

PLANNING FOR ENVIRONMENTAL INFORMATION MANAGEMENT IN MALAWI

EXECUTIVE SUMMARY

The following report is based on a consultancy conducted during the period 14-28 January, 1997. I would like to thank Mr. James Chuma, Chief Documentation Officer and Director of the National Documentation Center, for his counsel and participation in both the Forum and the content of this report. In addition, I want to thank Ms. Minnie Dzwela for her able assistance throughout my visit and the dedication and professionalism that she brought to our collaboration.

As a preliminary step in the process for developing an Environmental Information System (EIS) for Malawi, an Information Management Planning Forum was held at Sheila's Lodge on January 21-22, 1997. Goals for the Forum were to identify strategies to: 1) increase cooperation to promote a continuous flow of information between all target units; 2) facilitate the sharing of resources and suggest standards for compatibility; and 3) identify and assess report generation options.

Results of the discussions on Goal One identified two specific strategies for increasing the flow of information between documentation centers and Environmental Focal Points. These were to: 1) compile a directory of environmental information resources for Malawi; and, 2) continue to produce an environmental information newsletter. To oversee these projects, the creation of an editorial board is recommended. The results of discussions on Goal Two, to identify strategies for increased resource sharing, revealed consensus on two activities: 1) collection of accessions and current contents lists from documentation centers, for use by the NDC to support their environmental issues data gathering efforts; and 2) establishment of a trial literature search service for targeted EFPs by the NDC and participating documentation centers. Each of these four activities will require the consistent leadership of MoREA, through its NDC, to initiate and realize these goals. As such, the NDC will require additional staff and funding to meet these obligations.

The result of Goal Three discussions produced a list of training and information dissemination needs to improve report generation. It is suggested that additional EFPs will need to be brought together to further discuss and refine this list. As more line agencies are involved in analyzing the reporting process, it will become apparent where to focus limited resources. However, it is clear that additional training will be required, especially at the technician level.

This Planning Forum must be looked at as an initial step in building an information handling and dissemination infrastructure that will be the necessary backbone of a national environmental information system. The network of documentation centers and Environmental Focal Points will need to be brought together periodically to review and assess progress in all three goal areas.

1.0. INTRODUCTION

As a preliminary step in the process for developing an Environmental Information System (EIS) for Malawi, an Information Management Planning Forum was held at Sheila's Lodge on January 21-22, 1997. The Chairman of the Forum was Mr. James B.M. Chuma, Chief Documentation Officer of the National Documentation Center (NDC), Ministry of Research and Environmental Affairs (MoREA). The facilitator for the Forum discussions was Ms. Barbara Hutchinson, Director of the Arid Lands Information Center at the University of Arizona in the United States. Support for her participation was provided by the Malawi Environmental Monitoring Program (MEMP). Participants included representatives from the Environmental Focal Points (EFPs), documentation centers, and MoREA divisions (see Appendix 1).

In preparation for the Planning Forum, the Principal Secretary of MoREA, Mrs. Esther Mede, met with Ms. Hutchinson and Mr. Chuma to discuss the information needs of an EIS for Malawi. She suggested a number of areas for discussion including: 1) How to identify and have access to all important in-country resources? 2) How to better coordinate these information resources and people? 3) How to maintain communication between EFPs, documentation centers, and MoREA? and, 4) What type of reporting formats might be best for the various levels of personnel involved in an EIS?. These key questions quickly gave the Forum planners a context from which to develop an agenda. Other preparations included having Ms. Hutchinson and NDC Documentation Officer, Mrs. Minnie Dzowela, review the current situation of the NDC and visit representative EFPs and documentation centers in Zomba and Blantyre, as well as several in Lilongwe (see Appendix 2). During these visits a partial survey was made of the information handling activities at each site and personnel at each site were encouraged to attend the Planning Forum.

Based on the above information, three goals and a mission statement were drafted by Mr. Chuma and Ms. Hutchinson to provide a clear focus for the Forum. The mission statement read:

In the context of the recently drafted EIS, the workshop attendees, representing targeted documentation centers and focal points, will identify strategies to:

- 1) increase cooperation to promote a continuous flow of information between all target units;
- 2) facilitate the sharing of resources and suggest standards for compatibility; and
- 3) identify and assess report generation options.

In addition, the results of the workshop will be compiled in a report listing strategies, timelines, outputs, and resource requirements. A draft to be reviewed by all attendees prior to a final edit.

Also, a detailed agenda was prepared and distributed to the participants (see Appendix 3).

2.0. FORUM PRESENTATIONS

The Forum was duly opened by Hon. F.V. Mayinga Mkandawire, MP., who spoke to the group on the impact of the globalization process and the need to build networks and partnerships to meet information needs. His interest in the formulation of practical policies and for greater coordination across sectors was appreciated by the participants. These remarks set the tone for the rest of the Forum, which began in earnest after a group photo was taken.

Following introductions by all the participants, Mr. Chuma gave a talk outlining the proposed National Environmental Information System. Key elements are a national environmental information center serving information dissemination needs, a monitoring unit for the processing of data, and the involvement across sectors of EFPs to promote effective coordination of environmental issues. Ms. Rita Cammaer, MoREA Environmental Officer expanded on the last point by reporting on the progress of the EFPs since they were officially formed into a network in August 1995. Besides conducting two surveys of EFP environmental-related activities and resources, EFPs and MoREA have held two workshops. Recommendations from the November 1996 meeting included the need to: 1) strengthen network operation and function; 2) improve capacity and resources; 3) increase information sharing; and, 4) work to enforce environmental laws. The first three recommendations were compatible to the mission of the Planning Forum.

Following Ms. Cammaer's talk, Ms. Hutchinson made a presentation on a new planning strategy for initiating change in organizations. This strategy is based on customer needs and a team-based approach, and has been used by organizations around the world to reassess their functional structures and management styles. The need for this more dynamic form of planning has become an imperative due to increased competition from a global economy and the impact of powerful communications technologies on shrinking budgets. Workbooks were given to each participant and the process for developing a "Continuous Improvement" organization was outlined. This approach includes guidelines for focusing products and services on client needs, developing high-performing teams, and using team process tools such as brainstorming and multivoting. With this background, the participants were ready to begin an open discussion of the Forum goals.

3.0. GOALS, SOLUTIONS AND ACTIONS

3.1. Goal/Problem # 1 - Information Flow: increase cooperation to promote a continuous flow of information between all target units. This discussion began with a review of what information units are doing now to cooperate with each other. As a sample of these types of activities, participants listed the following:

- 1) NDC - retrieves information on Malawian and other relevant publications from about 50 automated and some non-automated libraries including: Universities, Government agencies, Non-Governmental Organizations, and Schools (Health and Sciences). References to these materials, with locations noted, are input on the NDC database using CDS-ISIS software. Included are journal titles, books, reports, research papers, and conference proceedings. There are 10,000 items in the database at this time.

2) Center for Social Research - also maintains a CDS-ISIS database which includes approximately 6,000 documents related to socio-economic data and largely consisting of grey literature. This information is shared with NDC.

3) National Statistical Office - compiles primary data on demography, economic prices, production, rainfall, and temperature. This information is available as printed reports and is also available on diskette in ASCII format. It is distributed to government and national libraries.

4) Land Resources and Conservation Branch - compiles reports on natural resources including soils, physiography, agroclimatic data, land units in map form, land use and vegetation maps (printed by surveys), and suitability maps. However, their availability is limited and there is no catalog of these reports.

5) Department of Agricultural Research Library System - including 1 main library and 7 branches, maintains a database of over 20,000 items using Inmagic software. It is multidisciplinary but generally related to agriculture and includes references to maps, AV, books, and 450 journal titles. They maintain a mailing list and provide a catalog to the scientific community. They are one of the sites visited regularly by NDC staff.

This led to a brainstorming session on potential options for increasing the information flow between EFPs and documentation centers with the following options identified:

- 1) Directory of Malawi Environmental Information Resources
- 2) Bibliography of environmental information on Malawi
- 3) Newsletter on environmental information
- 4) Additional workshops, seminars, and meetings related to environmental issues and information
- 5) Exchange of information electronically, via email/Internet, CD-ROM and diskettes.
- 6) Increased use of the media, i.e., radio programs, newspapers (Daily Times and Nation)

The participants then voted for what they considered their top two priorities for increasing information flow. The result was overwhelmingly in support of the directory (1) and newsletter (2) options. Specifics on how to ensure the quality and timeliness of these products also were considered.

3.1.1. Solution #1 - Information Flow - Directory of Environmental Resources in Malawi:

First, participants suggested there might be relevant material available from other directories and these should be looked at before sending out a questionnaire. Several were mentioned:

CONGOMA

Chancellor College (Directory of Learning Resources 1991 or 1992?)

MOREA Directory of Library Personnel

CURE

In addition, it was suggested that the following information be included as part of the directory information:

- name of library, EFP, or other relevant unit
- type of information available
- how it is available (database, print, etc.)
- subject area specialties
- formats available (maps, slides etc.)
- availability of accession and current contents lists
- services (ILL, photocopy, etc.)
- availability of CD-ROMs (CAB ABSTRACTS, etc.)
- contact (Head or alternate person)
- any environmental activities
- e-mail and fax addresses

3.1.2. Solution # 2 - Information Flow - Environmental Information Newsletter: The discussion on the newsletter centered around how to build on the original effort of MoREA to have a quarterly newsletter. Currently, only one issue has been put out, partly due to the difficulty of getting articles and copy from the EFPs. Suggestions included:

- send reminder letters to focal points with guidelines on content possibilities (research subjects)
- report on activities, new activities, changes in personnel
- reviews of current awareness services, new publications, etc.
- specify length (brief paragraph or two) and deadline for contributions
- list who is on the mailing list for the newsletter
- suggest that contributions will reflect positively on contributing agencies
- describe who is going to produce the newsletter and any costs involved

Additional discussion points included:

- Need to update the distribution/ mailing list which currently includes (libraries, ministries, NGOs, SADC region, and some from the private sector - 820 in all)
- Concern on who has the capacity and time to compile the newsletter. However, it seemed obvious that MoREA and the NDC would have to take the lead on the effort.

- It was strongly suggested that a Publications Committee and/or Editorial Board be formed to oversee the Directory and Newsletter efforts. It was also suggested that the participants of the Planning Forum might continue as a Publications Committee at least in the short term, with the addition of someone from the Department of Information.

3.1.3. Action - Goal #1 - Information Flow

WHAT	WHO	WHEN
(1) Directory	MoREA/NDC Focal Points National Libraries University Libraries	Data Collection - 3 mo. Data Entry - 2 mo. Printing - 1 mo. Distribution - 1 mo.
(2) Newsletter	MoREA/NDC	Send letters with deadlines - Jan15, April 15, July 15, Oct 15

3.2. Goal/Problem # 2 - Resource Sharing: to facilitate the sharing of resources and suggest standards for compatibility. This session began with participants answering the question, what type of resource sharing exists now? Using the Centre for Social Research (CSR) as an example, a diagram demonstrated the Interlibrary loan connection CSR has with the libraries at Bunda, Chancellor, UNDP, and UNICEF. It also documented the exchange of references by diskette between MoREA and CSR. This led to brainstorming a full list of possible resource sharing options. This first list was eventually broken into two separate lists: 1) services and 2) current awareness products.

Current Awareness Products

- 1) Accessions Bulletins (New Acquisitions Lists) are already compiled by Bunda (2 per year), CRS (Monthly), NLS (2 per year), University Libraries, DAR. It was suggested that other documentation centers should be encouraged to compile these lists and that a formal exchange of similar products be initiated between documentation centers and focal points.
- 2) Current Contents Lists (Table of Contents Pages) of agricultural journal titles held by Bunda and DAR are photocopied and routed to 60 people including research stations and other libraries.

3) Newsletters were listed as a means to tell people what resources are available. Several newsletters were mentioned as possible sources of this type of information:

CURE - lists publications received; distributed to focal points

Samalani - Wildlife Society

Farm News (first issue just came out)

Forestry Research Newsletter

4) Press Releases - MoREA was the only agency known to do this.

5) Publications Catalogues - few of these listings of publications produced internally by an agency are available and those that are may not be current (MoREA, CSR, DAR)

6) Circulation of journals to staff members

7) Availability of databases - Besides the database being developed by the NDC, Bunda is in the process of developing a database of environmental information called MARED. Currently, it has 100 items listed in it.

Resource Sharing Services

1) Interlibrary Loan - The following were listed as circulating documentation centers: Ministry of Health, Reserve Bank, UNESCO, UNDP, UNICEF, National Library Service, USAID, Polytechnic, College of Medicine, DAR, NDC, CRS, Bunda, Chancellor, British Council, World Bank, USIS, CURE (all should be included in the proposed Director)

2) Photocopy - Documentation centers offer this service for a fee. However, EFPs have a problem with this because the fees may not come back to them for reimbursement and maintenance of the photocopy equipment. Because of this, they are often not able to make copies that are requested.

3) Publications exchange, including reports - documentation centers have formal agreements in place and EFPs to some extent appear to have some informal exchanges in place, for instance the Water Department exchanges its annual report for other agency reports.

4) Supply of Primary Data - EFPs create it and package it. However, most of it is available in limited numbers.

5) Donations - documentation centers are usually the only recipient of donations.

6) Exchange of Electronic Information - EFPs may do this with primary data through diskette exchanges and documentation centers may share catalogs this way.

7) Selective Dissemination of Information (SDI's) - only CSR appears to offer this individualized search service to its faculty. However, it was suggested that other libraries could offer the same to the EFPs. This would be done by creating user profiles of individual information needs, with the documentation centers periodically reviewing their collections and databases for pertinent material. The individual would receive a communication from the library describing the findings.

8) Reference Desk Service - all documentation centers offer a call or drop in service to answer questions, but in the EFPs questions may have to be routed through the Director first.

In addition, participants made a list of database management software in use for collection and bibliographic management in Malawi. This was done to facilitate a discussion on compatibility.

Chancellor - uses Bibliofile and CDS-ISIS

DAR - Inmagic

Fisheries - ProCite

UNICEF - Cardbox

Information Network - CDS-ISIS (consists of about 50 libraries)

These lists became the background needed to discuss specific alternatives for increasing opportunities for resource sharing. As a result of these discussions the following options were generated:

- 1) Develop a formal policy on resource sharing (could be submitted to the Library Policy Coordinating Committee for consideration)
- 2) Send accessions list and current contents lists to MOREA for distillation and distribution.
- 3) Set up formal current awareness between libraries and focal points which would be based on user profiles.
- 4) Work to change the photocopy policy so that fees return to unit for maintenance of photocopy machines.
- 5) Compile journals list and location (this information is already in MOREA database)

- 6) Share Bunda environmental database
 - expand from other libraries
 - categorize by issues in national action plan
 - search all relevant libraries (both automated and non-automated)
 - expand list of libraries included in the NDC database coverage

- 7) Set up electronic bulletin board for environmental issues. (Manager of Server at Chancellor says this is possible)

Participants again went through a voting exercise to determine the top two options. The result was general agreement that efforts should be focused on the following two resource sharing activities:

3.1.1. Solution #1 - Resource Sharing - Accessions and Current Contents Lists should be collected and reviewed by MoREA/NDC using these strategies:

- write to organizations requesting the lists
- follow-up in person
- designate one person to collect the lists
- establish a regular schedule for collection (monthly, quarterly, terms)
- use information for database development and announce its availability in newsletter

3.1.2. Solution #2 - Resource Sharing - Initiate Trial SDI Literature Search Service using the following strategies:

- inform EFPs and Ministries of trial SDI service
- create user profile form (review forms used by CSR and NDC)
- select test users for trial
- profile submitted to selected documentation centers and focal points
- ask how user wants to receive information, i.e. photocopy of article, book announcement, etc.
- assess effectiveness of trial service after a period of time
- determine if service should be continued

3.2.3. Action - Goal #2 - Resource Sharing

	WHAT	WHO	WHEN
(1)	Collect Accessions Lists and Review	MoREA/NDC National Libraries University Libraries	Quarterly basis

(2)	Trial SDI Service	MoREA/NDC Selected libraries Selected EFPs	Create user profile - Mo. 1-2 Identify trial sites - Mo. 1-2 Send out profiles - Mo. 3 Assess results - Mo. 4 & 5
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3.3. Goal #3 - Reporting Options: to identify and assess report generation options. This discussion went through a series of exercises by listing the types of environmental questions being asked at the documentation centers and EFPs and the potential locations of the primary data. The following questions were generated:

- 1) The effect of waste disposals on the environment (City Councils, Districts, EFPs)
- 2) Impact of effluent disposal from industry, hospitals, sewage, etc.
- 3) Impact of deforestation
 - on soil erosion (A.D.Ds)
 - quality of water (LRCB, Forestry Research)
- 4) The extent of land under cultivation (Statistics)
- 5) The impact of industrial development on the environment (MoREA, Dept. of Physical Planning, MIPA)
- 6) Data on production and imports of ozone depleting substances (Statistics)
- 7) Impact of agrochemicals and fertilizers on water quality (Water Boards, Water Dept., Bureau of Standards)
- 8) Impact of burley tobacco on the environment (MoREA through other Ministries)
- 9) Resources required to grow burley tobacco (TAMA)
- 10) Impact of overpopulation on the environment; gender impact on water, fuel, etc. (CURE/UNICEF, Statistics, Ministry of Women, EPD)
- 11) Impact of Carlsberg tree planting program (Forestry Dept.)

Another list was created of the types of people who request environmental information and the kind of information format they request:

- 1) technicians/researchers (including Extension) - want primary and multimedia data to create reports
- 2) farmers - oral communication
- 3) consultants - tables, maps, reports, oral discussions
- 4) private companies and industries - tables, maps, reports
- 5) university and other students - books, reports, articles, sometimes primary data
- 6) policy makers/politicians - analyzed data, short briefs, memos
- 7) international organizations/NGOs - primary data, tables, reports
- 8) journalists - statistics

We also identified the types of environment-related reports currently generated for three levels of users as requested by MoREA:

- 1) Policy Makers and Politicians
 - want brief, concise reports
 - MoREA provides short analysis reports with facts and recommendations
- 2) Mid-Level Technicians
 - want detailed reports and primary data as background to their own reports
- 3) Community Level
 - leaflets, posters, cartoons, drama/puppet shows, guides (to agricultural productions), slides, videos, radio programs, jingles
 - many of these are made available by NGOs, donors, Ministries, Educational Centers)

Having identified the current reporting structure including people, resources, and formats, the Planning Forum participants debated the issues and constraints to developing these three types of reports. Issues included: 1) how to assess quality of data (equipment quality; collection techniques); 2) need for materials for primary and secondary schools for environmental curriculum; and 3) how to identify information gaps in the communication structure for reports using the following set of tasks:

- reason given for data collection
- data collected in field
- data sent to technicians
- technicians analyze and prepare reports
- workshop to present results
- reports to other technicians, policy makers, and libraries

Constraints to the successful completion of these tasks were identified as: 1) lack of understanding for why data is collected; 2) lack of analysis and report writing skills; 3) lack of people and equipment (equipment often outdated); and 4) lack of appropriate feedback given to data gatherers.

These debates resulted in a list of suggestions/possible solutions for improving the current reporting process, rather than a detailed action plan. The participants felt that other people, including additional EFPs and MoREA staff, should be involved in selecting the most important options and in setting up a timeline for their initiation.

3.3.1. Possible Solutions - Reporting Options

- 1) establish standards for data collecting
- 2) provide more training in analysis and report writing for technicians
- 3) involve media to inform public on environmental issues
- 4) provide training on how to report information from/to the media
- 5) provide more in-services on environmental issues (MoREA did this once for 177 politicians, but more should be organized)
- 6) provide training materials on environmental issues
- 7) establish a quality control system for data collection
- 8) compile a State of the Environment Report using data gathered from line agencies/EFPs (the process of creating this report could form the structure for data collection, i.e. type needed and possible information gaps)
- 9) use National Library Network for addressing environmental issues (leaflets, posters, multimedia)

3.3.2. Action - Goal #3 - Reporting Options

The participants suggested that another workshop be held with additional EFPs and MoREA staff to discuss in more detail the nine possible solutions outlined above. In this way, more people directly involved in reporting activities will be involved in prioritizing the options and in setting up a timeline for their initiation.

3.4. Evaluation And Conclusion

At the end of the Planning Forum, participants were asked to provide written responses to evaluation questions. Their responses are summarized in Appendix 4. Overall, participants believed the three goals of the Forum were achieved. However, it was suggested that additional workshops will need to be held to further discuss the action plan for report generation options and to maintain communication between the various documentation centers and EFPs. (See also Summary Comments from Site Visit Report - Appendix 2)

APPENDIX 4

SUMMARY OF EVALUATIONS

Question #1 - Did we accomplish the Forum Goals?

Out of the ten evaluations received (some participants had to leave early), all said the goals were accomplished. However, there were some comments and suggestions:

- 1) There is a strong need for a committee to monitor the recommendations.
- 2) More needs to be done on reporting options.
- 3) The input from participants was lively...
- 4) There is need to consider use of new technology such as email [to facilitate resource sharing.] Reporting should be regular.
- 5) ... probably more centers and institutions which were not yet included, could be added at a later stage (e.g. environmental education centers)
- 6) [Existing libraries need to advertise what they have on sectoral issues]
- 7) [...resources are shared only between friends. It was apparent that most government institutions which form the bulk of focal points play very minor roles in this area.]

Question #2 - What part of the Forum was most useful to you in your work?

Most participants selected resource sharing and communication flow as the most useful discussions for their work, with resource sharing selected by 7 participants; communication flow by 5 participants and reporting by 3 participants.

Comments were:

- 1) I believe the choice of re-introducing the Environmental Newsletter was most valuable. I strongly believe that a lot more people still need to know more about the environment.
- 2) ... bringing together documentation centers (collectors of information) and providers of information. Closer collaboration was needed.
- 2) So much information is lying idle and not used. Resource sharing and reporting is very important for education and awareness.

Question #3 - What part of the Forum was least useful to you?

All but four participants said “none”. It might be construed that the four who wrote that reporting was the least useful to them were from documentation centers, since these units are not involved in compiling reports.

Question #4 - Suggestions for future Forums?

The following suggestions were made:

- 1) include more EFPs and documentation centers

- 2) increase the number of days for a Forum
- 3) earlier announcement of a Forum
- 4) receive background information before the Forum
- 5) venue should be away from Lilongwe to avoid frequent visits by participants to their offices
- 6) proceed with suggested ideas

APPENDIX 2

SITE VISIT REPORT

On 16 January, 1997, Mrs. Minnie Dzowela, Documentation Officer at the National Documentation Center (NDC), MoREA, and Ms. Barbara Hutchinson, consultant from the University of Arizona in the United States, traveled to Zomba and Blantyre to visit representative documentation centers and Environmental Focal Points to gain background information for the planning of a National Environmental Information System (EIS). The following is a report on the findings including a review of the NDC:

National Documentation Center, MoREA

The NDC has three distinct units. First, there is the Library and Resource Unit which serves the information needs of MoREA and features a collection of donated and purchased materials, especially focusing on grey literature numbering about 6,000. It is run by a library technician who started work on the 20th of January. Second, a Documentation and Database Development unit is involved in database management which is primarily focused on building a national database, including references to materials on all subjects, with information given on the holding library. This unit also is involved in providing information to the regional networks such as INFOTERRA and PADIS. Mr. Gausi, Principle Documentation Officer, and Mrs. Dzowela staff this unit. Finally, there is a Planning and Communication unit that is the focus of Mr. Chuma's activities. This includes formulating library and information policies (Mr. Chuma is a member of the National Documentation and Information Coordinating Committee (NADICC)), acting as an advisor for the government on science and technology information issues, including the environment, as well as facilitating the dissemination of information through networking, conference attendance, and user education. Mr. Chuma also is involved in special project activities, such as the UNDP/MoREA Sustainable Development Networking Programme. Overall, the NDC has approval for twelve positions, but has only four people working at this time (one who just started).

The NDC retrieves information on Malawian and other relevant publications every three months from about 50 automated and some non-automated libraries including: Universities, Government agencies, Non-Governmental Organizations, and Schools (Health and Sciences). References to these materials with locations noted, are input on the NDC database using CDS-ISIS software. Included are journal titles, books, reports, research papers, and conference proceedings. There are 10,000 items in the database at this time. The NDC is encouraging users to stay with CDS-ISIS so catalogs remains compatible, though there are a few who are not using it. Until 6 months ago, there was a very active CDS-ISIS User's Group, but when Margaret Ngwira moved to Zimbabwe, no one stepped in to keep the newsletter going.

At all the facilities visited, including NDC, libraries are seriously understaffed. Even when their are open positions, and there are many, there are few trained people to apply. There appear to be three reasons for this: 1) an inordinate numbers of deaths; 2) lack of training programs; and 3)

lack of a salary and position advancement program for librarians as government employees, thus few want to enter the profession. There is an active Library Association which meets once a year, with the Executive Board meeting three times a year. Apparently, the Association offers a training program for library technicians which is run during the two month holidays and is part of a year-long certificate program. Anyone wanting to do advanced training must go out-of-country. For instance, Mrs. Dzowela was sent to Australia to complete her studies and she has only been back for a year.

National Statistic Office

We met with Commissioner Golosi and his Deputy, Charles Machinjiri, who together described the structure and functions of the Office. There are 3 regional offices, plus the main office in Zomba, as well as 3 divisions: Population and Demography (which conducts a 10 year census - although they are late doing the current one); Agricultural Statistics (production outputs); and Economic Statistics (foreign trade, GNP, prices, inflation, etc.) as well as Publications (sales of their printed booklets). The Commissioner said it will be a new area for them to collect environmental statistics, but he was aware of being designated a focal point. They are in the process of writing a country profile. Publications include: 1) Monthly Statistics of Malawi; and 2) Statistical Yearbook (which goes back to the 1970s). Surveys are conducted by their enumerators and by primary school teachers who interview households.

The library at the NSO is "in a mess", the words of the Commissioner. It is in the process of being refurbished and a computer has been ordered. ODA is funding the new work as a two-year project and they have hired a consultant from the University of Zimbabwe Medical Library, Helga Patrikios, to provide periodic training and assistance. She has been here once and will be back again in February. The problem now is to find/hire three persons for her to train.

National Archives

This unit is a department within the Ministry of Youth, Sports, and Culture. The Archives was created by official act in 1947, but it did not really get underway until 1964 when the Printed Publications Act designated that the Archives should receive one copy of everything published in Malawi. Currently, there are 40,000 books, reports, and documents, as well as slides, films, legal documents, and maps from the Department of Surveys. In addition, the Archives holds photographs dating from 1900, a stamp collection, and samples of Malawian money. There are subscriptions to 80 journals, mostly related to the social sciences in Malawi and Africa in general. Staff visit 150 publishing companies, including government ministries, every month to identify new publications. Books are assigned ISBNs which are sent to ISBN Africa headquarters in Benin. The collection is only accessible through a card catalog. Each document is given an accessions number (a classification system is not used) and author, title, and a subject card are made. The collection of documents from the various ministries is closed to the public. After 40 years, items are appraised on what will be made public. The Archives is seriously understaffed. The Librarian recently passed away, as did another staff member. There are

positions for five people, but only two are filled at this time, the cataloger we talked to, Mr. O.W. Ambali, and a shelver. Mr. Ambali has worked with Mr. Chuma on an audio-visual archive project in the past.

In 1961, the Archives began putting out a national bibliography. Prior to that each Ministry was responsible for their own. Mr. Ambali said they are working on a new bibliography and he gave us each a copy of the 1984-1990 edition. He also noted that MoREA used to put out some publications that were donated to the Archives, but this was when a Dr. James Maida was at MoREA. Since the ten publications listed by him in 1991, there have been no submissions from MoREA. The primary users of the Archives come from the Ministries, Chancellor College, and the media. Mr. Ambali noted that at one time a Minister closed the Archives because it was threatening to have open access to information. Now they have a visitor register and keep user statistics which they report to the Ministries. A photocopy service is available for 2 K per page, and 1 K if you bring your own paper. Some years past, there were given a machine for making microfilm copies of documents. However, it never became operational. Now they have asked UNESCO for funds to get a computer so they can start creating an electronic catalog and they await that decision.

Centre for Social Research - University of Malawi

The Centre for Social Research (CSR) was created in 1979. It is a depository for socio-economic documents and data. There is no acquisitions budget, per se, but items are received in exchange for research papers prepared by the faculty. Right now there are 5,000 documents cataloged in CDS-ISIS, and these are duplicated in the NDC database. Researchers at the University collecting original data use SPSS. The lone librarian in charge is, Mr. Paul Kakhongwe. He compiled the "Research and Publications Profile: 1980-1993", but nothing since (we received copies of this publication). He used to put out an accessions list every month, but stopped it as it was time-consuming and there did not appear to be a demand for it. Sometimes a print-out of their documents is given to Chancellor College and to the National Archives. The Center serves anyone with an interest in their subjects, including many foreign researchers. CSR offers a photocopy service for a fee. Problems mentioned were a lack of additional staff, need for a library service directory, and need for further CDS-ISIS training. Mr. Kakhongwe has access to the Internet and is hoping to create a national database of social sciences dating from 1985.

Chancellor College - Malawi Collection

After talking briefly with Dr. Uta, Head Librarian, we met with Mr. Phiri who is in charge of the Malawi Collection. It is housed in a separate room along with a special collection of government publications, including U.N. documents received because they are designated as a partial depository. The Malawi documents number about 15,000 and include dissertations, theses, and newspapers. They have documents dating back to the last century, including ones from Church organizations and the Nyasaland government. The Malawi collection is being cataloged using CDS-ISIS software and it is included in the NDC database. Mr. Phiri also is involved in a University committee on the environment which is looking at how to train students in the field. The committee is headed by Dr. Dolozi from Geography Department.

Department of Surveys

We met with Director, Mr. Tambala, and his deputy, Mr. Gunda. They mentioned the financial difficulties being experienced by the Department. Their mission is to act as the national mapping agency which produce various types of base maps. Surveys has been working with Kent Burger, but they do not have the right equipment to offer a full digitization capability. The Director talked about the need for better communication between different departments such as Lands, Forestry, and Agriculture. He suggested that a committee be formed to foster this interaction and to set mapping standards. Now there is no coordination which leads to duplication of effort and lack of compatibility of systems. They have an outdated catalog of maps, but prices are quoted over the phone as the government sets the prices and these change periodically. Currently, the Department is working on creating metric maps and some digitizing with the help of a person from Clark University. They have GIS software such as IDRISI, ARC-VIEW and ARC-INFO, but they lack a scanner and other necessary equipment. MEMP has given them a computer and plotter, but these do not appear to be in use yet. They have three cartography labs, including small-scale, medium-scale, and large scale.

Meteorological Department

We traveled out to the Chileka Airport to visit the Meteorological Department. Unfortunately, both the Director and his assistant were away, but we met with Mr. Gwazantini who was very informative. He told us that meteorological data is collected by their own stations and cooperatively with voluntary stations. The Met collects rainfall, temperature, wind, radiation, sunshine, cloud cover, and some agricultural data such as soils/moisture readings. This data is sent each month from the stations. A monthly rainfall bulletin is published which is sent out free-of-charge to 75 people/units (Rainfall and Agrometeorological Bulletin). They also produce a 2-3 page bulletin every 10 days on temperature and rainfall. For a brief time, the Met had a small center to monitor air pollution, but it was in a remote town located between Lilongwe and Dedza. Their data-processing unit uses a mini-computer, but neither it nor the air-conditioning for it was working at the time of our visit. For now, they are using one PC and only entering rainfall data from the data sheets. Funding is obviously difficult. In the past they did seasonal bulletins which were sent to the government printing office, but this was discontinued in 1987. The National Meteorological Center in Lilongwe is tied into global meteorological products and provides data to the Global Telecommunications System. This is apparently linked to the FEWS national early warning system within the Department of Agriculture. It is the National Meteorological Center that provides daily predictions to the media. Users are primarily from the agriculture sector. Some years ago, the Met was given a machine for producing microfilm, but it never became operational. They have a small archive with about 20 years of data, however, there is no one to organize or look after it.

Land Resources and Conservation Unit (LRCB) - Ministry of Agriculture

We met with Mr. N.J. Mulenga and Mr. V.A.L. Mkandawire. They explained that this is a small branch in the Department of Agriculture, Education, and Training. It is responsible for generating data for planning purposes and is the only branch dealing with environmental issues. Field

assistants from this branch advise farmers about the placing of trees in cultivated areas. The LRCB also works on land utilization data gathering to provide input for the development of land policy. From 1987-92, the LRCB had a big project on land resources which generated soils, physiography, agroclimatic, land use, and vegetation data. Maps and reports were compiled from this effort for 8 districts. There is a problem in making copies of this set of reports and 9 accompanying maps. The photocopy fee people pay does not come back to the LRCB for maintenance of the equipment making it very expensive to continue to reproduce them.

The LRCB is working with MEMP on the digitization of maps on soils and land use. They also are concerned with environmental education and have field officers who go out to the schools - 24 per quarter. At some time in the future, they would like to be able to take this program directly to farmers. They had not heard that MoREA was going to put Environmental Officers in the field, but they thought it was a good idea because they are able to cover only 30% of the country. However, the Director suggested there should be coordination of this because the Ministry of Natural Resources also have an environmental education program. Also, LRCB is scheduled to transfer posts in 8 districts to environmental education lines. Finally, although the LRCB was aware of being designated as a focal point by MoREA, they had not heard anything further since the original communication in 1995.

BUNDA UNIVERSITY (from an interview with librarian, Mr. Nyali)

Bunda University has 500 undergraduate students and 50 post graduate students, all in the study of agriculture. The library has 40,000 items in the collection and is in the process of building a variety of databases that make up multiple online catalogs. One of them, MARED, is a database of grey literature related to environmental information on Malawi. Currently, there are 100 references included in MARED. NDC is aware of this database and these references also are retrievable from the NDC database. Bunda has been the recipient of funding from multiple donor agencies (CTA, JAICA, ICEIIDA, AAAS) for the purchase of bibliographic CD-ROMs (TropAg, AGRICOLA, CAB ABSTRACTS, etc.) However, now that these grants are coming to an end, Bunda is in the process of assessing which ones to continue to receive under their own budget. They think they will be able to continue 6-8 titles. Bunda offers library orientation to all students and, in the third year, they are now training students in the use of these new technologies. Mr. Nyali is hopeful more of the country will have access to the Internet through a proposed UNDP project.

SUMMARY COMMENTS ON SITE VISITS

1) Documentation Centers - The librarians I met were all knowledgeable about library systems and have built a sound infrastructure from which to continue developing information handling and dissemination activities. Although most I saw were understaffed, the people I talked to all seemed willing to participate in helping make environmental information more widely available. This will require the NDC to continue to take the lead on creating further networking opportunities, such as meetings/workshops and print communications. Unfortunately, it appears that not enough libraries have access to email yet to rely on that medium yet.

2) Focal Points - None of the EFPs I visited have operational libraries, although some have collections of uncataloged materials. There does not seem to be consistent tracking of internal documents either. For the foreseeable future, MoREA and the NDC will need to make periodic contact through site visits or telephone/fax communications to stay current with EFP activities, publications, and data availability. In addition, the EFPs need to be brought together on a regular basis to coordinate their environment-related activities, such as field officer assignments and educational outreach.