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**Consultancy Report**

**Management Information System  
Smallholder Burley Club Project**

**Contract Number 199**

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**List of Acronyms**

<b>ACDI</b>	<b>Agricultural Cooperative Development International</b>
<b>ADD</b>	<b>Agricultural Development Division</b>
<b>ADMARC</b>	<b>Agricultural and Development Marketing Corporation</b>
<b>AHL</b>	<b>Auction Holdings Limited</b>
<b>EPA</b>	<b>Extension Planning Area</b>
<b>MIS</b>	<b>Smallholder Burley Management Information System</b>
<b>MK</b>	<b>Malawi Kwacha</b>
<b>MoA</b>	<b>Ministry of Agriculture</b>
<b>RDP</b>	<b>Rural Development Project</b>
<b>TCC</b>	<b>Tobacco Control Commission</b>
<b>USAID</b>	<b>United States Agency for International Development</b>

## Table of Contents

Table of Contents .....	3
Executive Summary .....	4
Background .....	5
Findings .....	7
Review, analyze and compare the systems .....	7
Interview relevent Ministry of Agriculture officers and selected clubs .....	9
Interview relevent Ministry of Agriculture and USAID representatives .....	10
Review Smallholder Burley Club project components .....	12
Develop framework for project's information activities .....	13
Develop information collection, analysis and reporting tools .....	14
Analyze the project's existing hardware and software capacity .....	15
Recommendations .....	16
Appendices .....	18

## **Executive Summary**

The project has received the cooperation and support from key agencies on whom it must rely for the important data pertaining to the Smallholder Burley Clubs. These key agencies are the Ministry of Agriculture, Auction Holdings Ltd, and Malawi Rural Finance Corporation. This is an excellent foundation on which to build a collaborative effort to strengthen the clubs through a system of data capture, analysis and feedback to the clubs.

The single biggest challenge to the project's database development hopes is the task of improving the registration process of the clubs. This is the point at which clubs receive the important Grower Number. It is this grower number which provides the key to linking the data from these three agencies. Currently, there are many anomalies whereby it cannot be held with confidence that one grower number always refers to the same club, or that one club always uses the same grower number. Neither can it be said that Auction Holdings Ltd computer systems have the same registration data as the Ministry of Agriculture. There is also some doubt as to the likelihood that the Ministry of Agriculture will be able to complete, and close, the registration process in time to provide the project and Auction Holdings Ltd with this important registration information before the selling season begins (1 April '95)..

During this assignment, the project has identified several key individuals with the skills and experience to assume responsibility for the data processing environment and the development and application of a sophisticated database.

During this assignment, we have installed a Windows for Workgroup operating system. To meet the project's data processing needs, within the next three months it should obtain two desktop systems and two laptops, all to be part of the network while being used in the Lilongwe office.

Computer viruses are a serious liability and a serious problem for the project. While all project computers now have anti-virus software, there are new viruses spreading against which there is little or no cure. Preventive measures are essential. This means prohibition against using any diskettes unless they are first scanned for viruses. The problem is now especially severe since the viruses can easily spread throughout the project network.

Telecommunications links have been improved, but remain a challenge. Upgraded software for the ACDI CC:Mail system will likely improve this link. Telecommunications via the local Fidonet node will be an important connection for Email correspondence, but should not be the only connection.

## **Background**

This consultancy's objectives included the facilitation of:

- Retrieval and analysis of statistical information relative to market and burley club performance;
- Collection and dissemination of information to and from burley clubs located throughout the country;
- Organization of procedures and formats to enable monitoring and evaluation of club performance;
- Determination of parameters for monitoring and evaluating overall performance and effectiveness of the Smallholder Burley Club project.

Specific responsibilities of the consultancy included:

- Review, analyze and compare the systems now maintained by Ministry of Agriculture, Auction Holdings Ltd TCC, ADMARC to ascertain the types and formats of information available to and from each, the relevency of the information specifically to project needs and the conditions under which needed information is or can be made available to the project;
- Interview relevent Ministry of Agriculture officers and selected clubs and club leaders and members to determine club requirements and interests with regard to information and communications activities;
- Interview relevent Ministry of Agriculture and USAID representatives to determine and define institutional reporting needs with regard to burley clubs in general and the Smallholder Burley Club project in particular;
- Review Smallholder Burley Club project components to ascertain information requirements as well as parameters for monitoring and evaluation of activities;
- Develop framework for project's information activities as described above, including investigation of options for having certain portions of the information activity housed in other entities (for example, overall market monitoring by buyer category within the TCC);
- Develop information collection, analysis and reporting tools needed by the project;

- Analyze the project's existing hardware and software capacity in light of system requirements and recommend needed next steps in terms of systems upgrading, etc.

## Findings

- Review, analyze and compare the systems now maintained by Ministry of Agriculture, Auction Holdings Ltd TCC, ADMARC to ascertain the types and formats of information available to and from each, the relevancy of the information specifically to project needs and the conditions under which needed information is or can be made available to the project;

The Ministry of Agriculture database consists of the registration information for clubs and club members. It is officially supposed to be the basis on which clubs will be permitted to sell on the floors of Auction Holdings Ltd. There are a number of problems with the registration process and with the transfer of the registration data to Auction Holdings Ltd which has lead to a significant number of clubs which technically are not registered, yet who have sold via Auction Holdings Ltd. The Ministry of Agriculture database contains important information for the project, including club constituency by gender, total arable land available by member and by club, and total quota allocations by member and by club. The Ministry of Agriculture's data is linked to standard codes representing Agricultural Development Division, Rural Development Project and Environmental Planning Area. This permits the project to summarize by these standards, and to focus on target areas. The data is conveniently maintained in a standard dBase format. See Appendix for the technical specifications for handling Ministry of Agriculture data.

The Auction Holdings Ltd database contains sales information that is important to the project. It is recorded using the key grower number, as provided by the Ministry of Agriculture. In this manner, the Auction Holdings Ltd data can be linked to Ministry of Agriculture data for analysis and summarization by club, Environmental Planning Area, Rural Development Project and Agricultural Development Division. Individual records of each bale's performance on the auction floor also provide important information on rejections. The data is maintained on CTOS operating system Unisys computers using a COBOL application. Auction Holdings Ltd's computer support (Burco Ltd) has tested procedures for transferring the data to PC diskettes suitable for use by the project using the 1993/94 season's data. Technical specifications and proposed procedures are located in the Appendix.

The Tobacco Control Commission's data processing system at this time is primarily wordprocessing. It does not have at this time any relevant data for the project. Officially, the Tobacco Control Commission manages any disputes that arise from the auction floor, including confusion over grower registrations and quotas. To the extent that the Tobacco Control Commission controls this process, they will be an important source of information during the selling season. If they approve an increased quota, or otherwise facilitate a change in the Ministry of Agriculture's registration data, some mechanism will be needed by which they inform the project of this. However, at this time there seems to be no official mechanism in place for managing this.

ADMARC was not visited as part of this consultancy. The Project Director felt that it was not useful at this time. From visits to other sources, we find that ADMARC maintains its own parallel registration process by which clubs, or club members, can receive a distribution of inputs. ADMARC has for some time already been getting daily diskettes of data from Auction Holdings Ltd for their own analysis. We do not know what the content of this data is, nor its relevancy to the project. ADMARC markets tobacco from some clubs where they choose to sell via ADMARC.

- Interview relevant Ministry of Agriculture officers and selected clubs and club leaders and members to determine club requirements and interests with regard to information and communication activities;

This activity was not specifically addressed as the project director felt that it was not necessary at this time. We did, however, discuss it in some detail in terms of how to feed information back to the clubs, especially during the selling season, to provide them with some positive incentives and useful perspectives on their production. Strategies and options included graphic illustrations of sales by Agricultural Development Division, Rural Development Project and Environmental Planning Area published in the newspaper during the selling season, radio broadcasts of results of sales, comparing them with national averages and with other types of tobacco, and an annual report showing individual club performance. The annual report could be distributed to the Farm Assistants at the Environmental Planning Area level, who are responsible for providing direct support to the clubs.

Rejection analysis by Environmental Planning Area is also providing useful indications of what kind of problems are causing clubs the most difficulty. In this way, the project can target these problems and measure improvements by analysing next seasons rejected bales to see if there has been a reduction in particular types of rejections.

- Interview relevant Ministry of Agriculture and USAID representatives to determine and define institutional reporting needs with regard to burley clubs in general and the Smallholder Burley Club project in particular;

I met several times with Peter Saweruzika at the Ministry of Agriculture to review the registration process and data. I also had the opportunity to meet with one of his representatives at an Agricultural Development Division office where registration data is initially entered into the computer. I met with Laurie Cameron at USAID who supported the initial design and development of the Ministry of Agriculture registration program and process. I also met with representatives of the Malawi Rural Finance Corporation.

It is clear that the institutional reporting needs include:

Annual club registration data, including gender constituency and landholding size;

During the sales season, weekly club sales performance data from Auction Holdings Ltd including individual bale performance data (rejections, weight, sale price);

Monthly credit report data from Malawi Rural Finance Corporation showing any outstanding loan for any club, with balance due and credit status.

The degree to which this data is useful will depend largely on the degree to which the registration process can be improved. The reconciliation of this data with the Auction Holdings Ltd system also need improvement. See the Appendix documentation on the technical specifications for Auction Holdings Ltd data transfer and conversion, and the Ministry of Agriculture data transfer and conversion for more details on this.

The Malawi Rural Finance Corporation is initiating the use of a new PC based computer application written in FoxPro for DOS. It is called Micro Banker. It was developed and is maintained by the Food and Agricultural Organization (FAO). We have defined the data specification with them and supported the initialization of their records with the grower numbers from the Ministry of Agriculture database. As of this writing, we have not received a prototype of this credit data. Malawi Rural Finance Corporation has indicated that only 6 out of the 8 Agricultural Development Division's are now using Micro Banker, and in all cases it is only for new loans being issued. The specification for obtaining this data will still need to be worked out.

One problem area deserves special emphasis: the Ministry of Agriculture registration process. Due to some limitations in the application software and to some lack of training and supervision, Ministry of Agriculture staff at the Agricultural Development Division's have chosen to issue new grower numbers to certain existing clubs. This will make it impossible to track one club from one year to the next. It also has led to confusion at the auction floors, when club members may not be aware that they are operating with a different number from what they had in a

previous year. This also complicates the process of monitoring credit information using the Malawi Rural Finance Corporation database, since one club may then have loans under different grower numbers.

- Review Smallholder Burley Club project components to ascertain information requirements as well as parameters for monitoring and evaluation of activities;

The project is in a state of flux now, under pressure to expand. As such, current project components will likely change dramatically. During one review meeting with project leadership, we reviewed the process of defining a mission statement, subdividing it into goals, and subdividing each goal into **measurable objectives in defined timeframes**. Unless we have measurable objectives we will have no means for determining what baseline information is required, nor what data needs to be gathered at what frequencies in the future against which to measure project impact and progress.

The MIS system is also defined by the implementation strategy developed to achieve these measurable objectives. Implementation strategies will suggest what decisions project management will need to make at what frequencies. Each decision is supported by information requirements. These requirements define the administrative decision support system.

The 1993/94 sales data as obtained from Auction Holdings Ltd, linked and reconciled with the Ministry of Agriculture registration data will provide an important component of baseline data for the project. Performance in 1994/95 will similarly be an important component of the overall project monitoring and evaluation system. Precise definition of all the components will depend on the project's eventual defined objectives.

Develop framework for project's information activities as described above, including investigation of options for having certain portions of the information activity housed in other entities (for example, overall market monitoring by buyer category within the TCC;)

We have developed a general framework for the project's information activities. Under this general framework, the Ministry of Agriculture will continue to handle club registrations, and provide the project with the registration data prior to the start of the selling season. The Ministry of Agriculture will also provide this data to Auction Holdings Ltd who is responsible for initializing their computer database with it prior to the start of the selling season. Auction Holdings Ltd will submit diskettes on a weekly basis from each of its facilities to the project. Malawi Rural Finance Corporation will submit data on a monthly basis to the project, providing credit information on each club to whom they have extended credit.

We have reviewed previous consultants' reports on the issue of having Tobacco Control Commission handle registration. This consultant agrees that this is a more logical institution to handle this. However, from the project's current point of view, it seems to make little difference who handles the registration provided the process is more accurate and more timely than before, and provided Auction Holdings Ltd accurately initializes their computer systems.

- **Develop information collection, analysis and reporting tools needed by the project;**

We succeeded in obtaining 1993/94 sales data from Auction Holdings Ltd. The project had already received the registration data from the Ministry of Agriculture. Using FoxPro for Windows v2.6 we were able to reconcile these different databases, document major discrepancies, and produce initial reports to summarize sales activities and rejection analysis. The technical documentation found in the appendix of this report constitute the collection, analysis and reporting tools needed by the project to proceed from here.

The Malawi Rural Finance Corporation did not provide any initial prototype of the credit data with which to work. However, the same techniques and considerations will apply. Since the data is stored in a FoxPro compatible format, and the database structures well-defined, linking it to the other databases using the grower number should not be a technical challenge. However, insuring that the grower number consistently refers to the same clubs in all circumstances remains the biggest challenge.

Analyze the project's existing hardware and software capacity in light of system requirements and recommend needed next steps in terms of systems upgrading, etc.

An initial analysis of the project's hardware and software highlighted the urgent need to establish an initial network. We installed Windows for Workgroups using Ethernet 10Base2 thinnet coaxial cable. This provides immediate capability for the project's two desktop computers and one laptop to share the laser printer. This also positions the project with a base of technology and initial experience on which to build a larger network.

Also, under this assignment, we successfully installed a second harddrive into one of the desktop machines, dedicating it primarily to database management.

The basis of our hardware recommendation is a project office (Lilongwe) profile that includes the project director, two senior project staff with responsibilities for using the project database, one full time person for managing the database, one full time project accountant/administrator, and one project secretary devoted primarily to wordprocessing and scheduling. We also anticipate the need for an additional workstation to support short term consultants and to meet peripheral project needs from time to time.

Part of our analysis and testing included telecommunications. We find that the modem in the new laptop (a Megahertz 14.4 model) works very well under these difficult conditions. The US Robotics 9600 baud modems, on the other hand, do not. We also find a local Fidonet node (sponsored by the University of Malawi) offers a fairly reliable means for exchanging Email through the Internet with ACDI/Washington which will be more cost effective and less frustrating for day to day Email traffic. However, at this time, file transfers should be handled through continued direct dial connections ... using the laptop. The ccMail remote software (now called Mobile) is obsolete and makes it difficult to enable the important features of the 14.4 model modems which allow them to work so effectively over noisy lines. All of our tests suggest that the lines from the office (which are touch tone, digital) are much more reliable than those from the Director's home (which are pulse dial analog).

## Recommendations

1. The project should seek a mandate, resources and authority to intervene directly in the Burley Club registration process to insure that data is entered accurately at the Agricultural Development Division level, that grower numbers are not changed from year to year for the same club, that the database is combined and reconciled accurately at the national level and delivered to Auction Holdings Ltd well in advance of the selling season. The project should also insure that Auction Holdings Ltd initializes their computer systems with this data such that there is no discrepancy between that being held by the Ministry of Agriculture, the project, Auction Holdings Ltd's facilities in Limbe/Blantyre and Auction Holdings Ltd's facilities in Lilongwe.

Further, the project should coordinate with all parties such that any changes in the club information made by the Ministry of Agriculture will accurately flow to Auction Holdings Ltd and the project. Similarly, the project should insure that no changes should be initiated by any other party.

2. The project should seek and implement a means for insuring that club registrations made by the Ministry of Agriculture correctly identify clubs by their grower number for the Malawi Rural Finance Corporation, and that the Malawi Rural Finance Corporation use this grower number consistently in their records to identify these clubs.
3. In addition to the two desktop computers, laser printer and laptop computer already deployed in the project, we recommend the following resources:

Two more laptop computers of the same make, model and specification as that already purchased (Toshiba T1960CS with 300MB harddrive and 8MB RAM), to be used by the senior project management while based at the Lilongwe office, and while travelling to the field. Each laptop should include a Xircom parallel port Ethernet adaptor for connecting them to the office network. They should include the Megahertz internal 14.4 model modems to support telecommunications.

Two more desktop computers to be used by the database manager, accountant, and for special projects and support. One should be no less than a 486DX2/66 model with 300MB harddrive and no less than 8 megabytes of RAM. One should have two harddrives of no less than 300MB each, and no less than 16 MB of RAM. This latter one will be the primary database computer.

4. The project should immediately purchase a network version of FoxPro for Windows such that six simultaneous users may use it. Other packages, including Microsoft Access and dBase V for Windows, may also be suitable for managing this database. However, so far it seems that FoxPro has demonstrated capability for meeting project needs.

5. The project should develop and enforce a policy to prevent computer virus infections. The policy should prohibit the introduction of any diskette into any project computer unless it has been scanned for viruses first. It should stipulate that the use of any diskette in any non-project computer should be avoided. The project should invest in updating its anti-virus software as often as upgrades are available.
6. The project should invest in upgrading the ccMail Remote software to the ccMail Mobile for Windows version. This will likely take fuller advantage of the powerful modem capabilities in the laptop computer, and it will permit the printing of messages through the Windows for Workgroups network.
7. If humanly possible, implement these above recommendation in time for the start of the next selling season (1 April 1995).

## **Appendices**

- A. Letter to James Hinde, Burco Ltd requesting Auction Holdings Ltd data for 93/94 season.
- B. Followup letter to Mr. Hinde in advance of consultant's visit to Blantyre
- C. Letter to General Manager of Auction Holdings Ltd proposing strategy for weekly data transfers.
- D. Technical specifications for data export from Auction Holdings Ltd to the ACDI Smallholder Burley Club Project.
- E. Data Conversion Procedures - Auction Holdings Ltd Data
- F. Database Conversion Procedures - Ministry of Agriculture
- G. Status Reports - Kim G. Glenn

8 - 19 November 1994

20 - 26 November 1994

27 November - 4 December 1994

5 - 10 December 1994

# Agricultural Cooperative Development Int'l

K.I.A. House 3rd Floor, City Centre • Lilongwe 3, Malawi • (265) 780-141 • Fax: (265) 780-142

James Hind  
Programmer/Analyst  
Burco Electronic Systems Ltd  
P.O. Box 934  
Blantyre, Malawi

Dear Mr. Hind:

As per our recent discussion, the following are the specifications for the Auction Holdings Ltd data we request for the 1993/94 season. The data should be on PC/DOS diskettes 3.5 inch 1.44 megabyte format. Each file should contain only ASCII text data. You may use a flat file standard data format (where each field of each record is of uniform length with the record ending with a carriage return/line feed code).

## File 1 - Growers' Master File:

One record for each Smallholder Burley Tobacco Club who sold tobacco through AHL (either Limbe or Lilongwe). Include the following fields:

GROWER-NO  
NAME  
ADDRESS1  
ADDRESS2  
ADDRESS3  
GROUP-CODE      The purpose for this code is not clear. Can you explain?  
AREA-CODE  
ADD-CODE  
DISTRICT-CODE  
LICENSED-WT

"UPLIFTED LICENSE" It wasn't clear to me from your file specifications where you are storing this information, but we noticed it on 1993 season to date statements.

## File 2 - Sale Consignment History File:

This file will include one record for each consignment transaction for each Smallholder Burley tobacco club for the 1993/94 auction season. The fields will include:

GROWER-NO This field will provide us the means to link this file to the above file for generating our own analysis and summaries.

RECPT-NO

OFFER-NO

BALES-OFFERED

WEIGHT-OFFERED

WEIGHT-SOLD

AMOUNT-REALISED I assume this is the gross proceeds from the sale.

CHARGE Auction Charges

LEVY I don't see a field where you store this and perhaps it is a calculated amount. If so, simply let us know the basis of the calculation, otherwise please include it whatever the field is.

WITHHOLDING-TAX

OTHER-DEDUCTIONS

I assume the amount paid to the grower is a calculation of the amount realized minus the charge, levy, withholding tax and other deductions.

We are eager to receive this as soon as is practical and reasonable. Please enclose an invoice for this service, the diskettes and include the costs for sending the disks to us by the fastest means possible.

Sincerely,

John C. Engle

Project Director

cc: General Manager, Auction Holdings Ltd

# Agricultural Cooperative Development Int'l

K.I.A. House 3rd Floor, City Centre • Lilongwe 3, Malawi • (265) 780-141 • Fax: (265) 780-142

James Hind  
Programmer/Analyst  
Burco Electronic Systems Ltd  
PO Box 934  
Blantyre, Malawi

Dear Jim:

I am travelling to Blantyre tomorrow (Wednesday) morning and am planning to return to Lilongwe on Saturday. I am hoping to stay at the Mount Soche hotel, but do not yet have confirmed reservations there.

I have other agendas, but obtaining the 1993/94 Auction Holdings Ltd data for the smallholder burley tobacco clubs is my primary objective. When we last spoke, you indicated that we might be able to work together to achieve this sometime during this period. If necessary, I can stay longer. I am bringing a laptop with adequate capacity to accept up to 100 megabytes of data. Perhaps we can arrange a direct link via serial ports via a null modem cable (I have one)?

I will also want to discuss with you the prospects for obtaining data directly from Auction Holdings Ltd's computers (both Limbe and Lilongwe) during the sales season. We are currently considering weekly transmissions of bale records and daily sellers' summaries ... for smallholder burley tobacco clubs. Our experience in Malawi demonstrates that we can use modems effectively for this, but this will require both of Auction Holdings Ltd's facilities to have this technology and the skills to use it.

I understand that at least one other organization (Malawi Rural Finance Corporation) is seeking a similar arrangement for different sets of data. We are eager to collaborate in such a way as to minimize the cost for everyone, while strengthening Auction Holdings Ltd's ability to support the industry.

Sincerely,

Kim G. Glenn  
MIS Consultant

# Agricultural Cooperative Development Int'l

K.I.A. House 3rd Floor, City Centre • Lilongwe 3, Malawi • (265) 780-141 • Fax: (265) 780-142

**TO: General Manager, Auction Holdings Ltd**

**RE: Proposed Strategy for Monitoring Smallholder Burley Club Performance - Auction Holdings Ltd Data:**

The Smallholder Burley Club Project recently obtained, with Auction Holdings Ltd permission, computer data representing the sales performance of Smallholder Burley Clubs for the 1994 season. This data will immeasurably assist us in strategic planning for strengthening these clubs. The project proposes to obtain from Auction Holdings Ltd essentially the same data on a weekly basis during the selling season. This is in place of obtaining the data in one extraction at the end of the season.

We will use this data to provide timely feedback to the clubs on their individual and collective performance relative to each other, past seasons' performance, and the industry as a whole.

We have discussed this with BURCO, the company responsible for maintaining and modifying as needed the data processing system for Auction Holdings Ltd. They have indicated that the necessary modifications to the hardware and software can be implemented easily in time for the next selling season. The software changes, in fact, are based on the routines they created to provide us with this past season's data.

The data we are seeking is limited to that which applies to Smallholder Burley Clubs who sell directly on the auction floor, and excludes the buyers' identities. The data will be submitted in System Data Format (SDF) in two files. One will include the consignment records, the other will include the bale records for all bales passing through the auction floors. We are requesting the master grower file only once, before the start of the selling season. The other two files we are requesting on a weekly basis, containing only new records created during that time period.

The software modifications will provide two new options to Auction Holdings Ltd computer operators. One will be to export the weekly data to diskettes for the Smallholder Burley Club Project. The other will be to extract the same data for any past time period between and

including any two dates the operator provides. The first option will be used weekly as a normal course of operation, and will automatically insure that data from one week to the next is easily available for convenient export to diskettes. The other will provide for any instance where diskettes are lost, damaged or the project database integrity is for any reason placed in doubt.

The diskettes must be 3.5 inch 1.44 megabyte formatted PC diskettes. We understand that Auction Holdings Ltd is already considering hardware upgrades that will automatically provide this facility.

During the selling season, the project will insure that diskettes are provided to Auction Holdings Ltd's facilities, certified by Burco, for the purpose of obtaining this data on a weekly basis. We have prepared and submitted to you herewith technical specifications for this process.

With Auction Holdings Ltds support, and the cooperation of other agencies, the Smallholder Burley Club project will work to improve the performance of the clubs which will lead to a better product which will attract higher prices from buyers and enhance the reputation of the Malawi tobacco industry to the benefit of everyone involved.

Sincerely,

John C. Engle  
Project Director

cc: Burco Ltd, Blantyre with Technical Specifications

# Technical specifications for data export from Auction Holdings Ltd to the ACDI Smallholder Burley Club Project.

## File and Data Specifications

Master Grower Files

Consignment Files

Bale History Files

## Proposed Operating Procedures

Annual Master Grower File Reconciliation

Weekly Data Export Procedures

Prepared by Kim G. Glenn, ACDI Computer Consultant  
December 13, 1994

## File and Data Specifications

All data is limited to Smallholder Burley Club activity on the auction floors.

### Master Grower Files

Filename: ACF210?? YY

<b>Field Name</b>	<b>PIC</b>
tob-code	XX
grower-no	9(5)
grower-name	X(40)
address1	X(30)
address2	X(30)
address3	X(30)
group-code	99
area-code	X
ADD-code	XXX
district-code	XXX
licensed-wt	9(9)

This is the master grower file, to be provided once each year prior to the selling season. The filename should follow the format above where ?? will be LL to indicate the Lilongwe auction floor, and LB will indicate the Limbe/Blantyre floor. Theoretically, these files should be identical, and should reconcile with that provided by the Ministry of Agriculture.

## Consignment Files

Filename: ACF220???.nnn

<u>Field Name</u>	<u>PIC</u>
tob-code	XX
grower-no	9(5)
receipt-no	9(6)
adjust-no	99
exch-rate	99V9999
end-ticket	9(8)
bales-offd	S9(4)
bales-sold	S9(4)
weight-offd	S9(6)
weight-sold	S9(6)
amount-realised	S9(7)V99
charges	S9(7)V99
levies	S9(7)V99
withhold-tax	S9(7)V99
other-deduct	S9(7)V99

This is the consignment file to be provided on a weekly basis throughout the selling season, containing all new consignment records created during the previous week. One record is created for each grower for each day where one or more of bales are sold to any buyer. ENDTICKET identifies the last bale record in the bale history file which is part of this consignment. Bale records are linked to the consignment record by indexing the bale history file (below) by ticket number, identifying the endticket, and counting backwards by the number of bales offered plus one. The filename should follow the format above where ?? will be LL to indicate the Lilongwe auction floor, and LB will indicate the Limbe/Blantyre floor. The extension nnn will indicate the serial number of the week for which the file has been created, starting with 001 for the first week of the selling season and finishing with the last week of the selling season. The computer operator's will be able to designate this number at the time they run the routine.

## Bale History Files

Filename: ACF225???.nnn

<u>Field Name</u>	<u>PIC</u>
ticket-no	9(8)
lot-no	9(5)
lot-no-suffix	X
weight	S999
growers-grade	X
declaration-1	9
declaration-2	9
declaration-3	9
rejection-code	99
destination-code	XXXX
classification	X(6)
price-sold	9(4)
bale-value	S9(7)
prev-ticket-no	9(8)

This is the bale history file to be provided on a weekly basis throughout the selling season, containing all new bale history records created during the previous week. One record is created each time a bale is placed on the floor for sale. Some bales will have multiple records, for each time it is re-offered for sale. The filename should follow the format above where ?? will be LL to indicate the Lilongwe auction floor, and LB will indicate the Limbe/Blantyre floor. The extension nnn will indicate the serial number of the week for which the file has been created, starting with 001 for the first week of the selling season and finishing with the last week of the selling season. The computer operators will be able to designate this number at the time they run the routine.

## **Proposed Operating Procedures**

### **Annual Master Grower File Reconciliation**

ACDI, the Ministry of Agriculture and Auction Holdings Ltd will coordinate to insure that the master grower records all contain the same grower numbers referring to the same clubs. At a minimum, Auction Holdings Ltd will provide a single file for each auction floor with the master grower file to be used for the upcoming selling season. ACDI will provide diskettes clearly labelled for that purpose to Burco who will certify them for use and distribute them to the respective auction floors. Other procedures may be applied by agreement with all parties to achieve the same objective.

### **Weekly Data Export Procedures**

ACDI will provide Burco Ltd with sufficient diskettes for each auction floor. Burco will certify them as properly formatted and free of computer viruses. ACDI will label the diskettes "ACDI-LL" for Lilongwe and "ACDI-LB" for Limbe/Blantyre. In addition, ACDI will number them sequentially, one for each week of the selling season. They will be 3.5 inch 1.44 megabyte formatted DOS diskettes. ACDI will provide them to Burco by 1 March of each year. Burco will certify them and provide them to each respective auction floor in time for the conclusion of the first week of selling.

At the end of each week, Auction Holdings Ltd computer operators will be responsible for running the appropriate procedure as programmed by Burco. This procedure will place two files on the diskette, one containing all consignment records created for the past week, and the other containing all bale history records for the past week. The procedure will prompt and require the computer operator to indicate for which week the procedure is being run. The week will correspond to the serial number on the diskette, beginning with 001. The file names will correspond to the specifications given above. The content of the files will be in ASCII system data format as specified above.

Where a diskette is lost or is found to be faulty, ACDI will request the respective floor of Auction Holdings Ltd to recreate the diskette using an appropriate procedure

as programmed by Burco. This procedure will allow the operator to specify two dates between which and inclusive of all consignment and bale history records will be extracted and put into their respective files onto the diskette. Again, the computer operator will be prompted to specify for which week this data is being provided, and this week will be indicated in the extension of the DOS filename.

Diskettes will be sent to ACDI on a weekly basis by whatever carrier or means seems appropriate to Auction Holdings Ltd and to ACDI.

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# Data Conversion Procedures - Auction Holdings Ltd Data

Background

Converting the Master Grower File - ACF210??

Converting the Consignment File ACF220???.NNN

Improving the Linkage Between the Consignment and Bale History Files

Building and Maintaining the Main Database

Reconciling Auction Holdings Ltd Data with Ministry of Agriculture Data

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## **Background**

This document provides a technical explanation of the procedures I followed when converting Auction Holdings Ltd data as provided by Burco Ltd to FoxPro database structures suitable for analysis by the Smallholder Burley Club project of ACDI. This initial data conversion was done on 1993/94 season data. Similar procedures will be required in order to convert the proposed weekly transfers of sales data during the selling season. I have tried to provide an explanation that is in the context of the continuing transfer and conversion of data for the project, as proposed.

We received six individual files from Burco. Three files came from data originally entered at their Limbe/Blantyre auction floor. Three others came from data originally entered at their Lilongwe auction floor. The three files contained, respectively, the Master Grower records, the daily consignment sales records, and the individual bale history records.

The Master Grower file contains one record for each Smallholder Burley Club registered to sell on the auction floor. The grower number is a key field. It is assigned by the Ministry of Agriculture and prior to selling on the auction floor the Smallholder Burley Club must have a number and Auction Holdings Ltd must have it entered in this Master Grower file for the floor where the tobacco is to be sold.

The Consignment file also contains this grower number, which is the basis for linking it to the Master Grower file. The consignment file also contains a reference to a receipt number, which is the receipt issued by Auction Holdings Ltd to the grower for each and every delivery of one or more bales of tobacco to the floor. The consignment file also contains reference to an ENDTICKET number. This number corresponds to a ticket number found in the bale history file. The consignment file contains reference to the total number of bales offered by the grower on a single day. The endticket number subtracted by the number of bales offered, plus one is the means by which the bale history file can be linked to this file.

The bale history file contains one record for each time each bale is placed on the floor. A ticket number is issued in each case. This is in addition to and aside from the receipt number. Indexing on this ticket number is necessary in order to link it to the consignment file. One bale may have more than one record in the bale history file, uniquely identified by the ticket number.

The conversion process described here takes this data from the COBOL CTOS plain ASCII System Data Format (SDF) and imports it into a FoxPro database structure that precisely matches it. The process then removes useless data and places the decimal points properly. In order to merge the data from both auction floors without losing the identity of the source of the data, each record is identified by auction floor. To improve the efficiency of relating the Consignment and Bale History files, the process adds a field in the bale history file equivalent to the endticket number found in the consignment file. The process identifies all bale history records associated with each consignment file and places this endticket number in the consignment field.

Each stage of the conversion process is described in detail below. This should serve as a basis for a fully or partially automated system for handling the weekly data during the selling season.

## Converting the Master Grower File - ACF210??

<u>Field Name</u>	<u>PIC</u>	<u>Type</u>	<u>Length</u>	<u>Dec.</u>
tob-code	XX	C	2	
grower-no	9(5)	N	5	0
grower-name	X(40)	C	40	
address1	X(30)	C	30	
address2	X(30)	C	30	
address3	X(30)	C	30	
group-code	99	N	2	0
area-code	X	C	1	
ADD-code	XXX	C	3	
district-code	XXX	C	3	
licensed-wt	9(9)	N	9	

This is the master grower file, to be provided once each year prior to the selling season. The filename should follow the format above where ?? will be LL to indicate the Lilongwe auction floor, and LB will indicate the Limbe/Blantyre floor. Theoretically, these files should be identical for Grower Number, Grower Name, Addresss and Licensed Weight data, and should reconcile with that provided by the Ministry of Agriculture. Group code, Area Code, ADD Code and District Code are of limited or no value to the project at this time. Their meanings to do not seem to correspond to that used by the Ministry of Agriculture and likely serve other purposes for Auction Holdings Ltd.

The file structure above presents the field names as used by Burco for the COBOL application serving Auction Holdings Ltd. The second column PIC provide the structure using COBOL format. The columns for Type, Length and Dec. provide the fiel structure in FoxPro compatible format. Create a file with this precise structure. Field names can be anything, but should suggest the COBOL field names. To use any of the program files I have used, you should use the same field names I used or be aware that you will need to edit the program files to match your own field names. Give the file a name to correlate with the auction floor's data being converted: ACF210LL.DBF for Lilongwe and ACF210LB.DBF for Limbe/Blantyre.

The file provided by Auction Holdings Ltd or Burco might not have an extension. It is not necessary, but FoxPro prefers to see SDF formatted files with an extension of TXT, although other extensions (such as 001) are accepted. USE the file you just created with a Foxpro structure to match the SDF file. With that file

open active, use the command APPEND FROM ACF210???.TXT SDF to import the SDF data into the FoxPro structure. You should see the number of records created. Browse the results to visually verify that the data was imported correctly. The Tobacco Code may be removed from the structure after the data has been imported. It will always indicate Burley and is there to facilitate the extraction of the data from the main database of all tobacco growers.

Do this for each Master Grower file ACF210LL and ACF210LB such that you have a corresponding DBF file containing the same data, but in FoxPro compatible format. No further conversion is required for these files. Theoretically, they should be identical such that any grower selling on either or both floors is properly registered. As a practical matter, rarely does any Smallholder Burley Club sell to both floors. If it does, then Auction Holdings Ltd must monitor quantities to insure that the club doesn't exceed total quota. Again, as a practical matter, Auction Holdings Ltd may have only Master Grower records for those clubs selling at the respective floor in the respective floor's database. This is only a problem insofar as it seems there is no mechanism in place where clubs must declare which floor they will be selling to, and once declaring it are obligated to abide by this declaration. Should such a mechanism be in place, then Auction Holdings Ltd, in cooperation with the Ministry of Agriculture who handles club registration, could theoretically initialize the Master Grower file for each floor with only those clubs registered to sell at each particular floor. A club attempting to sell at a floor other than the one which they declared would be their floor would be prohibited from doing so because the floor would not contain a Master Grower record for that club.

Once these two files have been converted, reconcile them with the Ministry of Agriculture's club registration file. This may well be an unnecessary process if the Ministry of Agriculture and Auction Holdings Ltd can settle on a definitive process such that the Smallholder Burley Club project can be assured that their databases correspond. The Ministry of Agriculture's club registration file is the one the Smallholder Burley Club project will want to use, not the Auction Holdings Ltd Master Grower file.

## Converting the Consignment File ACF220?? .NNN

<u>Field Name</u>	<u>PIC</u>	<u>Type</u>	<u>Length</u>	<u>Dec.</u>
tob-code	XX	C	2	
grower-no	9(5)	N	5	0
receipt-no	9(6)	N	6	0
adjust-no	99	N	2	0
exch-rate	99V9999	N	6	4
end-ticket	9(8)	N	8	0
bales-offd	S9(4)	N	5	0
bales-sold	S9(4)	N	5	0
weight-offd	S9(6)	N	7	0
weight-sold	S9(6)	N	7	0
amount-realised	S9(7)V99	N	10	2
charges	S9(7)V99	N	10	2
levies	S9(7)V99	N	10	2
withhold-tax	S9(7)V99	N	10	2
other-deduct	S9(7)V99	N	10	2

This is the consignment file to be provided on a weekly basis throughout the selling season, containing all new consignment records created during the previous week. One record is created for each grower for each day where one or more of bales are sold to any buyer. ENDTICKET identifies the last bale record in the bale history file (when indexed on ticket number) which is part of this consignment. Bale records are linked to the consignment record by indexing the bale history file (below) by ticket number, identifying the endticket, and counting backwards by the number of bales offered plus one. The filename should follow the format above where ?? will be LL to indicate the Lilongwe auction floor, and LB will indicate the Limbe/Blantyre floor. The extension nnn will indicate the serial number of the week for which the file has been created, starting with 001 for the first week of the selling season and finishing with the last week of the selling season. The Auction Holdings Ltd computer operators will be able to designate this number at the time they run the routine.

The file structure above presents the field names as used by Burco for the COBOL application serving Auction Holdings Ltd. The second column PIC provide the structure using COBOL format. The columns for Type, Length and Dec. provide the file structure in FoxPro compatible format. *Note that in the COBOL structure, the SDF file contains a + or - (plus or minus) sign for each field where the PIC is prefixed with the letter S. This requires that we allow an extra position*

*in the DBF structure to accommodate it. FoxPro correctly interprets the sign, but does not store it in the database. Note also that the COBOL specification calls for decimal places as indicated by the V99 PIC settings. These are in addition to the length indicated in parentheses before the decimal point.* Create a file with this precise structure. Field names can be anything, but should suggest the COBOL field names. To use any of the program files I have used, you should use the same field names I used or be aware that you will need to edit the program files to match your own field names. Give the file a name to correlate with the auction floor's data being converted: ACF220LL.DBF for Lilongwe and ACF220LB.DBF for Limbe/Blantyre.

The file provided by Auction Holdings Ltd or Burco might not have an extension. It is not necessary, but FoxPro prefers to see SDF formatted files with an extension of TXT, although other extensions (such as 001) are accepted. USE the file you just created with a Foxpro structure to match the SDF file. With that file open active, use the command APPEND FROM ACF220??.TXT SDF to import the SDF data into the FoxPro structure. You should see the number of records created. Browse the results to visually verify that the data was imported correctly. The Tobacco Code may be removed from the structure after the data has been imported. It will always indicate Burley and is there to facilitate the extraction of the data from the main database of all tobacco growers. We do not need it.

The commands for placing the decimal point appropriately in the numeric fields needing them for these files are found in the file DECIMAL.PRG. Open and edit this file to permit that portion of the program to operate on whatever file or files are ready for decimal placement. Or, prepare all files needing decimal placements first and run this program once to handle them all at the same time. DO DECIMALS.PRG to run the program. For reference, the exact text of the program file is shown here:

```
use acf2201b
replace all exchrates with exchrates/10000,;
         realised with realised/100,;
         charges with charges/100,;
         levies with levies/100,;
         withhold with withhold/100,;
         otherded with otherded/100
return
```

```
use acf22011
replace all exchrates with exchrates/10000,;
         realised with realised/100,;
         charges with charges/100,;
         levies with levies/100,;
         withhold with withhold/100,;
         otherded with otherded/100
return
```

## Convert Bale History Files ACF225??.NNN

<u>Field Name</u>	<u>PIC</u>	<u>Type</u>	<u>Length</u>	<u>Dec.</u>
ticket-no	9(8)	N	8	0
lot-no	9(5)	N	5	0
lot-no-suffix	X	C	1	
weight	S999	N	4	0
growers-grade	X	C	1	0
declaration-1	9	N	1	0
declaration-2	9	N	1	0
declaration-3	9	N	1	0
rejection-code	99	N	2	0
destination-code	XXXX	C	4	
classification	X(6)	C	6	
price-sold	9(4)	N	4	0
bale-value	S9(7)	N	8	0
prev-ticket-no	9(8)	N	8	0

This is the bale history file to be provided on a weekly basis throughout the selling season, containing all new bale history records created during the previous week. One record is created each time a bale is placed on the floor for sale. Some bales will have multiple records, for each time it is re-offered for sale. The filename should follow the format above where ?? will be LL to indicate the Lilongwe auction floor, and LB will indicate the Limbe/Blantyre floor. The extension nnn will indicate the serial number of the week for which the file has been created, starting with 001 for the first week of the selling season and finishing with the last week of the selling season. The computer operators will be able to designate this number at the time they run the routine.

The file structure above presents the field names as used by Burco for the COBOL application serving Auction Holdings Ltd. The second column PIC provide the structure using COBOL format. The columns for Type, Length and Dec. provide the file structure in FoxPro compatible format. *Note that in the COBOL structure, the SDF file contains a + or - (plus or minus) sign for each field where the PIC is prefixed with the letter S. This requires that we allow an extra position in the DBF structure to accomodate it. FoxPro correctly interprets the sign, but does not store it in the database.* Create a file with this precise structure. Field names can be anything, but should suggest the COBOL field names. To use any of the program files I have used, you should use the same field names I used or be aware that you will need to edit the program files to match your own field names. Give the file a name to correlate with the auction floor's data being converted: ACF225LL.DBF for Lilongwe and ACF225LB.DBF for Limbe/Blantyre.

The file provided by Auction Holdings Ltd or Burco might not have an extension.

It is not necessary, but FoxPro prefers to see SDF formatted files with an extension of TXT, although other extensions (such as 001) are accepted. USE the file you just created with a Foxpro structure to match the SDF file. With that file open active, use the command APPEND FROM ACF225??.TXT SDF to import the SDF data into the FoxPro structure. You should see the number of records created. Browse the results to visually verify that the data was imported correctly. The Tobacco Code may be removed from the structure after the data has been imported. It will always indicate Burley and is there to facilitate the extraction of the data from the main database of all tobacco growers. We do not need it.

PRICE SOLD and BALE VALUE fields are not specifically handled in the COBOL application as decimal fields, rather they are considered in US Cents. To make our data more meaningful, we place a decimal point and consider them as US Dollar fields. After appending the data to the file, modify the structure to add two decimal places to each of these fields. The commands for placing the decimal point appropriately in these fields are found in the file DECIMAL.PRG. Open and edit this file to permit that portion of the program to operate on whatever file or files are ready for decimal placement. Or, prepare all files needing decimal placements first and run this program once to handle them all at the same time. DO DECIMALS.PRG to run the program. For reference, the exact text of the program file is shown here:

```
use acf2251b
replace all pricesold with pricesold/100,;
           balevalue with balevalue/100
return

use acf22511
replace all pricesold with pricesold/100,;
           balevalue with balevalue/100
return
```

In preparation for the next step, create a compound index file for each bale history file and establish a key using the TICKET NUMBER field.

## Improving the Linkage Between the Consignment and Bale History Files

The COBOL application maintained by Burco and used by Auction Holdings Ltd uses a means for linking these files that is slow and cumbersome for our purposes. The link is based on a combination of the END TICKET NUMBER and the BALES OFFERRED as found in the consignment record, and the TICKET NUMBER as found in the Bale History File records. There is a one-to-many relationship in that for each consignment record there is one or more bale history records. The link is based on the END TICKET NUMBER minus BALES OFFERRED plus one. The results of this calculation identify the starting ticket number. These two corresponding records in the bale history file and any records in between them, indexed on ticket number, provide the individual bale records that make up the consignment record. To run this calculation for each query will be unnecessarily long. To improve the linkage, modify the structure of the bale history files and insert a field called CONSIGN, numeric, with a length of eight positions. This matches the TICKET NUMBER and END TICKET specifications.

The program file CONSIGN.PRG will identify each bale history record using the above calculations and associate them with their corresponding consignment record, if any. It will place the END TICKET number in the CONSIGN field such that all bale history records will contain the END TICKET number for the consignment record to which they are associated. One bale history record for each consignment record will contain the same value in its CONSIGN and TICKET NUMBER fields. In this manner, FoxPro can simply use the CONSIGN as an index key to link to the consignment file. Note that at this point the converted files are still separate, one set for each auction floor. You must modify this program to open the correct set of files (ACF225LL and ACF220LL, or ACF225LB and ACF220LB.) The relevant lines are printed in bold below. The exact text of the CONSIGN.PRG file is printed here for reference:

```

CLEAR
SET TALK OFF
SET STATUS OFF
DEFINE WINDOW output FROM 2,1 TO 13,75 TITLE 'Output' ;
  CLOSE FLOAT GROW SHADOW ZOOM
ACTIVATE WINDOW output
@ 2,1 SAY "Receipt Number:"
@ 4,1 SAY "Consignment Number:"
@ 6,1 SAY "Record number:"
@ 6,40 SAY "out of "
@ 8,1 SAY "Bogus Consignment Records:"
@ 10,1 say "Consign.prg running"
CLOSE DATA

USE acf22511.dbf alias ticket
*USE acf2251b.dbf alias ticket

SET ORDER TO ticketno

SELE B
USE acf22011 alias consign
*USE acf2201b alias consign

@ 6,48 SAY RECCOUNT()
GO TOP
N=0
bogus = 0,
DO WHILE .NOT. EOF()
  N=N+1
  @ 6,20 SAY N
  @ 2,20 SAY receiptno
  @ 4,20 SAY endticket
  SELE ticket
  SEEK consign->endticket
  IF .NOT. FOUND()
    bogus = bogus+1
    @ 8,40 SAY bogus
  ELSE
    SKIP -consign->basesoffd+1
    DO WHILE ticketno<=consign->endticket .AND. .NOT. EOF()
      REPLACE consign with consign->endticket
    SKIP
  ENDDO
ENDIF
SELE consign
SKIP
ENDDO
WAIT "Normal End of File Encountered" WINDOW
RELEASE WINDOW output
SET STATUS ON
RETURN

```

## Building and Maintaining the Main Database

At this point we have converted the data from each auction floor to FoxPro format, and improved the means for linking consignment data to bale history data. However, the files are still separate and distinct based on the auction floor which created them. In order to build the database such that we can review activities of clubs, summarizing by Environmental Planning Area, Rural Development Project, and Agricultural Development Division without regard to which auction floor handles the tobacco, we must combine the data from the auction floors. At this point, we are only concerned with the consignment and bale history files.

Modify the structure of each consignment and bale history file to add a field ACF (Character, 1 position length) to each database so that we can blend them all without losing track of source. Use the program file ACF.PRG or issue the commands found in it to place the appropriate data in the ACF field depending on its source. L=Lilongwe, B=Blantyre. The exact text of the ACF.PRG file is printed here for reference:

```
*Limbe/Blantyre data sets
close data
use acf2101b
replace all acf with "B"
use acf2201b
replace all acf with "B"
use acf2251b
replace all acf with "B"
return
```

```
*Lilongwe data sets
close data
use acf2101l
replace all acf with "L"
use acf2201l
replace all acf with "L"
use acf2251l
replace all acf with "L"
return
```

Now the individual records within each floors' files are identified with their respective auction floor. They can be safely merged and mingled without losing their source identities. If one has not already been created, create a main consignment and main bale history file. One means for doing this is to use one of the existing files, such as acf2201l.dbf and acf2251l.dbf and copy their structures respectively to acf220.dbf and acf225.dbf. Note that we have eliminated the reference to the auction floor in the filename. Use each of these new files, acf220

and acf225. Note that they have no records in them yet. Use the command, or choose the database menu options, to APPEND records to each of these file respectively from their corresponding individual files for each auction floor. ACF220.DBF will append records from ACF220LL and ACF220LB. ACF225.DBF will append records from ACF225LL and ACF225LB. In subsequent weeks during the selling season you will not need to recreate these main consignment and bale history files. Simply use them and append to them the new records received from Auction Holdings Ltd and converted using the above procedures (or more automated procedures based on these).

## Reconciling Auction Holdings Ltd Data with Ministry of Agriculture Data

The registration of clubs is the responsibility of the Ministry of Agriculture. It is carried out through a decentralized data entry process at the Agricultural Development Division level. Applications are accepted there and entered into a database application. The eight Agricultural Development Divisions then send the data on diskette to the Ministry of Agriculture where they are combined into a single database of clubs. This database, theoretically, becomes the basis on which Auction Holdings Ltd initializes the Smallholder Burley Club set of master grower records.

In practice, however, the Ministry of Agriculture was not able to complete the registration process in time for the selling season to begin in 1994. We understand that clubs continued to be newly registered, or renewed, well into the season when they were to sell their tobacco on the auction floors. As a result, it seems that Auction Holdings Ltd may have taken the initiative to enter growers on their own into their respective (Limbe and Lilongwe) databases in order to handle their tobacco. Or, perhaps, these records were carried over from a previous year. Or, perhaps, these late registrations made it correctly into the Auction Holdings Ltd computers, but not into the combined database maintained at the Ministry of Agriculture.

Whatever the reason, for the 1993/94 season there were 85 clubs who apparently sold tobacco at one or the other of Auction Holdings Ltd's facilities, but for which there was no corresponding grower number record found in the Nat9394.dbf club file provided by the Ministry of Agriculture. The process of identifying these clubs may be necessary at least once at the start of the selling season, and perhaps at other times. This reconciliation of Auction Holdings Ltd master grower records with the Ministry of Agriculture's registration database is a weak component of the overall system.

Open ACF220 (the combined database of consignment records keyed on the grower number) and relate it to the Ministry of Agriculture's club database using the grower number. Index ACF220 with Unique set on, on the grower number. Then filter the database for `acf220.growerno <> club.growerno`. The result will identify all growers listed in the Auction Holdings Ltd combined computers, but who are not found in the Ministry of Agriculture's club database. If found, copy these records to their own database file, then link this file to ACF210 in order to obtain Auction Holdings Ltd's club name, address, and quota information. Query these two databases to come up with one that provides fields to append to the

Ministry of Agriculture database. Be sure it is clear that these are unregistered clubs. Refer to the documentation on Ministry of Agriculture databases for further information.

This concludes the technical documentation on conversion procedures for handling Auction Holdings Ltd data.

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# Database Conversion Procedures - Ministry of Agriculture

## Database Descriptions

Club Members database

Club Database

Codes database

## Preparing the Club Database

Reconciling the Club database to the Codes database.

Calculate Club Holdsize and Gender Consititency

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## Database Descriptions

### Club Members database

Name	Type	Length	Description
MEMNO	C	3	Club Member Number. Sequentially assigned to individuals. 001-999.
FNAME	C	20	First Name of individual club member.
LNAME	C	20	Last Name of individual club member.
VILLAGE	C	20	Village name (where individual lives)
SEX	C	1	M/F
QUOTA	N	5	Production quota in KG, default is 300? This is individual club members' production quota.
HOLDSIZE	N	5	Total arable farmland in hectares.
NEWID	C	8	Key field for linking member records to the club record.

This database provides the number of male and female members, and the total holdsize per club. These data elements are not automatically found in the club database, and must be added by the project in order to be used. Once the calculations for membership breakdown by sex, and total holdsize per club are done, there is little further use for this database. It may arrive as separate databases, one for each Agricultural Development Division, named member1.dbf, member2.dbf etc. Simply use the same structure to create member.dbf and append records from all the individual Agricultural Development Division files.

## Club Database

Name	Type	Length	Description
DISTRICT	C	12	Not to be confused with Agricultural Development Division, this is a geopolitical designation, not agricultural. Of little apparent use to the project.
CLUB	C	20	Club name. There are many instances of two clubs having the same name, so this is not a suitable key field all by itself. Combine with newnum and/or Agricultural Development Division, Rural Development Project and Environmental Planning Area designations.
ADDR1	C	20	Address line. Note that Auction Holdings Ltd has three lines. However, one seems to be adequate.
GRDATE	D	8	These dates range from none, to 11/03/03, to 11/24/94. It seems to suggest the registration receipt date.
NOMEMBS	N	3	Number of members in the club. Range found in the nat9394.dbf is from 1 to 50+
QUOTAAPP	N	6	Total approved quota for the club. Generally speaking this is 300kg times the number of members. In fact, there are 351 (out of about 1200) clubs where this formula is not true. Club number 32128 MPHOMBWE has a quotaapp value of 20,000kg with a membership of 35. 300kg per member would give a quota of only 10,500kg.
NEWID	C	8	Key field for linking member records to the club record.
ADD	N	1	There are eight Agricultural Development Divisions numbered 1-8.
RDP	N	1	Each Agricultural Development Division has one or more Rural Development Projects.
EPA	N	1	Each Rural Development Project has one or more Environmental Planning Areas.

NEWNUM	C	5	This is the critically important Grower Number, also known as Seller Number. Auction Holdings Ltd must have this number in order to accept any tobacco for sale. It must be unique among all other sellers of tobacco at Auction Holdings Ltd facilities.
GRNO	N	7	This is <b>not</b> the grower number (see NEWNUM above). This field contains the Growers' Receipt Number when they pay their registration fee.
MARKET	C	1	Currently, a number 1 in this field indicates that the club has declared a commitment to sell directly and only on the floors of Auction Holdings Ltd. A digit 0 indicates that they are selling to ADMARK or an Intermediate Buyer.
ISREGIST	C	1	A "Y" indicates that the club has renewed its registration. Renewal process currently involves copying last year's database and resetting this field to "N" before accepting renewal registrations.
NEXTMID	N	3	The Next Member's ID Number. This is the means by which the member id numbers are assigned sequentially within each club by the computer software.
REGDATE	D	8	Original registration date.

**Codes database**

Name	Type	Length	Description
ADDNO	N	1	Agricultural Development Division number, matches the ADD field in the club database.
ADD	C	10	Agricultural Development Division name.
RDPNO	N	1	Rural Development Project number, matches the RDP field in the club database.
RDP	C	15	Rural Development Project
EPANO	N	2	Environmental Planning Area number, matches the EPA field in the club database.
EPA	C	15	Environmental Planning Area
NEWID	N	3	Key field for relating records to club database.

## Preparing the Club Database

### Reconciling the Club database to the Codes database.

Confirm that the club database (eg nat9394.dbf) does not contain any unique combinations of ADD/RDP/EPA codes which are **not** found in the codes.dbf. Open the club database and the codes database. Index the codes database on str(ADDNO)+str(RDPNO)+str(EPANO). Since these are numeric fields, use the string functions for each of them. Select the club database and relate it to the codes database on this same key. Filter the records of the club database for str(ADD)+str(RDP)+str(EPA) in the club database do not equal (<>) the str(ADDNO)+str(RDPNO)+str(EPANO) in the codes database. The result will be any records whose unique combination of ADD/RDP/EPA are not found in the codes database. If any are found, add them to the codes database, entering the names if known, or "unknown" if not known. This is an important step, because the codes database will serve as a key source for grouping clubs by ADD/RDP/EPA. Records in the club database, or other related databases (including Auction Holdings Ltd databases related on grower number) will be ignored if they do not have a match in the codes database.

Finally, append a record to the codes database that contains no data in the ADDNO/RDPNO/EPANO fields, and the word "Unknown" in the corresponding fields. This will insure that those clubs who may have no ADD/RDP/EPA designation will be included in any analysis reports.

### Calculate Club Holdsize and Gender Consititency

The club database as provided does not include a total for holdsize, nor a breakdown of club membership by gender. These seem to be important calculations for the project. They can be derived once through a query to generate a club database that has the information needed only by the project, including these two fields.

In order to conveniently develop this query, modify the structure of the members.dbf and add two fields: MALES, and FEMALES. Make them numeric fields with one position in length and no decimals. Replace all males with 1 for sex = "M". Replace all females with 1 for sex="F". This provides a convenient means for summing the total males and females. Other means can be used, but this one works for sure.

The query should relate the members file and the club file (eg nat9394.dbf) based on the NEWID field. Select whatever fields you want in the output, but be sure and include NEWNUM (the Grower Number), club name, address, quota, number of members, and the ADD/RDP/EPA designations. In addition, choose the SUM function to add a field that sums FEMALES and another that sums MALES. Use SUM to also provide a sum of Holdsize. Direct the query to output to a table, such as nat9394a.dbf. This will become the main club database for the project.

[This concludes the technical specifications for handling Ministry of Agriculture Data]

## Status Report - Kim G. Glenn

8 - 19 November 1994

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### General Description of Activities

I travelled from Baltimore to Lilongwe via Amsterdam, arriving on Thursday, 10 November around midday. JCE and I spent the afternoon discussing the project. Friday I accompanied JCE to the closing ceremony of one of the training events (Salima). We spent the weekend with informal discussions about the project while enjoying the recreational resources around Lake Malawi. I participated in further discussion with Carla Henry, including a more formal one Friday Afternoon.

During this past week JCE and I made initial visits to the Tobacco Control Commission, Auction Holdings Ltd (Lilongwe and Limbe), and the Ministry of Agriculture. We also visited a district office of the MoA to review the dBase IV data entry application of Smallholder Burley Club registration data. We visited the Unisys dealer who handles the data processing for Auction Holdings Limited. We met with the operator of the Fidonet Email system. We also with the operator of the AID Email system. We established an operating connection to the Fidonet node. We improved the access to AID Email system.

I found and fixed minor problems on the project computers' harddisks, configuring them to perform general diagnostics each time they are booted. I upgraded WordPerfect 6.0 software to 6.0a on two of the three computers. We continue to test ways and means for improving direct dial modem connections to ACDI's ccMail system in the US. I tested the Modular Link printer sharing system.

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## Findings

### Project

The project's computer hardware and software resources are in good shape. The project needs to improve the administration of these resources. If the project expands as proposed, an individual will be appointed responsible for database management. This individual will likely be the best one to assume responsibility for administering and supporting the project's general data processing systems. A second person should have the necessary skills and knowledge to assume this responsibility during the absence of the database manager.

The Modular Link printer sharing system does not work. It is possible that the devices were damaged during shipment and/or subsequent handling. They may require individual external power devices.

Telecommunications connections are now much improved. AID is investigating the policy implications of giving JCE access to the Internet Email link available on their LAPmail system. It is not a technical problem. The Fidenet system now seems to be the best means for improving Email communications with ACDI/Washington. Testing is in progress. Direct dialing internationally is possible, but limited to early morning hours. An NGO agency in Lilongwe regularly connects to a US based service several times each week.

The project's proposed general data processing system will likely involve the following agencies as data sources:

- Ministry of Agriculture
- Tobacco Control Commission
- Auction Holdings Ltd (both Limbe and Lilongwe facilities)
- Malawi Rural Finance Corporation
- Individual Smallholder Clubs

### Ministry of Agriculture

The dBase IV application provided by AID is used to enter club registration data at the district level. It requires relatively minor modifications to improve the data entry process and avoid accidental assignment of duplicate seller numbers. We understand that the data is combined at the MoA and analyzed using SASS software. This aggregation and analysis occurs once each year. Production quotas

seem to be assigned by the MoA by District. Within each district, individual club and member projection quotas are assigned by MoA personnel within the district. We observed that the MoA's assignment of quota and seed allocations to individual members, rather than to clubs as a whole, may work against the formation of strong group identities and group processes.

### **Tobacco Control Commission**

The Tobacco Control Commission is primarily occupied with managing the pace of the delivery of tobacco to the auction floors through the use of delivery quotas. During the auction process, the Tobacco Control Commission mediates and resolves disputes. Apparently, Zimbabwe has developed a computerized Tobacco Control Commission for their operation based on Malawi's. We have tentative plans to visit them during the week of 28 November.

### **Auction Holdings Ltd**

AHL has two facilities, one in Limbe and the other in Lilongwe. Each facility has a separate but duplicate data processing system to manage the data related to the marketing of tobacco at their respective facility. They are Unisys model 520 and 530 machines. AHL is intending to upgrade the hardware this coming year. The application software is written in COBOL and daily sales data is currently being exported to ADMARK (a parastatal intermediary buyer) from the Limbe facility. We have secured a sample diskette of data. All indications are that we will have no problem receiving this data in a format that the project can use. We must prepare specifications for precisely what data and in what format.

### **Malawi Rural Finance Corporation**

The Malawi Rural Finance Corporation apparently will be a source of credit and finance data on the smallholder clubs. I did not visit them in the time frame of this report.

### **Individual Smallholder Clubs**

There may be some information not available from the above sources. In this case, the project will gather it directly from the individual clubs. I did not visit any individual clubs in the time frame of this report.

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### Plans for next week

**During the coming week I plan to complete my initial round of visits to key agencies and individuals. During these visits I will note the available information and its format and establish a basis on which further communications can occur. They include:**

- Malawi Rural Finance Corporation
- Ministry of Agriculture - data processing
- AID programmer responsible for the Ministry of Agriculture registration application

I have received during this past week sample data and specifications from Auction Holdings Limited and their Unisys support. I have a document from the Tobacco Control Commission of a study done in 1989 for them. I will review all of these.

The Auction Holdings Limited programmers are waiting for specifications from us for data content and format of all smallholder burley club activity during the past season. With this we will be able to analyze last season's activity. I will draft these specifications.

John, Carla and I have begun a process for defining the data processing needs of the project based on the project Mission, Goals and Objectives, and on a Decision Support System designed to support the implementation strategy. We will complete a draft of this by the end of the week.

[end of report]

## Status Report - Kim G. Glenn

20 - 26 November 1994

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### General Description of Activities

I visited the Ministry of Agriculture, the Malawi Rural Finance Corporation, USAID and the FEWS/AES project. This completed my initial round of visits to survey available data sources to support the Smallholder Burley Club project. I reviewed the specifications for the Auction Holdings Ltd and Ministry of Agriculture database structures. I drafted the specifications for obtaining on diskette Auction Holdings Ltd data for this past 93/94 season.

We continue to test and improve telecommunications access through direct dial and also through the local Fidonet node.

I upgraded the final computer to WordPerfect version 6.0a. I installed a second harddisk in one of the computers. I linked two computers such that they can share the laser printer using the Auto Switch parallel adaptor. I installed Central Point Anti-Virus software on all computers (an obviously necessary move). I completed the installation of the dual line phone system in the office. I installed FoxPro for Windows version 2.6 and reviewed Ministry of Agriculture data files with it.

With John and Carla, we completed a draft of the project's mission and objectives sufficient to outline the database reporting requirements.

I reviewed the applicants for the Database Manager position with Carla and discussed staffing requirements for the project.

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### Findings

#### Project

I recommend that the project office proceed directly to network the laptop and two desktop machines such that data, software and printing resources can more easily be shared. An ethernet system with thinnet cabling is the most reliable network architecture. I recommend that the project use Windows for Workgroups (3.11) as the network operating system.

The project can benefit from immediately hiring a database manager with whom I can work directly, and who can follow up with implementation of the project's system.

Telecommunications from the office are generally reliable in the morning. The Fidonet system works well for outgoing mail (although ACDI/Washington has not

acknowledged receiving our test messages). We are still testing incoming mail. The AID Lapmail system is not yet available for Internet access and it seems that policy issues may prevent the project from using it.

### **Ministry of Agriculture**

We find that the Ministry of Agriculture registration application for Smallholder Burley Tobacco Clubs was not, as previously thought, provided by USAID and programmed in dBase IV. It is a Clipper Application based on USAID's initial system analysis and perhaps financed by USAID. However, it was created by a Ministry of Agriculture programmer, Peter Salusika(sp?). The application is an admirable first effort to computerize this registration process. However, it requires a comprehensive review and updating to improve its efficiency and insure data integrity. The use of SASS as the report generator should also be reviewed. It is not clear if this falls within the project's scope of work or not, but it certainly is key to insuring that the Ministry of Agriculture serves as a reliable source of data.

### **Tobacco Control Commission**

We have finalized plans to visit Zimbabwe's equivalent agency this coming week.

### **Malawi Rural Finance Corporation**

We met twice with this organization. The initial meeting was with Mr. Kaimila and led to a second meeting with Mr. Sadat Sidiki (GM) and his computer programmer Alan Mlenga. They have expressed interest and support for sharing credit information on Smallholder Burley Tobacco clubs with the project, in exchange for advice and endorsements in the future as to which clubs are good candidates for future credit. They are beginning to use MicroBanker applications software, developed in FoxPro for DOS. We have received full cooperation and the database specifications for this system. We have urged them to begin entering the Grower Number (also known as the Seller Number) in the customer record. This will provide a key field on which to link their data to other project data.

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### **Plans for next week**

Monday-Wednesday next week will include a visit to Zimbabwe for the purpose of reviewing their tobacco marketing systems. Interviews with candidates for the position of database manager are being scheduled for later next week and early the following week.

I did not complete my review of the TCC study document this past week, and will do so during the visit to Zimbabwe.

I will complete a draft specification for the project reporting outputs that will draw data from and perhaps feed information back to the combined sources of Ministry

of Agriculture, Auction Holdings Ltd and Malawi Rural Finance Corporation. The general specifications are:

- ▶ Annual reports for each club providing sales data for the past season, credit report, and club membership profile;
- ▶ During the sales season, monthly summaries for all clubs showing sales performance relative to national averages, and including rejection analysis;
- ▶ During the sales season, weekly summary analyses of sales performance for use within the project only, and for possible broadcast over mass media.

[end of report]

## Status Report - Kim G. Glenn

27 November - 4 December 1994

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### General Description of Activities

I visited the Tobacco Marketing Board of Zimbabwe during the first half of the week. During the latter part of the week I began developing database reporting applications with FoxPro for Windows using the Ministry of Agriculture 1993/94 registration data.

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### Findings

#### Project

The project has ordered the necessary network hardware, software and supplies. We expect to receive them this coming week.

Interviews will begin this coming week for applicants who will serve as database manager, and/or bookkeeping and administrative support. Carla Henry will be a key individual to oversee these areas.

Telecommunications links are improving in all areas. Just today (Sunday) we received incoming mail from a wide variety of sources via our Fidonet/Internet system. Testing is still necessary to establish the reliability of this link relative to direct dialing. Direct dialing testing continues, with results consistently suggesting that early morning from the office is the best time. The ACDI ccMail connection is still very unreliable, and I am suspecting that the modem initialization string is incorrect. I am corresponding with Dean White about this.

The project's MIS requirements are generally clear, but largely dependant on the extent to which the project expands. At a minimum, at least one more desktop system will be required, configured for optimum database management. If expansion of the project occurs along the general lines being discussed, it will require an additional desktop and two more laptop systems, all configured for the main office network.

#### Ministry of Agriculture

Peter was on leave this past week, but we secured the 93/94 club registration data from one of his colleagues. We matched it with the membership data which Carla had secured previously, and no anomalies are so far apparent. However, the Ministry of Agriculture doesn't expect to have the next season's registration data

completed until this coming January. There is a general feeling that this process requires review and overhauling, and possibly centralization.

### **Tobacco Control Commission**

Evans Chepala accompanied myself and John to Zimbabwe. This gave me useful opportunity to get to know him, and the TCC operation better while learning how the Zimbabwe TMC operates. During the visit I read the Cargill consultancy report which Evans had provided. It reveals that recommendations to place the TCC in a position to handle all tobacco registrations and quotas have already been made as part of this report. These recommendations were rejected by the industry, apparently as represented by the TCC board in 1990. Against this backdrop, it seems unlikely that the project, or USAID, would be able to repeat these recommendations and receive any different response.

The role of intermediate buyers is being supported and expanded by USAID and the TCC without apparent appreciation for the complications this introduces for supporting the smallholder clubs or for rationalizing the allocation of production quotas.

John, Carla and I are discussing the implications of working more closely with TCC as we proceed, especially with the MIS portion of the project with which I am directly concerned.

### **Malawi Rural Finance Corporation**

I met briefly with Alan Mlenga to arrange for an appointment for Monday. At this time I will be finalizing specifications for the data that project is to receive from Malawi Rural Finance Corporation. They have also requested my personal help in identifying and possibly purchasing modems to support their activities. I am reasonably confident that we can incorporate some initial credit data on the smallholder burley clubs in the prototype database management system under development.

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### **Plans for next week**

Monday I will be meeting with Malawi Rural Finance Corporation to finalize data specifications. Tuesday I hope to meet with Peter at the Ministry of Agriculture to review the registration process and schedule, and to at least schedule the point in time when the project can expect to have the 94/95 registration data. On Wednesday I am planning to go to Blantyre in preparation for meeting with and supporting the programmer at Burco to obtain the 1993/94 sales data from the Auction Holdings Ltd database. While in Blantyre I hope to meet with Paulos Nyrenda to review telecommunications issues from the project's perspective, the PTT to see what might be done to improve international telephone connections, and the computer programmer at Auction Holdings Ltd Limbe simply to update him on what we are doing.

This will make me unavailable to support the interviews, and puts Carla and John in a position to do this on their own. I understand that there may be opportunity for me to interview candidates who themselves are based in Blantyre.

I expect to complete a general prototype database management application which will link initial Malawi Rural Finance Corporation, Auction Holdings Ltd and Ministry of Agriculture data. This will provide a basis on which to automatically generate certain general queries and reports, as well as perform ad hoc queries.

If the items arrive and time permits, I will install and set up the network operating system for the office.

Finally, during this coming week I hope to introduce Carla to FoxPro for Windows, since she will be a key user.

[end of report]

## Status Report - Kim G. Glenn

5 - 10 December 1994

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### General Description of Activities

On Monday Carla and I met briefly with Evans Chapala, GM of Tobacco Control Commission, regarding the Intermediate Buyers program and related issues. We also met briefly with the GM of Auction Holdings Limited and set up a meeting for 13 December at 10AM to review the proposed strategy for getting regular data during the selling season on club activities. I met with Alan Mlenga of Malawi Rural Finance Corporation twice, laying the initial strategy for identifying Smallholder Burley Clubs in their database and obtaining an initial credit database on them.

Tuesday I had a brief phone conversation with Peter at the Ministry of Agriculture and arranged for a meeting the following Monday at 10:30AM to review the registration process and database. I reviewed the following background consultancy reports on the project, for a broader MIS perspective:

- Olney, October '92
- Crane and Olney, December '92
- Olney, December '93

Wednesday I went by bus to Blantyre and had lunch with Lloyd, a candidate for a position with the project. Lloyd now works for Indefund. I met with James Hinde of Burco and received computer files containing the 1993/94 sales data for Burley Clubs selling on the Lilongwe auction floors. We also reviewed, with Dave Smith, the technical aspects of getting regular sales data during the selling season.

On Thursday I interviewed two candidates for database and/or accounting positions with the project. I developed and tested conversion routines that import the Auction Holdings Limited (Lilongwe) data into structures and with formats that are suitable for our analysis. Thursday night I received the diskettes for the Limbe/Blantyre auction floors and spent Friday repeating the conversion routines and reconciling the databases between the two floors.

On Friday I attempted to contact the agents clearing the shipment of network equipment and supplies, in hopes of carrying it back to Lilongwe with me on Saturday. I was not successful.

Saturday, today, I returned by bus to Lilongwe. While on the road I continued analysis of the Auction Holdings Limited databases.

Throughout the week, including from the hotel in Blantyre, I continued to use and test telecommunications through the local Fidonet node. I exchanged Email with Dean White discussing ways to improve the projects CC:Mail connection and test binary file transfer capabilities of the Fidonet node.

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## Findings

### Project

As noted above, the network package is in the process of clearing customs.

I found Lloyd to be a candidate worthwhile considering for the project, although his position would not be strictly and MIS one. I understand that John invited him to Lilongwe for further discussions. Among the database manager candidates, I found Godfrey Gondwe well worth considering. He lacks actual expertise and experience in using database management systems, but is very strong in networks, hardware, user support and accounting. Basil Mkandawire does not meet minimum qualifications for further consideration.

Telecommunications links continue to improve. I am discussing with Paulos Nyrende, the Sysop of the Fidonet node here, ways and means by which we can help strengthen his system. I was able to connect there easily from the Mount Soche hotel, and the telephone costs were less than MK2 per connection. I was forced to hardware the spade lug to modular connector to the wall jack in the hotel room. Unfortunately, I forgot to retrieve it when I left. **If anyone wants to use modems from the hotel, I recommend they ask for room 220!** They will need an extension adaptor, and regular modular chord. Direct connections to the US service I use are relatively easy and reliable from the office. I have received useful instructions from Dean White about how we can modify the modem initialization string with CC:Mail Remote. I believe this will improve connectivity with that system, although it remains to be tested. I also find that the CC:Mail remote software the project is using is an old version. I have asked about this. It is possible that ACIDI/Washington's host version is equally old.

Based on my initial work with the databases received from Auction Holdings Limited and the Ministry of Agriculture I find that the FoxPro for Windows package and the hardware on which we are running it work to minimum satisfaction. If the project is going to purchase any additional desktop computers, I will be recommended they purchase one with at least 16 MB of RAM to help speed up the query process of these databases. Even 32 MB might be worth considering, as the databases will only get larger as the years pass.

I found that the Telecom PT1 computer virus has infected the original installation disks for FoxPro for Windows. I will be recommending, in any case, that the project upgrade this software to a multi-user license and possible with the developers toolkit. Our anti-virus software was unable to remove this particular strain.

### Ministry of Agriculture

I succeeded in developing a database of all clubs that contains statistics for the number of women vs men in each club and the landholding size by club, in hectares. This data was not in the club database, but I was able to derive it from the membership databases which Carla had already received. There is some confusion as to the source and basis for the landholding information. Carla feels it is defined by the automatic quota per member of 300kg, while I had assumed the landholding size came first and the quota was based on it. The data itself does not clearly suggest which comes first, the quota or the landholding size. The club registration form also asks for total landholding and portion to be cultivated for tobacco. There is only one data element in the members database, and I'm not sure which it is: total or cultivated portion. These are areas I will discuss with Peter next week.

### **Tobacco Control Commission**

I have little new to add regarding the Tobacco Control Commission. It remains to be seen what, if any, data they might add to the project database. If they authorize increases in quota beyond the permitted 15% "uplifted" quota, then perhaps this should flow to the project database, as it does simultaneously (and only theoretically) to the Auction Holdings Limited and Ministry of Agriculture databases. In fact, my initial reconciliation of the Auction Holdings Limited and Ministry of Agriculture databases show wide inconsistency in quota figures. Perhaps this is an area to take up with the Tobacco Control Commission.

I also have found that the Auction Holdings Limited database suggests that there are three clubs who have sold to both of their floors, Lilongwe and Limbe/Blantyre. One of them has apparently exceeded quota by a rather alarming degree, even taking into consideration that the grower number was apparently incorrectly used and refers to two different clubs.

### **Malawi Rural Finance Corporation**

Malawi Rural Finance Corporation continues to show interest, enthusiasm and cooperation with the project's objectives of sharing credit information and performance information on the clubs. One technical challenge, of identifying clubs in their database, was overcome by us providing them with the 1993/94 registration database in a format that will allow them to link it to their database and flag each record in their database as one of "our" clubs, giving it the correct grower number.

Unfortunately, we find that the only credit data we can get is starting in the 94/95 season, and only six out of the eight ADDs are currently computerized. It seems likely that we will be able to get monthly credit report databases starting in January, with a test, or prototype database by the end of next week.

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**Auction Holdings Limited**

I found that the master grower files for the two different auction floors contain some considerable inconsistency both with each other and with the Ministry of Agriculture registration database. The inconsistencies include differences in quota, in the spelling of club names, the club addresses. It is possible that these inconsistencies are only occurring in those clubs who are not selling to that particular auction floor, and that the records for those that do match the Ministry of Agriculture database. Further analysis will determine that. As noted earlier, however, there is one glaring and major problem where a grower number even now is obviously referring to two separate clubs. The problem is magnified by the extraordinarily high volume sold that far exceeds even the combined quota. These are my notes taken during the analysis:

*One grower number, 32764, is obviously assigned to two different clubs. KANYANG'WA, Kandeu EPA, PO Box 19, Ntcheu. And, Kanyangali, P.O. Box 11, Lobi.*

*In LB sold 40,032kg  
In LL sold 132,866kg.*

*The LL and Nat9394 databases each report the Lobi club with a quota of 4350kg. The LB dbf reports the Kanyang'wa club in Ntcheu at 3250kg quota.*

*Nat9394 database has a record for #32627, quotaap=3,000kg, Kanyangwa, in Kandeu Box 19 Ntcheu. It appears that the LB floor sold 40,032 kg for this club.*

*LL sold 132,866kg for the Kanyangali club, over the 4,350kg quota.*

*No consignment records exist in either floors database for #32627 Kanyangwa in Ntcheu, under their correct grower number.*

*This is one glaring problem in the databases. Of the other three growers which seem to have sold in both auction floors, 31720 had sales in only one place (possibly an adjustment consignment record in the other) and the remaining two are within quota amounts in any case.*

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### **Plans for next week**

Monday I meet with Peter at the Ministry of Agriculture. Later that day I need to draft the proposed strategy and related concerns for the Tuesday meeting at Auction Holdings Limited. The balance of the week will be taken up securing the network equipment, installing it, and completing the prototype integrated database of club information.

I also intend to draft an outline for my consultancy report such that I can complete it prior to my departure on Thursday the following week.

At this point in my assignment, with less than two weeks left, I feel confident that we will have a prototype system based on the 1993/94 database, and a proposed strategy that will outline to all participating agencies the flow of data during the selling season. It is possible that this analysis and strategy will be a useful mechanism for identifying and rectifying some glitches in the registration and quota assignment process. Implementation of this strategy will require cooperation and follow-through, and a qualified person on the project staff.

[end of report]

[End of Consultancy Report - Appendices]

# Smallholder Burley Club Registration Reconciliation

December 22, 1994

by Kim G. Glenn, MIS Consultant to ACDI

## Background

In my recently completed consultancy report I emphasized the need for the Smallholder Burley Club project to support the Ministry of Agriculture in its registration of clubs. This document suggests a strategy by which this could be implemented. It assumes that the project can obtain the necessary mandate, resources and cooperation from all parties involved. This should be considered a discussion paper, not a proposal.

Over the past several years, the Ministry of Agriculture has been registering Smallholder Burley Club's and assigning them identification numbers. These numbers are used by Auction Holdings Ltd to identify the club as a seller. Malawi Rural Finance Corporation is also beginning to record this number to help the project track credit information on clubs.

Anomalies have crept into the system. Some clubs now operate under more than one number, or have received a new number, different from what they used in previous years. This will make it impossible to track club performance from one year to the next. Auction Holdings Ltd has not received registration data in time to initialize their databases prior to the start of the selling season. As a result, many clubs have sold tobacco through Auction Holdings Ltd, and are listed in their database, but are not currently active in the Ministry of Agriculture's database of registered clubs. Auction Holdings Ltd apparently has been manually keying in club data using the Ministry of Agriculture's records. This leaves typographical discrepancies in the club names and addresses, which make an automated reconciliation of Auction Holdings Ltd club data with Ministry of Agriculture club data impossible. In at least one case, one club number was assigned to the wrong club by one of Auction Holdings Ltd's floors.

## Purpose

The purpose of this reconciliation process is to clearly identify individual clubs and link them to unique identification numbers. These numbers have already been assigned and are known as "grower numbers" or "seller numbers." Once unique numbers have been assigned, an automated process for initializing Auction Holdings Ltd's databases, in advance of the selling season, will insure that only registered clubs can deliver tobacco to the auction floors. It will further insure that the data used by Auction Holdings Ltd is a precise match with that held by the Ministry of Agriculture for the key fields of grower number, club name and at least the first line of the club address.

## Strategy

Timing is important in order to complete the reconciliation process, and initialize Auction

Holdings Ltd's databases in advance of the selling season (1 April 1995).

### **Phase I - Establish Club Identities and Unique Grower Numbers:**

Each club must have verifiable identities. Currently, club membership and leadership can change so dramatically that it bears little resemblance to what it may have been in a previous year. During the registration renewal process, Agricultural Development Division staff reportedly find such a large change in club membership that they find it more reasonable to declare the club an entirely new one, issuing it a new grower number, and discontinuing the previous club's registration (deleting it from the database). Malawi Rural Finance Corporation have observed this problem from their point of view. In some cases, club leadership have stolen club funds, so the membership forms a new club. Where this can reasonably be determined, Malawi Rural Finance Corporation requires that the club membership files a lawsuit against the previous leadership prior to extending any further credit.

In Zimbabwe, there exists a national registration process whereby each citizen is issued a unique number, similar to Social Security Numbers in the US. This serves to help in identifying club membership and holding it responsible for their collective actions. In the absence of such an individual numbering system, there is no real practical way to cross reference club membership between clubs to determine if the same individuals are participating in different clubs, either during the same growing season or between one growing season and the next.

To support the project's ability to identify and work with clubs on an individual basis, we might consider including photographs and finger prints, along with names of club leadership at the time of registration. This will change as club leadership changes, but may serve to strengthen club identities and assist in holding club leadership responsible for their actions. Project and Ministry of Agriculture staff will have another practical tool for helping to identify clubs.

In any case, prior to 1 March 1995 each active club should be visited by project representatives. Club identities should be compared with Ministry of Agriculture data from 1993/94 and current registration data. New grower numbers issued to existing clubs should be voided and the registration database adjusted to reflect the correct grower number. New clubs operating under grower numbers issued to defunct clubs, or to other active clubs, should receive new grower numbers of their own. If photographs and/or fingerprinting is to be used, they should be obtained at this time.

Project staff, in cooperation with Ministry of Agriculture personnel would work at each of the eight Agricultural Development Division levels to accomplish the above task. Reconciled and definitive registration data would be prepared in hardcopy on registration forms, one set for each club. These will be source documents for reconciling and maintaining the main registration database.

It seems also essential to include the 1993/94 Auction Holdings Ltd database of clubs in this reconciliation process. The project's initial analysis shows 85 clubs who sold on the auction floors, with grower numbers in Auction Holdings Ltd's database, but who are not currently found

in the Ministry of Agriculture's database.

### **Phase II - Initializing Auction Holdings Ltd Databases:**

During the month of March 1995, Auction Holdings Ltd will develop, test and implement a computerized initialization process. This process will take System Data Format versions of the Ministry of Agriculture registration information and create in their master grower computer files one record for each club registered. This will be a computerized process, to insure that only registered clubs have records, and that the records precisely match the Ministry of Agriculture data.

Each facility of Auction Holdings Ltd will need to have a complete set, even though most clubs sell to either one or the other auction floor. There were several instances in 1993/94 season where the same club number was used at both auction floors. Auction Holdings Ltd will need to be held responsible for insuring that no grower exceeds their quota by selling to both auction floors. The project will be able to monitor this as well through the weekly data submissions, on diskettes, from Auction Holdings Ltd. However, unless specifically assigned to the project, Auction Holdings Ltd should be held responsible for monitoring sales with respect to quota on their combined floors, not the project.

### **Phase III - Handling Late Registrations and Changes:**

While every effort should be made to conclude registrations in advance of the selling season, it is inevitable that late registrations, corrections and changes to the club records will need to be made during the selling season. At this time, there is no clear mechanism for authorizing changes. Since the Ministry of Agriculture is the registering authority, it would seem that they should be the sole agent to authorize and implement changes to registration data, including quota allocations.

Since this registration database is now supporting the databases of at least two other agencies besides Auction Holdings Ltd (the project and Malawi Rural Finance Corporation) change authorization forms should be developed that clearly identify the club by its grower number, name, Agricultural Development Division, Rural Development Project and Environmental Planning Area, and address. Only the Ministry of Agriculture should be able to validate this form, upon receipt from one of its agents at the Agricultural Development Division level. Once the Ministry of Agriculture updates its master control database in Lilongwe, the form can be FAXed and/or copied by mail to both facilities of Auction Holdings Ltd, the project and to Malawi Rural Finance Corporation. Upon receipt of this form, these other agents can update their databases accordingly.

Changes in the club name should be rarely, if ever, implemented. Changes to the grower number should never occur. Changes to other club data, such as address, club leadership, and quota, would be handled as a manual entry process **only upon receipt** of a change authorization form. Each year, all databases will be updated with the Ministry of Agriculture's master club registration database.

**Inactive Clubs and Renewals:**

Clubs may be inactive for one season, and renew the next. For this reason, the Ministry of Agriculture's database should never delete a club for any reason, but rather only mark it as inactive and filter it out of the database provided to other parties, such as Auction Holdings Ltd. Retaining these records forever provides for easy lists to work from for handling renewal from one year to the next. It also serves to provide a key record for any club ever active, with which to query other database files over multiple years. The grower number would never be used for any other club, even if the original club were permanently dissolved.

**Conclusion**

It may not be possible to pursue this reconciliation to the depth suggested above, with photographic and/or fingerprint records of each club's leadership. However, it seems essential that as much as possible be done to reconcile the upcoming season's registration data with last year's data. This will avoid instances where clubs operating under one grower number last year have a new number assigned this year. It seems also essential that the process by which Auction Holdings Ltd initializes the Burley Club portion of its Master Grower File be automated such that there can be no error between their two facilities and the Ministry of Agriculture data.