.

#### ELECTRONIC MAINTENANCE SECTION

The project team feels that this section is functioning well in their extremely important role. Plans are already underway to implement the following recommendations:

1. Additional test equipment should be purchased as soon as funds are available.
2. A closer working relationship should be sought with the MBC Engineering Department. MBC could be of great assistance in advising on long-range planning and in routine technical matters as well.

PHOTOGRAPHY SECTION

This section is now headed by a U.S. trained participant. From all indications, there have been improvements in both quality and quantity of the still photography operation. A number of organizational and physical changes are currently under way in this section which should result in improved efficiency.

1. More professional still photo equipment should be acquired for this section.

There is a need for a 4 x 5 inch professional enlarger, twin len reflex cameras, 35mm slide cameras, light meters, flash units, etc. An effort should be made to find money for this equipment at an early date.

2. The project team feels that the demands made on this section will increase very rapidly. We suggest that another staff member be nominated for advanced training as soon as possible.

Many of the recommendations mentioned are currently being implemented. The project team is confident that Extension Aids will continue to make a major contribution to Malawi's development.

## RECOMMENDATIONS - BROADCASTING

While recommendations relating to MBC have been made earlier by departing technicians in their End-of-Tour Reports, the following points are based upon a discussion with the Hon. A. K. Banda, Minister of Finance, Information and Tourism, during Mr. Mackie's final visit to Malawi in March, 1970.

It is recommended that consideration be given to operation, during certain periods of the day, of the 100 KW short-wave transmitter as a full commercial service. Not only would such an operation grow into a valuable source of extra income but would also function as an extremely useful method of publicizing Malawi for purposes of tourism and investment.

The need for extra revenue will become more acute as the new transmitter is brought into full operation and production costs increase, as they must if service is to be expanded. As Mr. Vandagriff notes in his End-of-Tour Report:

Although it will still be some time before MBC's commercial time reaches the "saturation" point, the level of revenue has now reached a stage where it must begin to level off rather sharply. Even though some increases in rates should be possible in the future, it will not be possible to raise them a great deal above the present levels.

Mr. Vandagriff goes on to suggest that Mobile Cinema, production work and the expansion of broadcasting hours are possible sources of increased revenue. The Contract Team also proposed that MBC establish a service to be called "Lake Land Radio" which would operate as a full commercial service from 8:00 p.m. to 2:00 a.m., and perhaps as the service developed, all night. Programming should follow a "Top Forty" format and feature Malawian announcers presenting programs in English. It is felt that such a service, properly organized and professionally presented, could soon attract a large audience in central and southern Africa and could be developed into an excellent source of revenue.

Mr. Vandagriff included these observations about such a project in his final report:

The effectiveness of the Commercial Department in off-setting operating expenses for this service should be directly proportionate to the amount of external service broadcast time made available for sale. It would be unrealistic to charge the department with the responsibility for revenue to cover that portion of the broadcast period designated "unavailable for sale." Salable programs must be consistently perfect and must be pre-planned at least 3 months prior to broadcast. (This, of course, applies to program title and format - not to content). There must be no changes in the external programs schedule without at least 3 months advance notice for promotional purposes. Provision would have to be made for external listenership surveys, external promotion and publicity,

increased Commercial Department expenditures in almost every vote, and for the expansion of the Commercial staff to almost double its present size. Unless MBC's existing contract with Radiovision Broadcasts International can be amended, it is likely that all sales on the external service (except those originating in Malawi, Rhodesia, or South Africa) would be subject to the standard 15% RBI commission. It is also most likely that revenue would not be immediately forthcoming from sales on the external service. The service itself would have to be in operation for some time in order to prove itself to listeners and potential clients before many contracts could be expected.

While there are many problems to be overcome in establishing such a service, the Contract Team believes that it represents a promising approach to the Corporation's continuing need for additional revenue.

The Contract Team further recommends that consideration be given to establishment of a professional communications association in Malawi, open to personnel from MBC, Information, Extension Aids, the press, and other persons who are employed full time in mass communications. The goals of such a group would be to raise professional standards within the country, act as a clearing house for new instructional materials for professional improvement and maintain contact with communicators and professional groups in other nations. Such a group should hold monthly meetings for the discussion of common problems, conduct seminars and training sessions, and publish a simple newsletter to keep members informed as to recent communication developments in Malawi and abroad.

It is finally recommended that efforts be made to secure an additional 1 KW Gates medium-wave transmitter through AID to serve as a standby unit at the Blantyre transmitter site. At the moment, medium-wave coverage in this area comes only from the 10 KW unit given to Malawi as an independence gift in 1964. Because of the age of the transmitter and the size of the audience in the Blantyre-Limbe area, it is essential that such back-up capacity exist. The cost of the transmitter and change-over unit can be met from budgeted but unexpended funds in the University's Budget No. 5. It is requested that AID proceed with procurement on this basis. This proposal has the support of MBC, former Ambassador Jones, and Mr. J. C. Chester, Acting AID Affairs Officer. Mr. Wierzbicki has been asked to prepare complete specifications for the transmitter and associated equipment. It is anticipated that these specifications will be submitted to the Mission along with a formal request for the transmitter. The Contractor urges that every effort be made by AID to comply with this request.

FINAL REMARKS

While many advances have been made in the utilization of mass media for nation building in Malawi, some problems remain. But, in my opinion, the tools and expertise needed to overcome these difficulties now exist within the country. I think further that the Government now has a much greater appreciation for the ways in which media can contribute to development, and will continue to support and expand the programs now underway. It should also be made clear that this progress in communications has resulted from the combined efforts of many nations and individuals.

While the University of Missouri's formal connection with Malawi may be coming to an end, the University, and those who served in the country, will certainly not forget Malawi and the people who made our stay pleasant and productive. The University shall continue to seek opportunities to be of help in whatever ways may present themselves.

William E. Mackie  
Campus Coordinator

APPENDIX A

A SUMMARY OF THE MALAWI BROADCASTING CORPORATION'S  
TECHNICAL DEVELOPMENT

The following report was prepared by MBC's Chief Engineer, G. K. MacDonald. The report shows how US/AID equipment has been integrated with gifts from other nations into a high quality broadcasting system.

1964 January. Malawi Broadcasting Corporation formed.

A studio with ex-F.B.C. equipment and some equipment supplied by Britain was established in Chichiri House, Blantyre. Total facilities were one large studio, two announcer cubicles, a small control room, a tape editing suite, and some portable outside broadcasting equipment.

The ex-F.B.C. 10kw Gates Short Wave transmitter was moved from Mikuyu, near Zomba, to a new site acquired at Ngumbe, near Blantyre. The short wave transmitter operated on a single frequency in the 75 metre band throughout the hours of broadcasting which were 0600 to 0800 and 1200 to 2200, and gave reasonable coverage throughout the country during daylight hours, but was less effective after dark because of single frequency operation.

A  $\frac{1}{2}$  Kilowatt medium wave transmitter was installed at the Hynd Dam P & T site to serve Blantyre/Limbe on Medium Wave and a similar small medium wave transmitter was installed on P & T premises in Lilongwe to serve that township and was fed with programme from Blantyre via a telephone line rented from P & T.

Later in the year a 10 Kilowatt Medium Wave transmitter (an independence gift from America) was installed at Ngumbe to replace the Blantyre/Limbe  $\frac{1}{2}$  Kw, and medium wave service was increased from approximately 15 miles to 60 miles around Blantyre.

1965 Early in the year a 1 Kw transmitter was installed in an M.B.C. building at Lilongwe to replace the  $\frac{1}{2}$  Kw service. It was fed via a VHF/FM music quality link through a repeater installed on Dedza Mountain and provided a high quality signal over a radius of approximately 40 miles around Lilongwe. The transmitter and the link were part of the U.S.A.I.D. Independence Gift given the previous year.

Additional aerials were erected at Ngumbe and new frequency assignments in the 50 metre and 90 metre bands were acquired from the International Frequency Registration Board, Geneva. The 90 metre frequency was used in the morning and evening hours and the 50 metre frequency was used during the day. These changes greatly improved the national short wave service.

A stand-by diesel plant was installed at Ngumbe to maintain service in the event of an ESCOM failure.

A Landrover was adapted to be readily converted to an Outside Broadcast Unit at short notice, and from this time on many important events happening away from Chichiri were broadcast 'live' via P & T landlines.

M.B.C. participated in the Sixth Commonwealth Broadcasting Conference held in Lagos, Nigeria.

1966

A 1 Kw transmitter was installed at Fort Johnstone (U.S.A.I.D.) which re-broadcast the short wave service from Ngumbe and gave 40 mile coverage on Medium Wave to that area.

Broadcasting House, Chichiri, was completely equipped with new studio equipment supplied by the Federal Republic of West Germany. The equipment and building was modified to increase the available facilities to 4 studios with their own control cubicles, one with 'self announce' facilities, and a comprehensive Central Control Room.

Equipment was installed to enable commercial 'spots' to be played easily from endless cassettes rather than from disc or conventional tape machines. This facility greatly improved the quality of presentation and ease of handling of the ever increasing number of sponsored announcements.

A comprehensively equipped Mobile Recording Vehicle given by West Germany was modified to act as an Outside Broadcast Unit capable of handling up to 8 microphones, and was fitted with a VHF/FM radio link to enable Outside Broadcasts to be originated from sites which could not be reached by P & T lines.

Malawi was represented at the African LF/MF Band Plan Conference, Geneva, and satisfactory Medium Wave frequency assignments were obtained for all present and future medium wave transmitter developments.

The hours of broadcasting were increased from 0600 to 0800 and 0900 to 2200.

1967

A 1 Kw transmitter was installed at Karonga (U.S.A.I.D.) to provide 40 mile Medium Wave coverage in that area; this transmitter rebroadcasted the Ngumbe Short Wave programme.

A studio and control cubicle specially designed to make commercial spots with special sound effects, etc., was added to the Chichiri studio complex (equipment U.S.A.I.D.). This was completed in 1968.

A production training studio was built at the Malawi Correspondence College (equipment SCAAP Britain) to train broadcasters in production techniques and to compile programmes for the School's Broadcasting Service.

The Engineering Line Termination room was rebuilt (as a training exercise) to provide the extra switching facilities necessary for the increased number of studios.

A limited Radio Monitoring facility was established at Broadcasting House to record and transcribe news and comment from other countries.

The first live coverage by M.B.C. commentators from abroad was mounted from Nairobi on the occasion of His Excellency the President's State Visit to Kenya.

Facilities to handle international voicecasts, telephone interviews and 'telephone requests' were installed.

Permanent lines were acquired from regular Outside Broadcast points such as Kamuzu Stadium, Ryall's Hotel, State Lodge, Blantyre, Kwacha National Cultural Centre.

A Current Affairs 'walk in' studio was established for topical interviews (equipment - West Germany).

The close down period for maintenance and wave change in the morning was eliminated, thus increasing the daily hours of transmission to 18 hours per day (19½ hours on Saturdays).

1968

A 1 Kw Medium Wave transmitter was installed at Bangula, providing good medium wave coverage of the Lower Shire area (U.S.A.I.D.).

High quality programme was fed to the Bangula transmitter from a .05 Kw VHF/FM transmitter installed on Mpingwe Hill which in turn was fed from a similar transmitter installed in Broadcasting House. The introduction of VHF/FM distribution of programmes insured higher quality than presently available on P & T lines and also provided a very high quality service to listeners who have FM receivers and live near the FM relay stations. (All equipment U.S.A.I.D.).

Special limiting and compensating amplifiers were installed at Broadcasting House and Ngumbe Transmitting Station to automatically preserve a reasonable programme level in spite of variations at source owing to momentary inattention of Programme Operators or variations in level of recorded material. (Equipment U.S.A.I.D.).

A permanent Outside Broadcast facility was established at Kamuzu Stadium to cover State Occasions and sporting events on a 'walk in' basis. (Equipment S.A.B.C.).

A Studio Centre was established in Zomba in the ex-F.B.C. building which was completely restored and equipped with redundant plant made available by S.A.B.C. All Ministry of Natural Resources (Extension Aid Branch) programmes are produced in this studio.

A high quality contribution circuit was rented from P & T to connect the Zomba Studio to Broadcasting House; permanent lines were also rented from all important centres in Zomba.

The Programme Input Equipment at the National Transmitting Station, Ngumbe, was replaced by more comprehensive equipment made available by S.A.B.C.

1969

A 1 Kw Medium Wave Transmitter was installed at Nkota Kota to provide a 40 mile radius coverage of that area. Programme is received by Short Wave rebroadcast from Ngumbe (U.S.A.I.D.).

A 1 Kw Medium Wave Transmitter and studio centre was installed at Mzimba. This station receives its programme feed via a P & T line from Lilongwe. The Studio facility allows programmes to be originated there or recorded for subsequent use on the national network (U.S.A.I.D.).

Studio facilities were installed at the Fort Johnstone Transmitting Station to provide similar facilities to those at Mzimba (U.S.A.I.D.).

Studio facilities were installed at Karonga transmitter to provide the same facilities as Fort Johnstone and Mzimba (U.S.A.I.D.).

An improved VHF/FM arrangement was installed on Dedza Mountain to enable high quality programme to be fed to Lilongwe and Fort Johnstone rather than depending on point-to-point services and Short Wave rebroadcast (U.S.A.I.D.).

A .05 Kw VHF/FM transmitter was installed on Zomba Plateau to provide a high quality service to FM listeners in the township and to provide a potential feed for a future Medium Wave transmitter in the Zomba area (U.S.A.I.D.).

VHF/FM fixed tuned receivers were provided at all P & T centres responsible for the maintenance of the VHF/FM transmitters on their sites to give an immediate check on the performance of the VHF/FM network (equipment U.S.A.I.D.).

A new Engineering Control Room was built in Broadcasting House to centralize all engineering operational and monitoring activity, with permanent lines to all popular O.B. points and full supervisory equipment to check the performance of all studios and relay transmitters (S.A.B.C.).

A large extension was built on to the Ngumbe Transmitting Station to house extra Short Wave Transmitters. A used 20 Kw Short Wave Transmitter from S.A.B.C. was installed and commissioned to complement the 10 Kw ex-F.B.C. transmitter. The 90 metre transmission is carried by the 20 Kw Transmitter and the 50 metre transmission is carried by the 10 Kw Transmitter with a suitable overlap to avoid loss of service during the periods of bad propagation at dawn and dusk.

The building extension has provision for a 100 Kw Short Wave Transmitter presently being installed by Telefunken and provided by the Government of the Republic of West Germany.

Foundations for new aerials to serve either Malawi or her neighboring countries have been provided and the masts and aerials are presently being installed by Telefunken (equipment West Germany).

All Medium Wave Transmitters were changed to the new frequencies agreed at the African LF/MF Band Plan Conference 1966.

A Single Sideband 2-way radio telephone was established between the Karonga Station and Broadcasting House for routine and emergency communication. Karonga is the only M.B.C. centre not served by the P & T telephone network.

A stand-by diesel plant was installed at Broadcasting House, Chichiri to guard against loss of service in the event of a failure in the ESCOM supply.

A new Central Control Room is being designed for the Ngumbe Station to provide centralized supervisory and monitory facilities of the 10 Kw Medium Wave Transmitter (U.S.A.I.D.), the 10 Kw Short Wave Transmitter (ex F.B.C.), the 20 Kw Short Wave Transmitter (S.A.B.C.), the 100 Kw Short Wave Transmitter (West Germany); the objective being to unify the various aid projects at present underway at this station into an integrated technical facility.

An additional studio, designed primarily for newscasts, is being completed in Broadcasting House, Chichiri. This will enable other studios to continue with normal production work without hourly interruptions for news bulletins.

This studio will bring the total to 8 in an area previously accommodating 3, and no more development can take place in Chichiri House because of lack of space.

U. S. AID

<u>YEAR</u>	<u>FACILITY</u>	<u>VALUE</u>	<u>EFFECTIVENESS</u>
1964	10 KW MW TX Ngumbe \$19,250 Tx 3,000 Ant. 655 Mod. Mon. 485 Limiter	\$23,390.00	Provided good MW reception within 60 mile radius of Blantyre
1965	1 KW MW TX Lilongwe \$ 5,295 Tx 3,000 Ant. 655 Mod. Mon. 485 Limiter	\$ 9,435.00	Provided good MW reception within 40 mile radius of Lilongwe
	50 Watt VHF/FM point-to-point programme link \$ 1,950 Tx 18 Ant. 400 Rec.	\$ 2,368.00	Provided a high quality programme link from Blantyre to Lilongwe via Dedza Mountain
1966	1 KW MW TX Fort Johnston \$ 5,295 Tx 3,000 Ant. 655 Mod. Mon. 485 Limiter 1,075 Remote control 200 HW 100	\$10,710.00	Provided MW rebroadcast of BT. SW programme for Fort. Johnston area (40 miles)
1967	1 KW MW TX Karonga \$ 5,295 Tx 3,000 Ant. 655 Mod. Mon. 485 Limiter	\$ 9,435.00	Provided MW rebroadcast of Bt. SW programme for Karonga area. (40 miles)
1968	1 KW MW TX Bangula \$ 5,295 Tx 3,000 Ant. 655 Mod. Mon. 485 Limiter 200 Rec. 200 Rec.	\$ 9,835.00	Provided high quality rebroadcast of BT VHF/FM service to Lower Shire area
	50 Watt VHF/FM TX Mpingwe \$ 1,850 Tx 36 Ant. 200 Rec.	\$ 2,086.00	Provided a high quality signal to Bangula and a limited FM service to Limbe.
	Audiomax and Volumax added to programme distribution chain	\$ 1,000.00	Improved control of programme level and increased average level.

1968 (con't)	Studio and control cubicle B.H. (1968 add to Pg.1) \$ 9,613.45	\$ 9,613.45	Provided facilities to produce high quality commercial spots.
1969	Provision of studio facilities at Fort Johnston \$ 1,695 Console 818 Tx 485 Limiter 1,075 Remote control 200 FM Rec.	\$ 4,273.00	Enabling programmes to be originated from or recorded at the F.J. transmitting station.
	1 KW MW Tx Nkota Kota \$ 5,295 Tx 3,000 Ant. 655 Mod. Mon. 485 Limiter	\$ 9,435.00	Provided MW rebroadcast of SW programme from Blantyre effective service 40 mile radius
	50 Watt VHF/FM transmitter on Dedza Mountain \$ 1,850 Tx 36 Ant. 400 Rec. (2)	\$ 2,286.00	Provided high quality feed of programme to F.J. and L.L. from Dedza Mountain and released Dz - LL point-to-point VHF link for other uses.
	1 KW MW Tx Mzimba with studio facilities \$ 5,295 Tx 3,000 Ant. 1,695 Console 818 T.T. 655 Mod. Mon. 485 Limiter 200 Rec.	\$12,148.00	Provided MW relay of Bt. programme via a P & T line with the capability of originating programme locally or recording programmes from the Mzimba area. Effective service 40 miles radius.
	50 Watt VHF/FM Tx Broadcasting House Chichiri \$ 1,850 Tx 400 Ant. 800 Rec.	\$ 3,050.00	Omnidirectional FM service to feed Ngumbe National Transmitting Station with high quality programme also Dedza link and Mpingwe FM Tx, and Zomba FM. Relay in addition to a limited FM public service.
	VHF/FM 50 Watt transmitter on Zomba Plateau \$ 1,850 Tx 36 Ant. 400 2 Rec.	\$ 2,286.00	Provided high quality VHF/FM reception to listeners in the Zomba area and is a potential feed for a future MW Tx in Zomba.

1969 (con't)

VHF/FM monitor re-  
ceivers at P & T  
centres in LB LL  
and ZA

\$ 800 4 Rec.

\$ 800.00

Enables P & T staff  
to monitor the quality  
of VHF/FM signals from  
US-AID/MBC transmitters  
on their sites.

Provision of studio  
facilities at Karonga

\$ 1,695 Console  
818 T.T.

\$ 2,513.00

Enabling programmes to  
be originated from or  
recorded at the Karonga  
Tx station.

Provision of FH/SSB  
link from Bt. to KK.  
and KG.

\$ 7,000 2 SG - 70  
17,390 2 ST - 1A  
1,260 4 Baluns

\$25,650.00

Project not fully  
implemented because  
of promise of P & T  
wide facility to feed  
high quality programmes  
to these stations in  
near future. Now will  
be used for remote  
broadcasts and experi-  
mental extension  
teaching by University  
of Malawi

Test and measuring  
equipment and tools.

\$ 677 Proof equip.  
300 V.O.M.  
5,000 Panalyzer  
600 Counter

\$ 6,577.00

Precision equipment  
for the accurate  
measuring of frequency,  
current, voltage,  
resistance, impedance,  
admittance, field  
strength, etc., dis-  
tortion, etc., also  
general and specialized  
tools for electronic  
applications.

APPENDIX B

The following participants were sent to the United States for training in connection with the University of Missouri program. Other participants from MBC and Extension Aids were selected for training prior to the arrival of the Missouri team.

<u>Participant</u>	<u>Extension Aids</u>	<u>Course</u>
E. G. Mkandawire		Public Relations & Ag. Journ.
Foster Pemba		Electronic Technician Course
Sampson Kazima		Electronic Technician Course
Nelson Chilenda		Publications Management
Paul Chipwaira		Commercial Art
Enock Akimu		Agricultural Radio
Patson Mwangomba		Agricultural Information Supervision
B. J. Naziche		Printing Technology
M. B. Namwera		Commercial Photography

MBC

Noel Munthali	Commercial Radio Technology
Vito Nyengani	Commercial Radio Technology
Churchill Chawinga	Commercial Broadcast Production
Richard Chikuse	Commercial Radio Technology
Mrs. Z. Katumbi	Home Economics Broadcasting
Mrs. M. Banda	Home Economics Broadcasting
Overton Mandalasi	Electrical Engineering
Crispo Mkambula	Commercial Radio Management
Elias Kapangama	Commercial Radio Management
Henry Chirwa	Radio Production/Sales
Tinkhani Makwakwa	Radio Production/Sales
P. Mkandawire	Commercial Radio Technology
Lucius Chikuni	Advanced Production/Management
Richard Mkandawire	Commercial Radio Technology
Martin Chirwa	Commercial Radio Technology

APPENDIX C

COMMODITIES PURCHASED FOR USE IN MALAWI

<u>Quantity</u>	<u>Item</u>	<u>Cost</u>
14	Uher 4000-L Tape Recorders	\$ 4,997.44
1 yr.	"Broadcasting" Magazine	17.50
1	"Five C's of Cinematography"	9.75
2 yr.	"Audio" Magazine	9.00
1	Drawing Set	17.00
1 set	Art Supplies	51.56
1	"Writing for TV and Radio"	6.25
1	Radio Receiver AM	13.34
1000 ft.	Studio Cable	12.90
1	Bulk Eraser	14.30
1	Wall Baffle	5.88
2	Ampex Remote Control	150.00
1	Transformer - 500 W	30.65
1	Transformer - 500 W	7.28
4 pks.	CJ-12 Terminals	3.56
4 pks.	CJ-6 Terminals	1.88
2 pks.	Solder Terminals	2.50
1 pk.	CJ-14 Terminals	1.25
1	MO-6 Outlet Box	7.15
2	MO-3 Outlet Boxes	6.74
1	Plug	.45
1	Jack Panel	38.47
6	Patch Cords	37.26
1	Reverbatron MDL 658A	995.00
1	Ambassador Console	2,395.00
1	Intercom Speaker	49.00
1	Kit Aux Relay M6482	18.50
1	Cabinet Reel Storage	135.00
1	Discabinet LP12D	45.00
200 ft.	Cable MIC	36.00
250	Wire 20 Strd. 2C Shld.	15.00
2	Mike Stand Mikester 1	21.54
3	Headphone BA200 1 Clevit	66.00
1	8 inch Speaker	8.95
1	Basic Rack Cabinet	190.00
2	Single Corner Trim	25.00
2	Side Panels	84.00
1	Bracket	7.50
1	Kit Fan	41.50
1	Studio Sign on Air	17.50
2	Turn Table, Gates	1,176.00
2	Cartridge	39.90
1	M6453D Metal Grill	6.50
1	Top Combo Desk	85.00
2	Double Leg	40.00
1	Hi-Lo Pass Filter	330.00
2	Microphones, EV Cardioid Model 666	245.00
2	Recorders, Ampex PR-10-1	1,971.00
2	Four-Digit Resettable Counters	63.00
1	Ampex Professional Maintenance Kit	11.25
2	Line Input Transformers	26.00

1	Recorder, Ampex, 602-1	576.00
1	Speaker - Amplifier, Ampex 622	170.00
1	Tape Eraser	9.99
1	Transformer - 500 W	12.77
1	Transformer - 100 W	5.96
12	Recording Tape	14.28
1	Transcription Player	140.90
1	Microphone KNL 45020A	9.77
1	Headset, Superex	22.45
1	"Audio Cyclopedia"	17.95
2	"AM-FM Broadcast Operations	10.70
10	Tape Splicers TS-4S	51.30
50	Rolls Splicing Tape	28.32
10	Rolls Leader Tape	5.90
1	Transformer for Bogen VP-18	12.77
1	Transformer for Woll 5150	12.77
10 Pk.	Title Labels	5.90
50	Reels Blue 5 inch	15.75
50.	Reels Blue 7 inch	22.00
2	"Broadcast Operations"	11.90
8 pks.	Reels 3 inch	4.72
10 ea.	Spare Projection Lamps for Craig 16mm Viewer	23.00
1	Technique of Special Effects	15.00
1	Technique of Documentary Film Production	10.00
1	Technique of the Motion Picture	14.50
1	Audio Control Handbook	6.95
1	Film and TV Graphics	16.50
1	Radio Programming	6.50
1	Radio Broadcasting	6.95
1	"Broadcasting" Renewal one-year subscription	13.50
1	"Handbook of Graphic Reproduction Problems"	25.00
1	"Symbology"	6.95
1	"Visual Communication Int'l."	6.95
1	400 ft. 16mm Auricon Film Magazine	205.00
1 set	Art Supplies	28.12
1 set	Art Brushes and Scales	8.60
1	Gates Cartridge Alignment Tape	6.00
3	Shure M44/7 Cartridge	59.85
9	Shure N44-7 Stylus	87.75
1	Pan Cinor "85-2 Auricon" Zoom Lens	711.00
2 sets	Filter Adapter Rings	23.00
1	Series 9 No. 85 Color Correction Filter	13.95
1	Turret-Lock-Knob	5.75
1	Zoom Lens "Auricon Pro-600" Camera Door	87.50
2	Camera Body Caps	6.00
2	Auricon Take-up Belts	13.00
1 set	Spare tubes for Auricon Battery Eliminator	11.50
1	Auricon Camera Electrical Power Cable	6.50
1	Amplifier Output Cable for NR-25-A7 Amplifier	32.25
1	Amplifier Output Cable for NR-25-S7 Amplifier	32.00
1	Maier-Hancock Portable Hot Splicer	350.55
2	Carbide Scrapers	12.00
1	Parts Catalog for M-H Splicer	3.00
1	Noviola 16mm Viewer	292.50
2	Spare Exposure Lamps with NR-25-A7 Amplifer	13.00
1	The Technique of Editing 16mm Films	9.50
1	The Technique of the Film Cutting Room	11.50
1	Telefinder Cover Plate, Auricon	3.75
1	Telefinder Dummy Cover, Auricon	2.30

1	TV and Film Production Data Book	2.95
4	482 Ev. Battery	11.88
1	741 Ev. Battery	2.90
2	744 Ev. Battery	2.30
20	Recording Supplies (tape & splicers)	24.68
1	Millen Grid Dip Meter	78.50
1	Millen Coil - 46702	9.40
1	Millen Coil - 46703	9.40
1	Millen Coil - 46704	9.40
1	Millen Coil - 46705	9.40
1	Jerrold 720B Meter	295.00
6	Burgess 8R Bat	5.22
3	Burgess N60X Bat	10.41
2	Adapt Kit T-789-C	19.48
1	Tube Tester 123R Hickok	610.00
1	Tube Tester 752A Hickok	375.00
1	Hickok Plug-In Digital System	375.00
1	DP-160 SOMC Counter	395.00
5	Rolls Black Booping Tape	10.00
2	Slides for Sekonic L28 Light Meter	8.00
2	Sekonic Photo Cell Spheres	6.00
5	Microphone connectors XLR-3-11C	7.85
2	Exposure Lamps for Auricon	13.00
2	"Lab Pack" Adaptors	30.00
2	AC Plugs	3.04
2	AC Plugs	1.44
5	AC Plugs	.85
1	Radio Engineering Handbook	23.00
7 sts.	Broadcast Engineering Notebooks, Vol. I-IV	124.92
4	Jacks #3501F	.36
4	Jacks #3503	1.56
3	Adapters	2.16
3	Jacks #110C-2 Cond.	.90
1	HM-100 Telest.	14.50
1	Vinyl Ear Cushions	.70
1	Voltage Tester	3.38
3	XLR-3-12 C Plgs.	4.08
4	3502 Plgs.	1.20
1	Technique of Sound Studio	10.50
1	Technique of Film Editing	13.50
1	American Cinematographers Manual	15.00
1	Audimax Model 444	665.00
1	Volumax Model 440	665.00
4	K-3278 Exposure Lamps	26.00
3000ft.	Audio Cable	85.05
1	16mm Bloop Punch	15.00
6	Tape Splicers	35.94
12 rolls	Splicing Tape	3.96
4	1U5 RCA Tube	6.12
3	3U4 RCA Tube	4.59
2	1N65 GE Diodes	.96
4	1½ volt Batteries ER 482	11.88
1	Batteries ER 742	1.15

TOTAL      \$20,998.53