DEMMIS:
A local level management tool

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About the authors

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PREFACE

This occasional paper is the second in a series about *Education Management Information Systems*. The first in the series, 'Education Management Information Systems in an Era of HIV and AIDS: An Introduction', should be read before proceeding here, because it provides a useful overview about Education Management Information Systems and their application in an HIV and AIDS era.

This second occasional paper introduces a local-level, data collection and management tool, referred to as a District Education Management and Monitoring Information System (DEMMIS). The authors describe the need for this tool and cover issues that arise when implementing a system of this nature to complement existing EMIS initiatives. Many of the experiences are based on a pilot of DEMMIS, run in a rural district of South Africa.

Who should read this publication?

This Occasional Paper is specially written for those working in and with ministries of education.

▼ If you are concerned about the provision of data and information-based planning and decision-making within the education sector, this publication will interest you.

▼ If you are particularly interested in how to measure and collect data using indicators of the impact of HIV and AIDS on the education sector, you will benefit from working through the text.

DEMMIS: A Local Level Management Tool will help you consider:

▼ The *need* for a local level, data collection and management tool in your Ministry;

▼ *How* to develop reliable and responsive Education Management Information Systems (EMIS);

▼ What *data* is required to measure and track the impact of HIV and AIDS on the education sector;

▼ How best to *implement* a local level data collection and management tool in your Ministry;

▼ *Lessons* from the experiences of those already using DEMMIS.

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1. INTRODUCTION

Everything is information. Information is everything. Physicists define information as the opposite of chaos. Information is a signal, the opposite is noise. Organisation is made possible by information. Without information there is only chaos. The more organised a system, the more it uses information. It is the decision to be organised that drives the use of information.

Dr Luis Crouch, 1998

An Education Management Information System (EMIS) should ensure that managers and all stakeholders at all levels within the sector, have access to all the information that they require to plan effectively, make informed management decisions and ensure that their activities are required and targeted. An information system should be reliable and provide:

▼ The right information
▼ To the right people
▼ At the right time
▼ In the right way
▼ To achieve clear objectives

HIV and AIDS bring new challenges to the education sector. HIV and AIDS impact on every aspect of education system management, which is why we often speak of HIV and AIDS as a management issue. EMIS is not exempted from the challenge of managing HIV and AIDS in education. Those engaged in EMIS, therefore, need to consider how to facilitate the collection of suitable data so that we can measure and monitor the impact of HIV and AIDS on the sector, understand its effect and take well-informed decisions.

The impact of HIV and AIDS on the education sector is extreme. It is eroding the delivery of learning, teaching and development to an unprecedented degree. Evidence suggests that fewer pupils are entering basic education, growing numbers of pupils are dropping out along the way, teachers are spending less time in the classroom due to illness and emotional stress, and generally teacher attrition is increasing. The primary impact of HIV and AIDS on education hits existing levels of dysfunction in the sector, making already bad situations worse. Any gains which education may have made in terms of enrolment rates, gender equity, quality improvement, or lowering pupil to teacher ratios, are seriously being undermined.

Usually EMIS provides *annual* 'snap shots' of the education system. This contributes little to identifying and understanding HIV and AIDS impact or monitoring trends. Therefore, as it stands, EMIS struggles to provide reliable evidence on the impact of HIV and AIDS, and therefore is slow to guide responses to this crisis, in time to avert large-scale systemic failure.

Conventional approaches to EMIS are also *highly centralised*. In centralised systems the processes of data collection and data use are slow and the quality of data may be low. Although schools provide data by completing forms, the data passes slowly through different levels of the system until it reaches the central point for processing. Very little feedback trickles back 'down the chain' to schools. This means that schools have little understanding about why the information is needed, how it is applied and what value it has. The result is that EMIS data is rarely used to guide management decisions and interventions at local level.

When considering existing EMIS practices and structures in relation to the pace of the impact of HIV and AIDS, it can be argued that an adaptation of EMIS, or a supportive alternate system, is required. This occasional paper suggests a way of doing this that builds on existing EMIS practices and structures.

2. THE NEED FOR A MORE FREQUENT LOCAL-LEVEL DATA COLLECTION TOOL

In an HIV and AIDS era, there is a need to develop and introduce new, more regular HIV and AIDS sensitive data gathering systems, that are competent to capture and monitor key indicators of impact. More particularly, the need is for such systems to be located closer to the point of education service delivery, so that they return value-added management information to those gathering the data. Local school and district managers need to be empowered with information that is necessary for them to better manage their part of the education system. In turn this will effectively mitigate the impact of HIV and AIDS on input, operations and output. Critical to the empowerment of school managers, members of school governing bodies and district officials is the devolution of EMIS, together with the acquisition of skills necessary to use and gain benefit from information. In this way EMIS can be an important tool for managing HIV and AIDS at the local level.

A school manager is required to effectively manage the school institution in its broadest sense. In turn, a district manager is required to manage all the schools within the district. However, if these managers do not have accurate and up-to-date information about their context, it is very difficult for them to know what the situation is in relation to HIV and AIDS, what response is required and what would lead to the most appropriate management response. Without reliable and accurate information about HIV and AIDS at the local level, managers succumb to uncertainty and dependence on speculation. Thus, there is an increasing need for ongoing research and regular monitoring within the education sector to help manage these uncertainties.

Basic, but focused, information gathering can provide important information about the impact of HIV and AIDS locally, without having to start major research projects. By local and district managers building on and organising existing school-based records into a system, important information can be collated and understood in a way that reveals some of the impacts of HIV and AIDS on the education system.

3. THE DEMMIS SYSTEM

To meet the need for a revised EMIS that builds on school-based records, data that is routinely available and provides data for HIV/AIDS sensitive indicators, a district-level Education Management & Monitoring Information System (DEMMIS) has been developed. DEMMIS is based on a monthly submission of information that schools return to the district office as a completed survey form. The return captures a limited number of key management indicators, from which HIV and AIDS indicators can be derived. A more detailed description and explanation of DEMMIS, how it has been applied elsewhere, and how it can be developed, adapted and managed for other contexts, and some pointers for ensuring successful implementation, are topics discussed in the rest of this occasional paper.

DEMMIS is a purpose-built information system designed to capture statistics on teachers and pupils, and, if appropriate, support staff and school governance structures. These provide data

on enrolments; absenteeism and permanent attrition of teachers and pupils (including reasons for this); loss of contact time; dropping-out, pregnancy and other rates; the number of orphans; and levels of school fees. While all this data is important for education management, in general terms, relevant HIV and AIDS impact indicators can be immediately derived from these without compromising the management value of the data. Since all the data is provided by gender and on a monthly basis, the local level manager has complete, detailed and time-referenced information for every school he or she manages. The main focus of DEMMIS, then, is to facilitate the processing and analysis of the basic data about the local level and guide immediate management responses at institutional (school), local and district levels. Many of these responses will require multi-sectoral approaches or developing partnerships to offer assistance.

The data are captured every month, at month-end in the school, on a one-page summary sheet that is submitted to the district office (samples of summary sheets are provided in this occasional paper as Annexures). The school must retain a copy of their submission. This reinforces good institutional record keeping and management practices. Detailed grade and even class specific sheets are provided to assist the school with its compilation of the monthly summary and to complement school-based records.

In the DEMMIS pilot conducted in South Africa, the summary form was captured in the district office on a simple but customised MS Access database application. However, the success of the system does not depend on computers or using this particular software programme. If necessary, DEMMIS can be tailored and adjusted easily to a paper-based system.

To provide a context and framework for potential responses to the knowledge that emerges from DEMMIS, there are available comprehensive sets of *HIV/AIDS Fact Sheets and a Management Checklist*. The Management Checklist provides managers with guidance on the options they might take in response to the trends emerging from the analysed monthly data and when they reveal irregularity, dysfunction or even crisis.

4. THE SOUTH AFRICAN DEMMIS PILOT

The DEMMIS system was piloted in a district selected on the basis of its mix of rural, periurban and informal settlements, and because the local district and regional officers were prepared to participate in the endeavour. The pilot was initiated among 95 schools, but other schools in nearby districts elected to join the pilot as news spread about its usefulness.

As far as can be established, the data collected during the pilot represents the first systematic time series of school data in Africa, designed to capture specific indicators of HIV and AIDS impact in education. It should be noted that no additional or extraordinary management support was provided for the pilot sites, in order to replicate as closely as possible their routine operating conditions. The pilot also avoided undue emphasis on the collection of HIV and AIDS indicators, positioning it as a school district management and monitoring system, designed to inform and empower local decision-making in the broadest sense.

Forms provided

During the pilot, schools were provided with a ring-bound file containing duplicate copies of the monthly summary sheet for every month of the year. It was agreed that the school would

The HIV and AIDS Fact Sheets and a Management Checklist were combined with DEMMIS material in the District Managers Resource Kit, which can be downloaded from www.mtt.ix.co.za.

complete the summary in duplicate, using a sheet of carbon paper provided, tear out the top copy and submit the completed form when called to the district office for other matters, such as collecting salary cheques or attending another meeting or training session.

Class sheets, adaptations of class attendance registers, and grade specific summary sheets were provided to facilitate the school's easy completion of the monthly summary sheet that had to be submitted to district office.

Training undertaken

District officers undertook to train *heads of schools* in the accurate filling in and submission of the forms. This training took place at a regular heads of schools' meeting held during the first few weeks of the school year. The training took about an hour, and it was agreed that detailed written guidelines should be developed to inform the monthly submission in future. After the training, heads of schools started filling in their monthly submissions and, after completion at the end of the month, the forms were submitted when next they visited the district office.

At the district office, an administrative support *clerk* was nominated to do the data capture. The clerk had no previous database skills, but was familiar with word processing applications and therefore was comfortable working on a QWERTY keyboard. After 3 hours of training, the clerk was confident in working with the DEMMIS application and could comfortably capture a form received from a school within 2 minutes and print out reports and summaries.

Several meetings were held with *district officers* to discuss the reports required from the DEMMIS database, how the information should be presented and how to interpret the information provided. As the pilot programme progressed, and in the latter half of the pilot year, these meetings became less frequent and it was agreed that a bi-annual meeting would suffice in future.
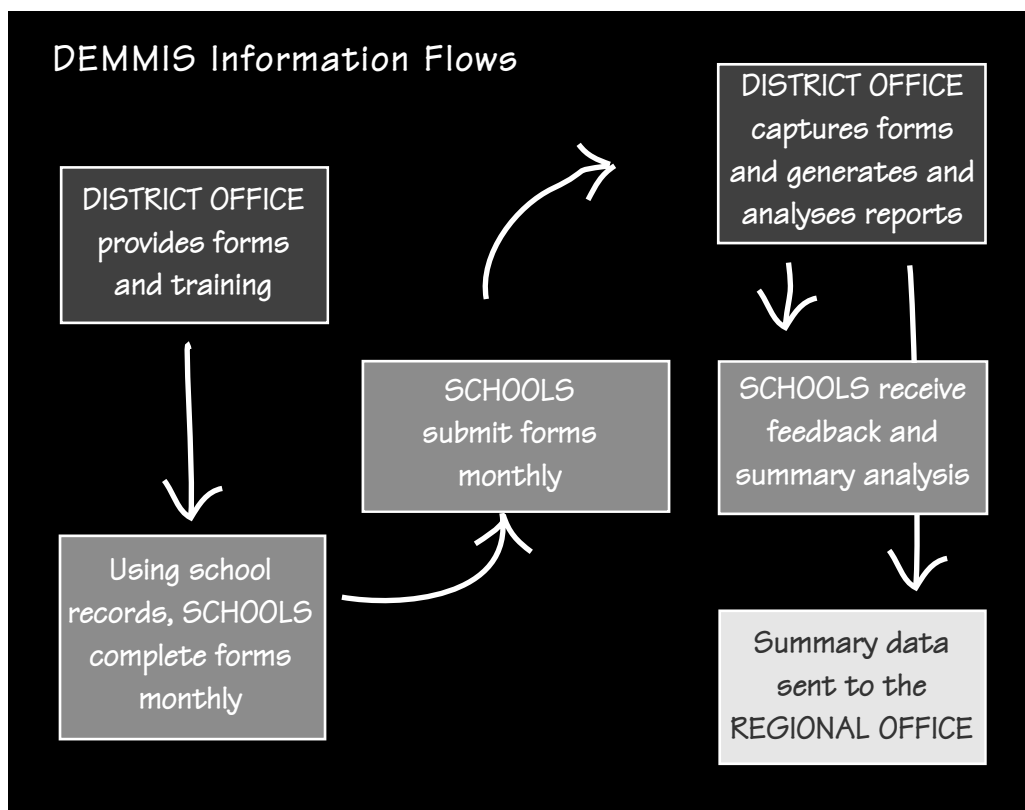
Information flows

Within the provincial education system in South Africa, the district office is one of the administrative and management layers. In the particular province where the pilot took place, KwaZulu-Natal, the education authority, at the time of the pilot, was structured in the following five-tiered manner: schools reported to a circuit, which were clustered together to form a district; districts reported to a *region,* and *regions* reported to a central *Head Office* structure.

With the implementation of the DEMMIS pilot, it was critical for schools to receive feedback so that information and its implications are shared with them. Thus, the district office provided schools with regular feedback and they could also collect a printed report of the return they had submitted. At the end of the year, they were provided with a copy of the detailed comparative analysis of the return received for the entire year.

The district office management team agreed to table DEMMIS reports at their monthly management meetings. The reports were discussed and plans about issues requiring intervention were made. One of the circuit/cluster managers also held a regular head of schools' forum at which he presented and discussed the findings of DEMMIS.

The information flows are illustrated in the following diagram:

DEMMIS Information Flows

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DISTRICT OFFICE              DISTRICT OFFICE
provides forms               captures forms
and training                 and generates and
                             analyses reports

              SCHOOLS         SCHOOLS receive
              submit forms    feedback and
              monthly         summary analysis

Using school
records, SCHOOLS             Summary data
complete forms               sent to the
monthly                      REGIONAL OFFICE
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5. WHAT CAN THE DEMMIS DATA SHOW?

When designing the DEMMIS monthly submission form it is critical to consider what will be analysed and what reports will be wanted. It is essential that the summary forms be designed with the future analysis and reports in mind, so as to ensure that the required data is collected from schools. Even with some basic information on the number of pupils and teachers, reasons for absenteeism and leaving school, number of new entrants into the system, number of orphans and school fee collection, important findings and trends can be revealed to district offices and schools. The information is dependent on questions included in the monthly summary and the data being readily available at schools. For example, from the basic categories mentioned above, the following information could be made available for reporting, tracking and monitoring. Please note that this is only a selection of examples, provided here for illustrative purposes.

▼ *Change in enrolment* – This is a consideration of variations in enrolment figures from month-to-month. By reviewing the number of new enrolments, the manager can track at which stage of the academic year pupils are entering the system.

▼ *Loss of contact time* – By considering the teaching time available in relation to the amount of leave teachers take and their absenteeism, the loss of contact time can be calculated.

▼ *Pupil drop-out* – Not only does DEMMIS record the number of pupils that drop out of the system, which is usually calculated by considering enrolment, new entrants, repeaters and transition rates, but DEMMIS also reports on the stage of the academic year when this occurs, the reasons given and whether there is any gender bias.

▼ *Number of orphans enrolled at school* – While there is constant tracking of the number of orphans, these can also be considered as a proportion of the general school enrolment.

▼ *Variation in teacher numbers* – This a consideration of the school's requirements in terms of replacing teachers lost to the system. This needs to be linked to various policy issues, such as targets for pupil-teacher ratios, the provision of temporary staff, and curriculum options offered by a school.

▼ *Absenteeism* – This is a consideration both of leave taken and general absenteeism amongst teachers and pupils. These rates are to be linked to the reporting on loss of contact time.

▼ *Socio-economic pressure* – By considering a drop in school fee income, or rise in school fee exemptions granted, one can monitor the financial burden of schools and communities.

DEMMIS data can be linked to other data sources to enrich the analysis and be a better support to decision-making. For example, attendance patterns of pupils and teachers, and the timing of new enrolments can be considered in relation to examination results, which are not contained in DEMMIS. Similarly, reasons of absenteeism relating to bad weather can be considered in relation to the actual infrastructure at schools and general access to reach schools.

DEMMIS also provides an opportunity to make general EMIS data available to local level managers and to develop and expand their information utilisation skills. It has been found that by making data available, together with the necessary complimentary skills, the quality of data is enhanced, since local level managers become trained to pick up on incorrect data reporting and filling in data gaps. The value and implications of the wider availability of data, and the opportunity to analyse and link these are simply incalculable. Not only can the data be used to better target resources to areas of greater need by identifying critical areas of intervention, but data of this nature can be critical in leading the debate about policy formulation and adaptation in the HIV/AIDS era.

6. PLANNING DEMMIS IMPLEMENTATION

In the first publication of the series, entitled *Education Management Information Systems in the Era of HIV and AIDS: An introduction,* the different phases and typical functions of EMIS were highlighted. Here we will consider these phases in detail in terms of developing and implementing DEMMIS, the new local level information system.

Begin with the end in mind!

It is important to commence by thinking and articulating what it is you want the system to deliver.

▼ What decision-making do you wish to support?

▼ What aspects do you need to monitor or track?

▼ What are the reporting requirements?

▼ How often does this information change and how frequently does it need to be collected?

The answers to these questions will guide you in identifying the data elements you require, the actual questions that need to be asked in the form, and the frequency for administering the data collection instrument i.e. how often the form must be filled in and submitted to the district office.

Develop a suitable summary form, questionnaire or survey instrument
A big step in the long march of attaining education statistics is developing valid and reliable data collection tools. The development of the DEMMIS summary form entails three consecutive processes.

a. Designing the summary form
In designing the summary form it is important to pay due attention to the following points:

▼ Always consider the information needs that are to be met through the questionnaire and data gathering process.

▼ The questions should relate to the school's records used to complete the form, for example, class attendance registers, leave application forms, notification of resignation, and so on.

▼ Only collect data that is going to be used.

▼ Make the overall format of the summary form readable, easy to follow and attractive. It is advisable to use a format similar to that which the school is used to, such as the annual EMIS forms or other official forms.

▼ Allow adequate space for providing the required response.

▼ Use simple and clear language that can easily be understood.

▼ Questions should be clear and unambiguous. Do not ask two or more questions in one statement.

▼ Provide specific instructions for completing the summary form.

▼ Remember to include details about submission such as who the form should be sent to, where they can be contacted and the date when the submission must be made.

For DEMMIS to provide HIV and AIDS impact indicators, remember to ask questions that cover areas of impact, such as the cause for absenteeism, reason for drop-out, and number of orphans.

Once the first draft of the design is complete, refer back to the information and reporting needs and ensure that all the data required is included and that no additional or unnecessary data that will not be utilised is included. Keep the form as short, and as simple, as possible.

b. Pre-testing
The summary form should be pre-tested in the field. This is normally done in the course of a pilot study. Pre-testing involves administering the summary form to a sample of schools. Schools that are included in the pre-testing phase should be encouraged to critically review the data collection instrument and make comments and suggestions on all aspects of the form.

Pre-tests are expected to reveal misunderstandings, ambiguities and inadequate data items. Additional items may be suggested and difficulties experienced in completing the summary form should be reported.

The critique, suggestions and recommendations collected through the pre-test should be considered, preferably by a panel of form designers and those who will analyse and use the information, and the summary form should be reworked. Depending on the scope and number of amendments, the revised form may need to be re-tested.

c. Review of the summary form
The need for information is not static. The summary form may need to be revised and updated from time to time. This may need to be every three to five years – or more frequently if an urgent need arises. However, be aware that by changing the summary form, you may be jeopardising the time series or longitudinal analysis that tracks trends from year to year. It is suggested that any revision work is carefully considered and formally decided through a review meeting of an appropriately constituted panel.

Printing of the summary forms

An adequate number of summary forms will need to be printed in order to provide copies to all participating schools. In calculating the number of copies required, the following is suggested:

▼ Determine the number of schools (a)
▼ Determine the number of cluster offices (b)
▼ Determine the number of district officers requiring a copy (c)
▼ Determine the frequency of administering the form (e.g. monthly or quarterly) (d)
▼ Then calculate through [((2 x a) x d) + b + c] + 2% reserve copies

Note that each school is provided two copies – one to keep on file at school and the other to submit to the district office. There are also additional copies made to keep in reserve, should copies go astray or when additional schools are brought on board.

At least one copy of the summary form, together with a set of all the supporting documentation, should be submitted for archiving to a relevant body within the Ministry. It is critical that a record of the summary form be maintained within the Ministry's formal record-keeping system.

Starting from the calculated number of copies required, the cost of printing the survey forms can be confirmed. The necessary budget approval will need to be obtained and then the printing of the forms can be commissioned.

When commissioning the printing of forms, it is recommended that packaging instructions should be included to make the distribution of forms easier.

Distribution of the summary forms

There should be discussion and an agreement about how best to distribute the forms, whether by region, district or circuit. For purposes of this publication, we will assume that the district office structure will be the level at which forms are to be distributed.

Prepare a 'control list' for each District that lists the names of schools arranged alphabetically or by circuit, together with blank columns or boxes to be used as checklists. The control list should also indicate the number of schools in the district as well as the name of the contact person.

From the number of schools shown on the control list, estimate the number of copies of the form, together with all supporting documentation, required for each district. Remember two copies of the form are required for each school and there are copies of the form for the cluster and district officials. Allow a few extra copies, possibly 1,5% of the number required. The counted copies are to be packaged and ready for distribution. Remember to include at least two copies of the control sheet per package. The forms should then be distributed using the fastest possible means of delivery at your disposal. Once the district has received the forms, they should acknowledge this by signing one of the copies of the control list and returning to this distribution point.

The district office is then required to use existing means of distribution to ensure that each school receives copies of the form. Again it is recommended that the control list be signed to confirm receipt of the forms. District managers may consider using the proposed training sessions when heads of schools are all together, as opportunities for distributing the forms.

The remaining reserve of summary forms (i.e. 0.5%) should be kept at a central point for immediate delivery when unforeseen circumstances and mishaps occur.

Training in the completion of the summary forms
It is recommended that with the introduction of the new summary form, training is provided. This training should include the following aspects:
▼ Considering each question or section and how to fill it in. This may mean systematically working through the instructions or guidelines for completion.
▼ Identifying typical sources of data i.e. where to find the data.
▼ Stressing the importance of school based record-keeping.
▼ Ways in which the information will be utilised.
▼ Finding out what feedback principals require.
▼ People who can be consulted in case of problems or uncertainty.
▼ Suggestions about how schools can use the data in their management functions.
▼ Details for submitting the completed forms, including deadlines.

It is considered unnecessary to repeat this training every year, if principals are coping with the submission and the quality of the information provided is proving to be reliable.

However, when new schools begin to contribute to DEMMIS or when new heads of schools are appointed, training should be provided to this group.

Submission of the summary forms
The submission process needs to be carefully controlled and managed. It is suggested that as a school submits its completed summary form, it is marked off on the control sheet. The district office may be required to follow up and ensure the return of the summary forms on time. Schools may submit their forms at different times, but heads of schools should be encouraged to all meet the deadline.

When submitting the form the district office clerk should quickly scan and check the copy of the form submitted, asking the following questions:
▼ Is the return form complete with no gaps of missing data?
▼ Has the form been signed?
▼ Does the data appear to be correct?

In cases where there are gaps of missing data or if the filled-in data appears to be incorrect, the clerk should draw this to the head of school's attention and encourage the principal to rectify the discrepancy.

The district office should ensure that the submission of the form ties in with other visits to the district office. Schools should not necessarily be required to make a specific trip to the office to submit the form. The submission of the form should piggyback on other trips, such as collecting teachers' salaries, submission of other returns, attending meetings or workshops, or when district officers visit schools.

The district office clerk can prepare a schedule of submissions, detailing individual school returns, to provide to the district management team in order that they are kept informed of the submission of forms and they can assist in ensuring a 100% return.

Processing the summary forms
Processing survey forms is an important part of the entire operation because it takes 'data' collected by schools and turns it into 'information'. This is done by adding value to the data.

The availability of computers should not be considered a pre-requisite for the production of statistics or processing the data forms. Summaries can be prepared using paper or a chalkboard, and a pocket calculator, such as that in the photograph below.
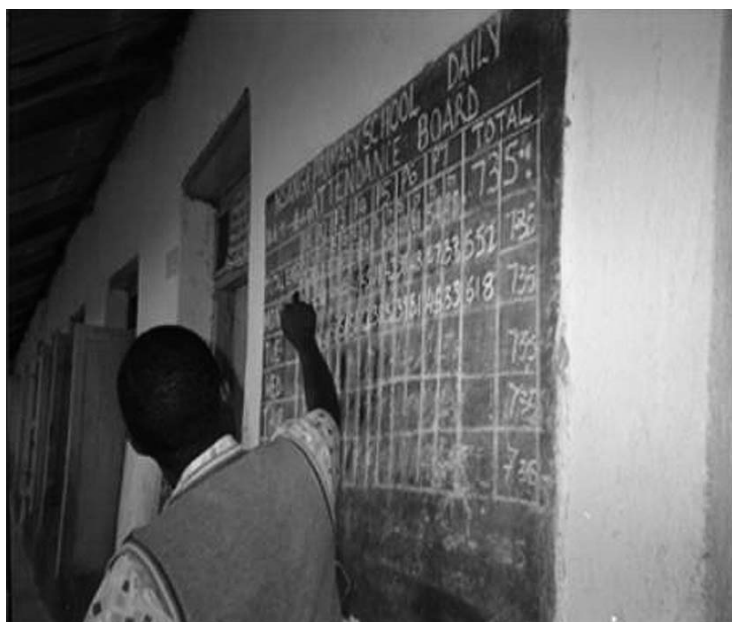
Source: Ministry of Education and Sports, Uganda.

The power of computers and their increasing ease-of-use have led to them being considered suitable tools for processing and analysing collected data. When considering the use of computers to assist with the capture of DEMMIS data, it is important to reflect on software applications that will be used. It is suggested that a standard software application that is readily available, and possibly the same as that being used for other EMIS applications, is used. It is important that within the Ministry's structures there are people with skills to utilise, manipulate and make any required changes to the computer application. A closed system that does not allow changes or requires external resources to make any modifications should be avoided.

When processing the data it is important to check that the data is being entered carefully, completely and accurately into the computer, or onto paper summaries.

Concerns of data quality, or areas of no response and frequency of submissions, should be documented as this will impact on the quality of analysis and reporting. Again the control list could be utilised to track such issues.

Data analysis, reporting and dissemination
At this stage the data collected is analytically treated to show indicators and trends of the various components of the education system. This usually includes comparisons of the data over time, for example, comparing the most recent data with data from previous months, or even previous years. Issues of gender impact can also be considered.

It should be noted that providing current accurate statistics on HIV and AIDS is inherently problematic, making it difficult for EMIS managers to report reliably on infection rates in the

education system and to respond satisfactorily to calls for such data. Statistics related to HIV and AIDS are in constant flux for several reasons:

▼ The epidemic is constituted by a rapidly transmitted virus so that the number of infected and suffering people changes daily

▼ There is a window period after a person is infected with the virus and before it is possible to diagnose them as infected

▼ A pupil's or employee's HIV status is a matter of confidentiality and subject to their self-disclosure

▼ Social stigma has led many people to withhold information about their HIV and AIDS status and decisions and/or actions they may have taken related to HIV and AIDS, such as pupils dropping-out of school or teachers and pupils being frequently absent

The argument for rigorously accurate and reliable statistics about HIV and AIDS in the education system, which is often used to undermine Ministries' strategic planning and detract from interventions, should not obstruct the more compelling task of understanding the epidemic in its various dimensions, grasping the management and planning implications for the education system, and responding with the tools such as DEMMIS.

Reporting is a decisive step in which the findings revealed by the analysis of data collected are analytically presented and shared with interested parties.

With DEMMIS, it is useful to prepare monthly reports that are shared with heads of schools and the district management team. However, there is great value in preparing a report that covers a period of time, for example a quarter or the duration of a school semester, and highlights changes over the period.

When preparing reports, it is important to consider the following points:

▼ The data should be summarised and reduced sufficiently so that it provides 'bite size' information for users to use and comprehend easily.

▼ Tables should be laid out clearly and consistently throughout a report.

▼ There should be appropriate use of diagrams, graphs and spatial analysis to that the report is easily understood and also pleasing to the eye.

▼ Graphics should only be used to illustrate or highlight an issue.

▼ The layout, style and use of graphics should all contribute to the value of the report. These elements should be used to best advantage to present the data.

▼ The report should highlight issues of data quality and the return rate of the forms.

▼ The initial draft of the report should be distributed for review amongst an appropriate panel of experts that is tasked to consider issues of misrepresentation, inconsistency or suggestions for improving the quality of the report.

For effective information dissemination, those analysing the information and preparing reports should ensure that the information is presented in a format that is easy to read, use, apply and interpret. This implies that clear unambiguous terms should be used, the methodology employed for calculations and analysis should be explained and any errors or reasons for possible misinterpretation should be mentioned openly. In order to improve information dissemination it is also critical that managers at different levels within the education system are provided with information that suits their requirements. This means that information products developed or analyses will have to be adapted to match the application of the information. If possible and practical, the information could also be shared electronically.

The sharing of information is important for the success of DEMMIS. Those investing time in contributing data on a regular basis should be rewarded with visible evidence of the data

being processed and how the information is being utilised. There needs to be a bidirectional flow of the information between the supplier of data and the user of information. Schools need feedback. Information dissemination plays a critical role in determining the accuracy of the next batches of data submitted and by sharing the information the value and importance of the data and information is highlighted.

Information is critical in determining policy and also monitoring the implementation thereof. It is therefore essential that information is fed back to policy makers, so that they can use the information for that specific purpose.

Documentation and filing

Often it is thought that once data has been fed into the computer, then that is it! However, it is important that the submissions be filed carefully and methodically, as they may be required for further reference at a later stage.

Monitoring and evaluation

Monitoring and evaluation should form a critical part of planning for and implementing DEMMIS. The monitoring and evaluation framework should:

▼ Provide information for constant review, redesign and improvement of the system.

▼ Problems or hindrances to successful implementation should be identified as early as possible in order that they can be addressed and corrected.

▼ Capture lessons learnt, and these should be fed back to assist with further implementation and review of the system.

▼ Consider issues of impact and provide evidence thereof.

In monitoring we should consider issues in ongoing activities and assess how progress is being achieved. So the real question for monitoring is 'What are we doing?' Evaluation refers to the periodic assessment of overall achievements and the questions that prompt responses in this instance are 'What have we achieved? What impact have we had?'

This section has considered, step-by-step, issues in implementing DEMMIS. It is imperative that a detailed and budgeted work plan, detailing these steps, be developed to guide the implementation.

This section is adapted from the MTT Monitoring and Evaluation Framework prepared by Patience Mukwashi.

7. CONDITIONS FOR SUCCESS

In reviewing the experiences of the DEMMIS pilot in KwaZulu-Natal and the implementation of general Education Management Information Systems (EMIS), some of the conditions for success should be considered.

▼ *An enabling environment* – A critical cornerstone for ensuring the success of DEMMIS implementation, which may require some changes, is the general political will of all involved. Schools must be willing to co-operate and provide data regularly, teachers within the school should be willing to play their part, district officers must understand what will be required of them and also the benefits they will reap. EMIS officers need to also understand and consider the benefits of DEMMIS. All will be required to work together in ensuring the success of DEMMIS. Central to creating and ensuring an enabling environment is a basic understanding of what the data is to be used for and also what value there is for individual managers and the education sector as a whole.

▼ *School record keeping* – Since DEMMIS is dependent on data from schools, it is important that the systems used to collect the required data elements are in place and effectively implemented. School level managers should be encouraged to implement and monitor the daily maintenance of records, and these should not be left to the last day of the

month. It is recommended that standardised forms are used in schools as this avoids any confusion and limits errors in reporting. DEMMIS is also there to strengthen record keeping.

▼ *Detailed working procedures and guidelines* – There needs to be clarity in terms of what is expected of various role-players. Within the bureaucracy of the education sector, persons at different levels rely on detailed working procedures and guidelines that describe their functions and responsibilities.

▼ *Archiving and filing* – At school and district office level it is important that effective filing systems are implemented and maintained. In seeking further clarity at a later stage it may be important to refer to the original documents and these should be easily accessed.

▼ *Accuracy and completeness of data* – Schools should be encouraged to provide accurate and detailed data. During training, these aspects should be highlighted. Before submitting the return, schools should check that, where relevant, number totals tally. Much time is lost following up on questions that have been inaccurately filled in or when returns are incomplete.

▼ *Information sharing* – It is critical that information is shared as soon as possible. This process has several benefits, amongst which, there is evidence that the quicker data can be processed and feedback received, the quicker is the value of DEMMIS more fully appreciated, and this assists with addressing issues of data quality.

8. CONCLUSION

As an education manager, at all the different levels within the sector, you can and should have access to more and better data from school and district level. The information is required on a more regular and systematic basis in order to begin to consider the impact of HIV and AIDS on the education system, in order to mitigate this very impact.

HIV and AIDS are now our constant companions, but education managers should be assured that impact can be mitigated through better management practices. Education managers, at all levels, have to be made aware of the management issues and be provided with the tools to derive the data they need, to take control and pursue with greater effectiveness what they are trained to do and the activities they are involved with on a daily basis. The DEMMIS pilot has confirmed the viability of systematizing routine data collection as a means to inform local level management of broad management issues and in addition generate key proxy indicators of HIV and AIDS impact.

9. REFERENCES

Badcock-Walters, PJ, Heard, W and Wilson DC (2002) 'Developing District-Level Early Warning and Decision Support System to Assist in Managing and Mitigating the Impact of HIV/AIDS on Education'. (Unpublished).

Crouch LA (1998) 'EMIS in perspective'. (Unpublished).

Heard W (2002) 'A response to the need for information at the local level of Management – DEMMIS 2001 Pilot, Dannhauser District'. (Unpublished).

Government of Zimbabwe, Ministry of Education, Sport and Culture (n.d.) 'District education management information system'. [n.p.]: Ministry of Education, Culture and Sport.

Heard W, Smart R, and Badcock-Walter PJ (2001) 'District Managers Resource Kit'. (Unpublished).

Kelly M (n.d.) [IIEP Planning book] Paris, IIEP, Unesco.

KwaZulu-Natal Department of Education and Culture (2003) 'KwaZulu-Natal DEMMIS monthly summary information (Form A)'. [n.p.]: KwaZulu-Natal Department of Education and Culture.

Mukwashi P (n.d.) 'MTT monitoring and evaluation framework'. (Unpublished).

National Education Statistical Information Systems (NESIS) and Ministry of Education in Ethiopia, EMIS (1995) A guiding manual on data collection. Paris: NESIS, Unesco.

Republic of Zambia, Ministry of Education. (2002) 'DEMMIS monthly summary information'. [n.p.]: Ministry of Education.

Annexure 1

Sample of the DEMMIS Summary Sheet – South Africa

Annexure 2

Sample of the DEMMIS Summary Sheet – Zambia

Annexure 3

Sample of the DEMMIS Summary Sheet – Zimbabwe

TO THE READER

We are interested to improve our publications to ensure they meet the needs of Ministries of Education in Africa.

If you have any comments and suggestions to share with us in that regard, please fill in the evaluation form on the publications webpage on our website: www.mtt.ix.co.za

We welcome your feedback

KwaZulu-Natal DEMMIS Monthly Summary Information (Form A)

School Name: _____

District _____ **Circuit** _____

Sample

Month: [_____]

EMIS Number: [_][_][_][_][_]

No. of school days this month: _____

KZNDEC Form
DEMMIS/A/2003

Learners

1 Learner Enrolment: (Total enrolment in all grades)

Male	
Female	
TOTAL	

2 Number of school DAYS attended by total number of learners

Male	
Female	
TOTAL	

3 Number of DAYS lost through learner absenteeism this month: (indicate the number of days) *

	Illness	Compassionate Reasons	Pregnancy	Transport problems	Unknown reason	TOTAL
Male						
Female						

4 Number of LEARNERS who left the school during this month: (indicate number of learners)

	Relocation	Financial reasons	Drop-out	Pregnancy	Orphaned	Offered employment	Expelled	Death	Unknown reason	TOTAL
Male										
Female										

5 Number of LEARNERS who entered the school during THIS month (new entrants):

Male	
Female	
TOTAL	

6 Number of LEARNERS who have been orphaned (lost a parent/guardian) during THIS month:

One parent/guardian	
Both parents/guardians	

7 Number of LEARNERS whose parents/guardians have been granted exemption from paying school fees THIS month:

Full exemption	
Partial exemption	
Conditional exemption	

Educators

8 State Paid Educators

Male	
Female	

9 Privately Paid Educators

Male	
Female	

10 Number of DAYS lost through State Paid Educators who were absent during this month: *

	Illness	Transport problems	Strike action	Unknown reason	TOTAL
Male					
Female					

* (indicate number of days per month)

11 Number of DAYS lost through State Paid Educators who took leave during this month: (indicate number of days per month)

	Sick leave	Accouchement/paternity	Compassionate leave	Urgent private affairs	Study leave	Long leave	Other	TOTAL
Male								
Female								

12 Number of State Paid EDUCATORS that left the school/resigned during this month: (indicate number of educators)

	Relocation	Transfer/promotion	Left the Department	Death	Retirement	Unknown reason	TOTAL
Male							
Female							

13 Number state-paid substitute educators provided:

Male	
Female	

State Paid Public Service Employees

14 State Paid Public Service Employees (Support Staff):

Male	
Female	

15 Number of DAYS lost through State Paid Public Service Employees (Support Staff) who were absent: *

	Illness	Transport problems	Strike action	Unknown reason	TOTAL
Male					
Female					

* (indicate number of days per month)

16 Number of DAYS lost through State Paid Public Service Employees (Support Staff) who took leave during this month: (indicate number of days per month)

	Sick leave	Accouchement/paternity	Compassionate leave	Urgent private affairs	Study leave	Long leave	Other	TOTAL
Male								
Female								

17 Number of State Paid Public Service EMPLOYEES (Support Staff) who left the school/resigned during this month: (indicate number of staff)

	Relocation	Transfer/promotion	Left the Department	Death	Retirement	Unknown reason	TOTAL
Male							
Female							

School Governing Body Members

18 School Governing Body (SGB) members who represent:

	Male	Female
Educators		
Non-Educator Staff		
Parents		
Learners		
Other		
TOTAL		

19 Meeting held this month? Yes [____] No [____]

20 If "yes", SGB members who missed the meeting held this month:

	Male	Female
Educators		
Non-Educator Staff		
Parents		
Learners		
Other		

21 School Governing Body members who left/resigned during this month:

	Male	Female
Educators		
Non-Educator Staff		
Parents		
Learners		
Other		
TOTAL		

School Stamp:

Declaration

By signing, I certify that the information provided in the DEMMIS MONTHLY SUMMARY IINFORMATION FORM (KZNDEC FORM DEMIS/A) is correct and complete to the best of my knowledge.

Principal: _____ / 2003

6. Number of pupils who were assisted/requiring assistance during this month

	BOYS				GIRLS				Total
	BEAM	Other	District Aids Fund	Awaiting	BEAM	Other	District Aids Fund	Awaiting	
Grade 1									
Grade 2									
Grade 3									
Grade 4									
Grade 5									
Grade 6									
Grade 7									
Special class									
Total									

7. Number of staff at the school this month	Teachers			Support Staff
	Trained	Untrained	Total	
Male				
Female				
Total				

8. Number of members of staff who left the school this month	Teachers			Support Staff		
	Male	Female	Total	Male	Female	Total
Death						
Resigned						
Dismissed						
Transfer/promotion						
Retired						
Retired on medical grounds						
Unknown reason						
Other						
Total						

9. Number of school days lost through staff absenteeism	Teachers			Support Staff		
	Male	Female	Total	Male	Female	Total
Illness						
Compassionate reason						
Transport problems						
Weather problems						
Strike action						
Attending Official Function						
Unknown reason						
Other						
Total						

10. Number of school days lost through staff who were on leave this month	Teachers			Support Staff		
	Male	Female	Total	Male	Female	Total
Vacation						
Sick						
Annual						
Special						
Without pay						
Urgent private affairs						
Other						
Total						

Declaration   By signing this, I certify that the information provided in the DEMIS Monthly Summary Form is correct and complete to the best of my knowledge.

Head

_____   _____   _____
Surname and Initials   Signature   Date

**Please complete this form within three working days after the last working day of the previous month.
Submit this copy of the form to the District Office and keep one copy of the form at school.**

Republic of Zambia
Ministry of Education

DEMMIS Monthly Summary Information

Sample

Month: _____

Term: | 1st | 2nd | 3rd |

School Name: _____

EMIS Number: | | | | | |

Province _____ **District** _____ **School Status** _____

Pupil Information

1. Pupil enrolment THIS month:

Boys	
Girls	
TOTAL	

2. Number of pupils who entered the school during THIS month: (new enrolments)

Boys	
Girls	
TOTAL	

3. Number of pupils who stopped school during THIS month:

	Boys	Girls	TOTAL
Relocation/Transfer/Move			
Financial reasons			
Expelled			
Suspension			
Desertion			
Orphaned			
Caring for the sick			
Pregnancy or causing Pregnancy			
Offered employment			
Death			
Illness			
Other			
TOTAL			

4. Number of pupils and school days lost through Absenteeism THIS month:

	Number of pupils			Number of school days		
	Boys	Girls	TOTAL	Boys	Girls	TOTAL
Illness						
Compassionate Reasons						
Pregnancy or causing Pregnancy						
Financial Reasons						
Transport Problems						
Weather Problems						
Other Reasons						
TOTAL						

5. Number of pupils who have been orphaned (lost a parent or guardian) THIS month:

	Boys	Girls	TOTAL
One Parent/guardian			
Both Parents/guardians			

6. Number of pupils who were granted bursary support during THIS month:

	Boys	Girls	TOTAL
New bursaries issued			

Teachers and Support Staff

7. Number of paid members of staff at school THIS month:

	Teachers			Support Staff		
	Male	Female	TOTAL	Male	Female	TOTAL
Staff Members						

8. Number of members of staff who left the school THIS month: Indicate number of STAFF MEMBERS

	Teachers			Support Staff		
	Male	Female	TOTAL	Male	Female	TOTAL
Death						
Resigned						
Dismissed						
Transfer/promotion within the Ministry						
Retired						
Unknown reason/Other						
TOTAL						

9. Number of staff absent and school days lost through absenteeism THIS month:

	Teachers						Support Staff					
	Number of Teachers			Number of school days			Number of Support Staff			Number of school days		
	Male	Female	TOTAL	Male	Female	TOTAL	Male	Female	TOTAL	Male	Female	TOTAL
Illness												
Compassionate Reasons												
Transport problems												
Weather problems												
Strike action												
Attending Official Function												
Unknown reasons/Other												
TOTAL												

10. Number of staff on leave and school days lost through leave THIS month:

	Teachers						Support Staff					
	Number of Teachers			Number of school days			Number of Support Staff			Number of school days		
	Male	Female	TOTAL	Male	Female	TOTAL	Male	Female	TOTAL	Male	Female	TOTAL
Approved sick leave												
Maternity leave												
Compassionate reasons												
Urgent private affairs												
Study Leave												
Long/extended leave												
TOTAL												

Declaration

By signing, I certify that the information provided in the DEMIS MONTHLY SUMMARY INFORMATION FORM is correct and complete to the best of my knowledge.

/ 2002

Head Teacher: _____ Please print Surname and Initials _____ Signature _____ Date _____

Government of Zimbabwe   **Ministry of Education Sport and Culture**

District Education Management Information System

Form 1: DEMIS Monthly Summary Form   **(to be filled in duplicate)**

School Name:.......................... Reg. No: ....   District: ....

Month:................... No. of schooldays in this month:............ Term:............... Year:..........

1. Pupil enrolment this month			
	Boys	Girls	Total
Grade 1			
Grade 2			
Grade 3			
Grade 4			
Grade 5			
Grade 6			
Grade 7			
Special class			
Total			

2. New enrolments this month			
	Boys	Girls	Total
Grade 1			
Grade 2			
Grade 3			
Grade 4			
Grade 5			
Grade 6			
Grade 7			
Special class			
Total			

3. Number of pupils who stopped school during this month

	Gr 1		Gr 2		Gr 3		Gr 4		Gr 5		Gr 6		Gr 7		Special Class		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Illness																	
Death																	
Orphaned																	
Caring for the sick																	
Child headed household																	
Pregnancy or causing pregnancy																	
Expelled, other than pregnancy																	
Relocation/transfer/move																	
Financial reason																	
Employment																	
Suspension																	
Desertion																	
Other reasons (specify)																	
Total																	

4. Number of school days lost through Absenteeism

No. of days	Gr 1		Gr 2		Gr 3		Gr 4		Gr 5		Gr 6		Gr 7		Special class		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Illness																	
Compassionate reasons																	
Pregnancy or causing pregnancy																	
Financial reasons																	
Transport problems																	
Weather problems																	
Other reasons (specify)																	
Total																	

5. Number of disadvantaged/vulnerable children

	Gr 1		Gr 2		Gr 3		Gr 4		Gr 5		Gr 6		Gr 7		Special class		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
One parent orphaned																	
Both parent orphaned																	
Neglected/abandoned																	
Sick parents																	
Sick pupil																	
Very poor parents																	
Child headed households																	
Other reasons (specify)																	
Total																	